AGENDA

CITY COUNCIL OF THE CITY OF MORENO VALLEY
MORENO VALLEY COMMUNITY SERVICES DISTRICT
CITY AS SUCCESSOR AGENCY FOR THE COMMUNITY REDEVELOPMENT AGENCY OF THE CITY OF MORENO VALLEY
MORENO VALLEY HOUSING AUTHORITY
BOARD OF LIBRARY TRUSTEES
PUBLIC FINANCING AUTHORITY

March 5, 2019

REGULAR MEETING – 6:00 PM
PUBLIC FINANCE AUTHORITY SPECIAL MEETING – 6:00 PM

City Council Study Sessions
Second Tuesday of each month – 6:00 p.m.

City Council Meetings
Special Presentations – 5:30 P.M.
First & Third Tuesday of each month – 6:00 p.m.

City Council Closed Session
Will be scheduled as needed at 4:30 p.m.

City Hall Council Chamber – 14177 Frederick Street

Upon request, this agenda will be made available in appropriate alternative formats to persons with disabilities, in compliance with the Americans with Disabilities Act of 1990. Any person with a disability who requires a modification or accommodation in order to participate in a meeting should direct such request to Guy Pegan, ADA Coordinator, at 951.413.3120 at least 72 hours before the meeting. The 72-hour notification will enable the City to make reasonable arrangements to ensure accessibility to this meeting.

Dr. Yxstian A. Gutierrez, Mayor

Victoria Baca, Mayor Pro Tem
Ulises Cabrera, Council Member
David Marquez, Council Member
Dr. Carla J. Thornton, Council Member

AGENDA
CITY COUNCIL OF THE CITY OF MORENO VALLEY
March 5, 2019

CALL TO ORDER - 5:30 PM

SPECIAL PRESENTATIONS

1. Proclamation Recognizing April as Senior Veterans' Month
2. Storm Ready City

AGENDA
JOINT MEETING OF THE
CITY COUNCIL OF THE CITY OF MORENO VALLEY
MORENO VALLEY COMMUNITY SERVICES DISTRICT
CITY AS SUCCESSOR AGENCY FOR THE
COMMUNITY REDEVELOPMENT AGENCY OF THE
CITY OF MORENO VALLEY
MORENO VALLEY HOUSING AUTHORITY
AND THE BOARD OF LIBRARY TRUSTEES
PUBLIC FINANCING AUTHORITY

THE CITY COUNCIL RECEIVES A SEPARATE STIPEND FOR CSD MEETINGS

REGULAR MEETING – 6:00 PM
PUBLIC FINANCING AUTHORITY SPECIAL MEETING – 6:00 PM
MARCH 5, 2019

CALL TO ORDER

Joint Meeting of the City Council, Community Services District, City as Successor Agency for the Community Redevelopment Agency, Housing Authority and the Board of Library Trustees - actions taken at the Joint Meeting are those of the Agency indicated on each Agenda item.

PLEDGE OF ALLEGIANCE

INVOCATION

Pastor Jeff White, Sandals Church

ROLL CALL

INTRODUCTIONS

PUBLIC COMMENTS ON MATTERS ON THE AGENDA WILL BE TAKEN UP AS THE ITEM IS CALLED FOR BUSINESS, BETWEEN STAFF'S REPORT AND CITY COUNCIL DELIBERATION (SPEAKER SLIPS MAY BE TURNED IN UNTIL THE ITEM IS CALLED FOR BUSINESS.)

PUBLIC COMMENTS ON ANY SUBJECT NOT ON THE AGENDA UNDER THE JURISDICTION OF THE CITY COUNCIL

Those wishing to speak should complete and submit a BLUE speaker slip to the Sergeant-at-Arms. There is a three-minute time limit per person. All remarks and questions shall be addressed to the presiding officer or to the City Council.

JOINT CONSENT CALENDARS (SECTIONS A-D)

All items listed under the Consent Calendars, Sections A, B, C, and D are considered to be routine and non-controversial, and may be enacted by one motion unless a member of the City Council, Community Services District, City as Successor Agency for the Community Redevelopment Agency, Housing Authority or the Board of Library Trustees requests that an item be removed for separate action. The motion to adopt the Consent Calendars is deemed to be a separate motion by each Agency and shall be so recorded by the City Clerk. Items withdrawn for report or discussion will be heard after public hearing items.

A. CONSENT CALENDAR-CITY COUNCIL

A.1. ORDINANCES - READING BY TITLE ONLY - THE MOTION TO ADOPT AN ORDINANCE LISTED ON THE CONSENT CALENDAR INCLUDES WAIVER OF FULL READING OF THE ORDINANCE.

Recommendation: Waive reading of all Ordinances.

A.2. MINUTES - CITY COUNCIL - CLOSED SESSION - FEB 19, 2019 4:30 PM

Recommendation: Approve as submitted.

A.3. APPOINT A VOTING DELEGATE AND ALTERNATE DELEGATE FOR THE SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS (SCAG) 2019 ANNUAL GENERAL ASSEMBLY (Report of: City Clerk)

Recommendation:

That the City Council:

1. Appoint a Delegate and an Alternate to the Southern California Association of Governments (SCAG) Annual General Assembly on May 2 – 3, 2019.

2. Direct staff to submit to the names to SCAG before the March 8, 2019 deadline.

A.4. LIST OF PERSONNEL CHANGES (Report of: Human Resources)

Recommendation:

1. Ratify the list of personnel changes as described.

A.5. MAYORAL APPOINTMENTS TO THE LIBRARY COMMISSION AND SENIOR CITIZENS' ADVISORY BOARD (Report of: City Clerk)

Recommendation:

1. Receive and confirm the Mayoral appointments as follows:

Library Commission

Name	Position	Term
Frances Hernandez	Member	Ending 06/30/20

Senior Citizens' Advisory Board

Name	Position	Term
Anna Christian	Member	Ending 06/30/20

Emerging Leaders Council (ELC)

Name	Position	Term
Kassandra Morin	Member	Ending 05/31/21

A.6. AUTHORIZATION TO AWARD CONSTRUCTION CONTRACT TO LEONIDA BUILDERS INC. FOR CYCLE 7 ADA PEDESTRIAN ACCESS RAMPS AND LIBERTY LANE IMPROVEMENTS - PROJECT NOS. 801 0074 & 801 0075 (Report of: Public Works)

Recommendations:

1. Award a construction contract to Leonida Builders Inc., 15821 Live Oaks Springs Canyon Road, Santa Clarita, CA 91387, for the Cycle 7 ADA Pedestrian Access Ramps & Liberty Lane Improvements.

2. Authorize the City Manager to execute a contract with Leonida Builders Inc. in substantial conformance with the attached contract.

3. Authorize the issuance of a Purchase Order for Leonida Builders Inc. in the amount of $616,550.00 ($560,500.00 bid amount plus 10% contingency) when the contract has been signed by all parties.

4. Authorize the Public Works Director/City Engineer to execute any subsequent related change orders to the contract, but not exceeding, the total contingency of $56,050.00 subject to the approval of the City Attorney.

5. Authorize the use of up to $40,000 from the Annual ADA Compliant Curb Ramps Project (801 0008).

A.7. TRACT 27251-1 – EXECUTE A QUITCLAIM DEED TRANSFERRING THE CITY'S TITLE INTEREST IN A STORM DRAIN EASEMENT TO THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT DEVELOPER - RSI MORENO VALLEY, LLC (Report of: Public Works)

Recommendations:

1. Authorize the City Manager to execute the Quitclaim Deed transferring all rights, title, and interest in and to the storm drain easement in Lot 5 recorded on Tract Map 27251-1, recorded in Map Book 325, Pages 83 through 86 inclusive, in the Official Records of Riverside County, California, to the Riverside County Flood Control and Water Conservation District.

2. Direct the City Clerk to forward the signed Quitclaim Deed to the Riverside County Flood Control and Water Conservation District for further processing and recordation.

A.8. PETCO FOUNDATION GRANT AWARD (Report of: Community Development)

Recommendations:

1. Receive and accept a grant award in the amount of $30,000 from the Petco Foundation for the purpose of enhancing the health of community pets by providing low to no-cost spay-neuter services, pet vaccinations and microchips to low income pet owners along with maintaining the success of the TNR (Trap-Neuter-Release) Program for the community and feral cat population.

2. Approve the revenue and expense budget adjustments in the amount of $30,000 as set forth in the Fiscal Impact section of this report.

A.9. Second Reading and Adoption for Ordinance No. ___ regarding Transportation Uniform Mitigation Fee (TUMF) (Report of: Community Development)

That the City Council conduct second reading by title only and adopt Ordinance No. XX

A.10. 2018 General Plan Annual Report (Report of: Community Development)

Recommendations: That the City Council:

1. **CERTIFY** that this action on the General Plan Annual Progress Report is exempt under the general rule provision allowed in Section 15061(b)(3) of the California Environmental Quality Act (CEQA) Guidelines.

2. **APPROVE** Resolution No. 2019-_____, approving the General Plan Annual Progress Report and directing staff to submit the report to the State Office of Planning and Research and the State Department of Housing and Community Development by April 1, 2019.

A.11. RECEIPT OF QUARTERLY INVESTMENT REPORT FOR THE QUARTER ENDED DECEMBER 31, 2018 (Report of: Financial & Management Services)

Recommendation:

1. Receive and file the Quarterly Investment Report for quarter ended December 31, 2018, in compliance with the City's Investment Policy.

B. CONSENT CALENDAR-COMMUNITY SERVICES DISTRICT

B.1. ORDINANCES - READING BY TITLE ONLY - THE MOTION TO ADOPT AN ORDINANCE LISTED ON THE CONSENT CALENDAR INCLUDES WAIVER OF FULL READING OF THE ORDINANCE.
Recommendation: Waive reading of all Ordinances.

B.2. MINUTES - CLOSED SESSION OF FEB 19, 2019 4:30 PM (See A.2)

Recommendation: Approve as submitted.

C. CONSENT CALENDAR - HOUSING AUTHORITY

C.1. ORDINANCES - READING BY TITLE ONLY - THE MOTION TO ADOPT AN ORDINANCE LISTED ON THE CONSENT CALENDAR INCLUDES WAIVER OF FULL READING OF THE ORDINANCE.
Recommendation: Waive reading of all Ordinances.

C.2. MINUTES - CLOSED SESSION OF FEB 19, 2019 4:30 PM (See A.2)

Recommendation: Approve as submitted.

D. CONSENT CALENDAR - BOARD OF LIBRARY TRUSTEES

D.1. ORDINANCES - READING BY TITLE ONLY - THE MOTION TO ADOPT AN ORDINANCE LISTED ON THE CONSENT CALENDAR INCLUDES WAIVER OF FULL READING OF THE ORDINANCE.
Recommendation: Waive reading of all Ordinances.

D.2. MINUTES - CLOSED SESSION OF FEB 19, 2019 4:30 PM (See A.2)

Recommendation: Approve as submitted.

E. CONSENT CALENDAR - PUBLIC FINANCING AUTHORITY

E.1. Consider a Resolution of the Public Financing Authority Setting the Regular Meeting Dates (Report of: City Clerk)

Recommendation: That the Public Finance Authority

Adopt a Resolution of the Moreno Valley Public Financing Authority Establishing New Regular Meeting Dates.

F. PUBLIC HEARINGS

Questions or comments from the public on a Public Hearing matter are limited to five minutes per individual and must pertain to the subject under consideration.

Those wishing to speak should complete and submit a GOLDENROD speaker slip to the Sergeant-at-Arms.

F.1. Proposed General Plan Amendment, Specific Plan Amendment, Change of Zone, Plot Plan for 112 residential units, and a Tentative Parcel Map 37514 for property at northeast corner Krameria Avenue and Lasselle Street (Report of: Community Development)

Recommendations: That the City Council:

1. **ADOPT** Resolution 2019-XX: A Resolution of the City Council of the City of Moreno Valley **CERTIFYING** that the Addendum to EIR 190 prepared for General Plan Amendment PEN18-0119, Specific Plan Amendment PEN18-0120, Zone Change PEN18-0121, Parcel Map PEN18-0090 and Plot Plan PEN18-0107 on file with the Community Development Department, incorporated herein by this reference, has been completed in compliance with the California Environmental Quality Act, that the City Council reviewed and considered the information contained in the Addendum and that the document reflects the City's independent judgment and analysis and **ADOPTING** the Mitigation Monitoring Program prepared for Parcel Map PEN18-0090 and Plot Plan PEN18-0107; and

2. **ADOPT** Resolution 2019-XX: A Resolution of the City Council of the City of Moreno Valley approving General Plan Amendment application PEN18-0119 to change the land use designation for a portion of the site from Residential 20 to Commercial; and

3. **INTRODUCE** and conduct the first reading by title only of Ordinance No. 2019-XX, approving a Specific Plan Amendment (PEN18-0120) from High Density Residential to Neighborhood Commercial and Medium High Density Residential for the areas described in the Ordinance, based on the findings contained in the Ordinance, and as shown on the attachment included as Exhibit A; and

4. **INTRODUCE** and conduct the first reading by title only of Ordinance No. 2019-XX, approving a Zone Change (PEN18-0121) from High Density Residential to Neighborhood Commercial and Medium High Density Residential for the areas described in the Ordinance, based on the findings contained in the Ordinance, and the revised Zoning Atlas; and

5. **ADOPT** Resolution No. 2019-XX, A Resolution of the City Council of the City of Moreno Valley approving Tentative Parcel Map application PEN18-0090 based on the findings contained in this resolution, and subject to the conditions of approval included as Exhibit A; and

6. **ADOPT** Resolution No. 2019-XX, A Resolution of the City Council of the City of Moreno Valley approving Plot Plan application PEN18-0107 based on the findings contained in this resolution, and subject to the conditions of approval included as Exhibit A; and

7. **SCHEDULE** the second reading and adoption of Ordinance ___ and Ordinance ___ for the next regular City Council meeting.

G. ITEMS REMOVED FROM CONSENT CALENDARS FOR DISCUSSION OR SEPARATE ACTION

H. GENERAL BUSINESS

H.1. FISCAL YEAR 2018/19 MID-YEAR BUDGET REVIEW AND APPROVAL OF THE FISCAL YEAR 2018/19 MID-YEAR BUDGET AMENDMENTS (Report of: Financial & Management Services)

Recommendations: That the City Council:

1. Receive and file the Fiscal Year 2018/19 Mid-Year Budget Review. (Attachment 1)

2. Adopt Resolution No. 2019-XX. A resolution of the City Council of the City of Moreno Valley, California, adopting the revised operating and capital budgets for Fiscal Year (FY) 2018/19.

3. Approve the revised City Position Summary. (Attachment 5)

4. Approve the Job Class Specifications for the Fleet & Facilities Maintenance Supervisor.

Recommendation: That the CSD:

1. Adopt Resolution No. CSD 2019-XX. A resolution of the Moreno Valley Community Services District of the City of Moreno Valley, California, adopting the revised operating and capital budget for FY 2018/19.

I. REPORTS

I.1. CITY COUNCIL REPORTS

(Informational Oral Presentation - not for Council action)

March Joint Powers Commission (JPC)

Riverside County Habitat Conservation Agency (RCHCA)

Riverside County Transportation Commission (RCTC)

Riverside Transit Agency (RTA)

Western Riverside Council of Governments (WRCOG)

Western Riverside County Regional Conservation Authority (RCA)

School District/City Joint Task Force

I.2. CITY MANAGER'S REPORT

(Informational Oral Presentation - not for Council action)

I.3. CITY ATTORNEY'S REPORT

(Informational Oral Presentation - not for Council action)

CLOSING COMMENTS AND/OR REPORTS OF THE CITY COUNCIL, COMMUNITY SERVICES DISTRICT, CITY AS SUCCESSOR AGENCY FOR THE COMMUNITY REDEVELOPMENT AGENCY, HOUSING AUTHORITY AND THE BOARD OF LIBRARY TRUSTEES.

ADJOURNMENT

PUBLIC INSPECTION

The contents of the agenda packet are available for public inspection on the City's website at www.moval.org and in the City Clerk's office at 14177 Frederick Street during normal business hours.

Any written information related to an open session agenda item that is known by the City to have been distributed to all or a majority of the City Council less than 72 hours prior to this meeting will be made available for public inspection on the City's website at www.moval.org and in the City Clerk's office at 14177 Frederick Street during normal business hours.

CERTIFICATION

I, Pat Jacquez-Nares, City Clerk of the City of Moreno Valley, California, certify that 72 hours prior to this Regular Meeting, the City Council Agenda was posted on the City's website at: www.moval.org and in the following three public places pursuant to City of Moreno Valley Resolution No. 2007-40:

City Hall, City of Moreno Valley
14177 Frederick Street

Moreno Valley Library
25480 Alessandro Boulevard

Moreno Valley Senior/Community Center
25075 Fir Avenue

Pat Jacquez-Nares, CMC & CERA
City Clerk

Date Posted: February 28, 2019

TO:

FROM: Pat Jacquez-Nares, City Clerk

AGENDA DATE: March 5, 2019

TITLE: PROCLAMATION RECOGNIZING APRIL AS SENIOR VETERANS' MONTH

RECOMMENDED ACTION

CITY COUNCIL GOALS

None

CITY COUNCIL STRATEGIC PRIORITIES

1. **Economic Development**
2. **Public Safety**
3. **Library**
4. **Infrastructure**
5. **Beautification, Community Engagement, and Quality of Life**
6. **Youth Programs**

ATTACHMENTS

None

APPROVALS

TO:

FROM: Pat Jacquez-Nares, City Clerk

AGENDA DATE: March 5, 2019

TITLE: STORM READY CITY

RECOMMENDED ACTION

CITY COUNCIL GOALS

None

CITY COUNCIL STRATEGIC PRIORITIES

1. **Economic Development**
2. **Public Safety**
3. **Library**
4. **Infrastructure**
5. **Beautification, Community Engagement, and Quality of Life**
6. **Youth Programs**

ATTACHMENTS

None

APPROVALS

MINUTES
JOINT MEETING OF THE
CITY COUNCIL OF THE CITY OF MORENO VALLEY
MORENO VALLEY COMMUNITY SERVICES DISTRICT
CITY AS SUCCESSOR AGENCY FOR THE
COMMUNITY REDEVELOPMENT AGENCY OF THE
CITY OF MORENO VALLEY
MORENO VALLEY HOUSING AUTHORITY
BOARD OF LIBRARY TRUSTEES

CLOSED SESSION – 4:30 PM
February 19, 2019

CALL TO ORDER

The Closed Session of the City Council of the City of Moreno Valley, Moreno Valley Community Services District, City as Successor Agency for the Community Redevelopment Agency of the City of Moreno Valley, and Housing Authority was called to order at 4:32 p.m. by Mayor Gutierrez in the Council Chamber located at 14177 Frederick Street, Moreno Valley, California.

Mayor Gutierrez announced that the City Council receives a separate stipend for CSD meetings.

ROLL CALL

Council:	Dr. Yxstian A. Gutierrez	Mayor
	Victoria Baca	Mayor Pro Tem
	David Marquez	Council Member
	Ulises Cabrera	Council Member
	Dr. Carla J. Thornton	Council Member

PUBLIC COMMENTS ON MATTERS ON THE AGENDA ONLY

Mayor Gutierrez opened the public comments portion of the meeting for items listed on the agenda only, which was received from Rafael Brugueras (Supports Item No. 2).

CLOSED SESSION

City Attorney Koczanowicz announced that the City Council would recess to Closed Session to discuss the items as listed on the agenda and that staff did not anticipate any reportable action.

The Closed Session will be held pursuant to Government Code:

1 GOVERNMENT CODE SECTION 54956.9(d)

CONFERENCE WITH LEGAL COUNSEL POTENTIAL LITIGATION (3 CASES)

2 GOVERNMENT CODE SECTION 54957

Public Employee Annual Performance Evaluation

Position:

A. City Manager
B. City Attorney

Mayor Gutierrez recessed the Council to the City Manager's Conference Room, second floor, City Hall, for their Closed Session at 4:37 p.m.

Mayor Gutierrez reconvened the City Council in the Council Chamber from their Closed Session at 5:33 p.m.

REPORT OF ACTION FROM CLOSED SESSION, IF ANY, BY CITY ATTORNEY

City Attorney Kocazanowicz announced there was no reportable action taken in Closed Session.

ADJOURNMENT

There being no further business to come before the City Council, Mayor Gutierrez adjourned the Closed Session at 5:34 p.m.

Submitted by:

_____

Pat Jacquez-Nares, CMC & CERA
City Clerk
Secretary, Moreno Valley Community Services District
Secretary, City as Successor Agency for the Community Redevelopment Agency of the City of Moreno Valley
Secretary, Moreno Valley Housing Authority
Secretary, Board of Library Trustees

Approved by:

_____

Dr. Yxstian A. Gutierrez
Mayor
City of Moreno Valley
President, Moreno Valley Community Services District
Chairperson, City as Successor Agency for the Community Redevelopment Agency of the City of Moreno Valley
Chairperson, Moreno Valley Housing Authority
Chairperson, Board of Library Trustees

Report to City Council

TO:	Mayor and City Council
FROM:	Pat Jacquez-Nares, City Clerk
AGENDA DATE:	March 5, 2019
TITLE:	APPOINT A VOTING DELEGATE AND ALTERNATE DELEGATE FOR THE SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS (SCAG) 2019 ANNUAL GENERAL ASSEMBLY

RECOMMENDED ACTION

Recommendation:

That the City Council:

1. Appoint a Delegate and an Alternate to the Southern California Association of Governments (SCAG) Annual General Assembly on May 2 – 3, 2019.

2. Direct staff to submit to the names to SCAG before the March 8, 2019 deadline.

SUMMARY/DISCUSSION

The Southern California Association of Governments (SCAG) 2019 Regional Conference and General Assembly is scheduled for Thursday, May 2 and Friday May 3, 2019 at the JW Marriott Resort & Spa in Palm Desert, California. At this meeting, the SCAG membership will consider and take action on resolutions and/or bylaws that establish SCAG policy.

An important part of the Regional Conference is the conducting of the Annual Business at the General Assembly. The City must designate a voting delegate and an alternate, one of whom may vote in the event that the designated voting delegate is unable to serve. Designation of a voting delegate must be done by City Council action.

SCAG has requested attending cities to submit before Friday, March 8, 2019, a Minute Excerpt of the Council action appointing the City's voting delegate and alternate. SCAG

will provide the voting delegate a complimentary one-night hotel accommodation for the night of May 2, 2019, validated overnight parking, and meals during the conference.

Staff recommends that Council by motion vote to appoint a delegate and an alternate.

FISCAL IMPACT

The fiscal impact for this SCAG is unknown at this time. The total City Council training and travel budget (1010-10-01-10010-620510) for FY 2018/19 is $12,100.

NOTIFICATION

Publication of the agenda.

PREPARATION OF STAFF REPORT

Prepared By:
Pat Jacquez-Nares
City Clerk

Department Head Approval:
Pat Jacquez-Nares
City Clerk

CITY COUNCIL GOALS

Advocacy. Develop cooperative intergovernmental relationships and be a forceful advocate of City policies, objectives, and goals to appropriate external governments, agencies and corporations.

CITY COUNCIL STRATEGIC PRIORITIES

1. **Economic Development**
2. **Public Safety**
3. **Library**
4. **Infrastructure**
5. **Beautification, Community Engagement, and Quality of Life**
6. **Youth Programs**

ATTACHMENTS

None

APPROVALS

Budget Officer Approval	✓ Approved	2/27/19 1:34 PM
City Attorney Approval	✓ Approved	2/26/19 3:16 PM
City Manager Approval	✓ Approved	2/27/19 1:36 PM

Report to City Council

TO: Mayor and City Council

FROM: Kathleen Sanchez, Human Resources Director

AGENDA DATE: March 5, 2019

TITLE: LIST OF PERSONNEL CHANGES

RECOMMENDED ACTION

Recommendation:

1. Ratify the list of personnel changes as described.

DISCUSSION

The attached list of personnel changes scheduled since the last City Council meeting is presented for City Council ratification.

Staffing of City positions ensures assignment of highly qualified and trained personnel to achieve Momentum MoVal priorities, objectives and initiatives.

FISCAL IMPACT

All position changes are consistent with appropriations previously approved by the City Council.

PREPARATION OF STAFF REPORT

Prepared By:
Denise Hansen
Executive Assistant

Department Head Approval:
Kathleen M. Sanchez
Human Resources Director

CITY COUNCIL GOALS

None

CITY COUNCIL STRATEGIC PRIORITIES

1. **Economic Development**
2. **Public Safety**
3. **Library**
4. **Infrastructure**
5. **Beautification, Community Engagement, and Quality of Life**
6. **Youth Programs**

ATTACHMENTS

1. Personnel Changes - 3.5.19

APPROVALS

Budget Officer Approval	✓ Approved	2/21/19 12:16 PM
City Attorney Approval	✓ Approved	2/25/19 1:08 PM
City Manager Approval	✓ Approved	2/26/19 6:11 PM

City of Moreno Valley
Personnel Changes
March 5, 2019

New Hires

Serina Astorga, Recreation Program Leader
Parks & Community Services Department/Community Services Division

Jessica Lambarena, Administrative Assistant
City Council Office

Zoila Luna, Administrative Assistant
City Council Office

Sean Kelleher, Senior Planner
Community Development Department/Planning Division

Promotions

None

Transfers

None

Separations

Angie Garcia, Senior Administrative Assistant
Fire Department/Office of Emergency Management

Report to City Council

TO: Mayor and City Council

FROM: Pat Jacquez-Nares, City Clerk

AGENDA DATE: March 5, 2019

TITLE: MAYORAL APPOINTMENTS TO THE LIBRARY COMMISSION, SENIOR CITIZENS' ADVISORY BOARD, AND EMERGING LEADERS COUNCIL

RECOMMENDED ACTION

Recommendation:

1. Receive and confirm the Mayoral appointments as follows:

Library Commission

Name	Position	Term
Frances Hernandez	Member	Ending 06/30/20

Senior Citizens' Advisory Board

Name	Position	Term
Anna Christian	Member	Ending 06/30/20

Emerging Leaders Council (ELC)

Name	Position	Term
Kassandra Morin	Member	Ending 05/31/21

CITY COUNCIL GOALS

Advocacy. Develop cooperative intergovernmental relationships and be a forceful advocate of City policies, objectives, and goals to appropriate external governments, agencies and corporations.

CITY COUNCIL STRATEGIC PRIORITIES

1. **Economic Development**
2. **Public Safety**
3. **Library**
4. **Infrastructure**
5. **Beautification, Community Engagement, and Quality of Life**
6. **Youth Programs**

ATTACHMENTS

1. FrancesHernandez_Redacted
2. Anna Christian_Redacted
3. Kassandra Morin_Redacted

APPROVALS

Budget Officer Approval	✓ Approved
City Attorney Approval	✓ Approved
City Manager Approval	✓ Approved

CITY CLERK
MORENO VALLEY
RECEIVED
18 DEC 17 PM 4:46
For City Clerk's Use
Stamp Date and Time Received

City of Moreno Valley

Boards and Commissions

Membership Application Form

Name: Frances Hernandez

Home Address: [redacted]
Moreno Valley, CA 92557

How long have you resided in Moreno Valley? 22 years

CONFIDENTIAL INFORMATION

Home Phone No.: _____
Work Phone No.: [redacted]
Cell Phone No.: [redacted]
Driver's License No.: [redacted]
Email Address: [redacted]
Date of Birth: [redacted]

Employer Name: County of Riverside- RUHS Position: Telephone Operator
Address: 26520 Cactus Ave
Moreno Valley, CA 92555

Board or Commission applying for*: 1st Choice Library Commission
2nd Choice Arts Commission

*If applying for the Accessibility Appeals Board, please indicate which position you are applying for:
☐ Physically Challenged Person ☐ Person Experienced in Construction ☐ Public Member

*If applying for the Utilities Commission, please indicate which position you are applying for:
☐ Public Member ☐ Customer of Moreno Valley Utility ☐ Business Customer of Moreno Valley Utility

Why do you wish to serve on this Board and/or Commission?
I want to serve on this commission because I am a firm believer that literacy is the foundation of all learning and what better place for that than the library. commission.

List any education, training, or special skills, you have which may be relevant or of particular benefit to this Board and/or Commission:
I have a broad background with many skills & knowledge that I know will be a benefit to this commission.

Explain briefly your understanding of what this Board and/or Commission does, including its powers and limitations.
The library Commission provides input and recommendations regarding the development, implementation and maintenance of the city's library programs & services.

What do you hope to accomplish by your participation?
Thru my participation I hope to encourage all to read & visit the library & see all that it has to offer.

List any employment, volunteer work, or membership in a service/community organization that you have served on, or are now a member of. Please provide the name(s) of the agency (ies), contact person, and dates served:

County of Riverside - RUHS - Jane Creeden - 3-2016 - to present ~ 951-486-59
County of Riverside - DPSS - Ishmael Medina - 9-2014 to 4-2015
County of Riverside - DPSS - Terrye Mosby - 6-2013 to 6-2014

What other areas of interest do you have in our City government?

Would you be available for meetings during the day ■ or evening? ■

Attendance of at least one (1) meeting is required prior to the appointment.
Date(s) of the meeting(s) attended: 12-20-18

Pursuant to Resolution 2016-42 all board and commission members must be registered voters of the City of Moreno Valley.

I authorize the City of Moreno Valley to obtain and review, on a confidential basis, such information regarding me as may be contained in the California State Summary Criminal History and in records of the California Department of Motor Vehicles. Yes ■ No ☐ (The application shall not be considered if the NO box is checked.)

I hereby agree to attend all board or commission meetings, unless excused, and understand that I may be removed for lack of attendance, pursuant to Municipal Code, Subsection 2.06.010(C) which states, "If a member is absent without advance permission of the board or commission or of the appointing authority, from three consecutive regular meetings or from 25% of the duly scheduled meetings of the board or commission within any fiscal year, the membership shall thereupon become vacant and shall be filled as any other vacancy."

CERTIFICATE OF APPLICANT: I certify that all statements in this application are true and complete to the best of my knowledge. I understand that any false statements of material fact will subject me to disqualification or dismissal if appointed. I release the City of Moreno Valley from any liability for the use of the aforesaid information.

[redacted]

12/17/2018
Date

Please Note: Applications will be kept on file for potential future vacancies for one year after the application submittal date. Applications are accepted year-round. All applications are public record; personal information may be redacted to protect applicants' privacy.

Revised December 6, 2017

CITY CLERK
MORENO VALLEY
RECEIVED
18 JUL 13 PM 12:39
For City Clerk's Use
Stamp Date and Time Received

City of Moreno Valley

Boards and Commissions

Membership Application Form

Name: Anna Christian

Home Address: [redacted] - M.V. 92555

How long have you resided in Moreno Valley? 18 years

CONFIDENTIAL INFORMATION

Home Phone No.: [redacted]
Work Phone No.:
Cell Phone No.: [redacted]
Driver's License No.: [redacted]
Email Address: [redacted]
Date of Birth: [redacted]

Employer Name: Retired from MVUSD Position: Language Arts Teacher
Address:

Board or Commission applying for*: 1st Choice Senior Citizen Advisory Board
2nd Choice Library Commission

*If applying for the Accessibility Appeals Board, please indicate which position you are applying for:
☐ Physically Challenged Person ☐ Person Experienced in Construction ☐ Public Member

*If applying for the Utilities Commission, please indicate which position you are applying for:
☐ Public Member ☐ Customer of Moreno Valley Utility ☐ Business Customer of Moreno Valley Utility

Why do you wish to serve on this Board and/or Commission?

I have been active at the Senior Citizen, Teaching the Creative Writing/ Life story class for Ten years and I have been active in the Guitar Class I would like to serve on the Advisory Bd. because I believe I can bring insight in

List any education, training, or special skills, you have which may be relevant or of particular benefit to this Board and/or Commission:

I have an M.A. from CSUA, Taught Language Arts and English at MVUSD + English at R.C. Presently I facilitate the Creative Writing/Life Story class at the Sr. Center + have been for 10 years. Active at the Center for 10 yea

Explain briefly your understanding of what this Board and/or Commission does, including its powers and limitations.

The Senior Advisory Committee, as I understand it, is to address the needs of the community, to provide classes and activities that will enhance the growth, elevate the public's awareness of the Center, To bring resources, and to inform & represent the Center to the public

What do you hope to accomplish by your participation?

I hope I can be an asset to the Boards, utilizing my skills as an educator, a writer and my willingness to listen to the citizens + to see that the Center become a welcoming place for all seniors

Attachment: Anna Christian_Redacted (3455 : MAYORAL APPOINTMENTS)

List any employment, volunteer work, or membership in a service/community organization that you have served on, or are now a member of. Please provide the name(s) of the agency (ies), contact person, and dates served:

I am a member of Quinn Community Outreach as a Lay Health Advisor for the WiTness Project (Breast Cancer Awareness + Education) Participator in Organizing the Black History + Juneteeth Celebrations at the Center for three years and as mentioned above I have Taught The Creative Writing/life Story class + We have published Two Anthologies - Aged To Perfection Vol. 1 & 2

What other areas of interest do you have in our City government?

I am interested in the Arts program; To bring more cultural programs to the city recognizing the city's diverse population.

Would you be available for meetings during the day ☒ or evening? ☒ both

Attendance of at least one (1) meeting is required prior to the appointment.
Date(s) of the meeting(s) attended: Library Commission (1/9 2017) Arts Commission 2/2 201

Pursuant to Resolution 2016-42 all board and commission members must be registered voters of the City of Moreno Valley.

I authorize the City of Moreno Valley to obtain and review, on a confidential basis, such information regarding me as may be contained in the California State Summary Criminal History and in records of the California Department of Motor Vehicles. Yes ☒ No ☐ (The application shall not be considered if the NO box is checked.)

I hereby agree to attend all board or commission meetings, unless excused, and understand that I may be removed for lack of attendance, pursuant to Municipal Code, Subsection 2.06.010(C) which states, "If a member is absent without advance permission of the board or commission or of the appointing authority, from three consecutive regular meetings or from 25% of the duly scheduled meetings of the board or commission within any fiscal year, the membership shall thereupon become vacant and shall be filled as any other vacancy."

CERTIFICATE OF APPLICANT: I certify that all statements in this application are true and complete to the best of my knowledge. I understand that any false statements of material fact will subject me to disqualification or dismissal if appointed. I release the City of Moreno Valley from any liability for the use of the aforesaid information.

[redacted]
Signature

7/13/18
Date

Please Note: Applications will be kept on file for potential future vacancies for one year after the application submittal date. Applications are accepted year-round. All applications are public record; personal information may be redacted to protect applicants' privacy.

Revised December 6, 2017

City of Moreno Valley

EMERGING LEADERS COUNCIL

Membership Application Form

Received City Clerk's Office Stamp Date and Time

The purpose of the Emerging Leaders Council (ELC) is to identify college or high school students with a desire and potential to become community leaders, educate and engage young adults in local government, and focus efforts on service to the Moreno Valley community. The Emerging Leaders Council was established as a standing committee with two-year terms by Resolution 2014-30. The attached Resolution No. 2015-31 modifies the existing provisions governing the Emerging Leaders Council.

Meeting Schedule: Fourth Monday of each month at 6:00 p.m., City Hall - Council Chamber, 14177 Frederick Street

Qualifications include: Moreno Valley residency, enrollment in high school or college, must be between the ages of 17 and 25. Please attach at least one letter of recommendation/reference.

Name: Kassandra Morin

Home Address: [redacted]

Moreno Valley, CA 92555

CONFIDENTIAL INFORMATION

Home Phone No.: [redacted]
Work Phone No.: [redacted]
Cell Phone No.: [redacted]

E-mail Address: [redacted]
Date of Birth: [redacted]

College or High School: California Baptist University

Major: Pre-Nursing

Why do you want to serve on the City's Emerging Leaders Council?

I want to serve on the City's Emerging Leaders Council because I have a desire to serve my community.

If selected to serve on the Emerging Leaders Council, what do you believe you would be able to contribute to the ELC and your community? In what way(s) are you an "emerging leader"?

I can provide a perspective from the eyes of a young adult who strives to serve others in a variety of ways to benefit the community.

List any volunteer work that you have performed. Please provide the name(s) of the organization(s) and dates served:

Destiny Hospice (2018- current), Kaiser Permanente (current), Vista Heights Middle School (2014-2018), Canyon Springs High School (2014 - 2018)

How would you define Moreno Valley's strengths? Weaknesses? Why?

Moreno Valley has a resilient set of community members who want the city to thrive. A weakness is not a lot of individuals are aware of local events.

Briefly explain your understanding of the functions of municipal government.

A municipal government is a local authority figure which provide and determine actions for their area.

Do you have any experience chairing and/or participating in meetings that are regulated by the Brown Act?

Yes, I do.

What do you hope to accomplish by your participation on the Emerging Leaders Council? How will your participation enhance your future goals and objectives?

I hope to be able to contribute positively to my community and become a more active member.

Are you able to commit to participating in one meeting per month? Each meeting can last approximately two hours. Yes ☑ No ☐

Do you have any means of transportation to arrive to meetings on time? Yes ☑ No ☐

Have you ever been removed or asked to resign from a job or volunteer position?

Yes ☐ No ☑

May we contact the person who wrote your letter of recommendation? Yes ☑ No ☐

I hereby authorize that the City of Moreno Valley may obtain and review, on a confidential basis, such information regarding me as may be contained in the California State Summary Criminal History and in records of the California Department of Motor Vehicles. (Yes) No

Pursuant to Resolution 2016-42 all board, commission, or council members must be registered voters of the City of Moreno Valley, provided they are at least 18 years old.

I hereby agree to attend all Board meetings, unless excused, and understand that I may be removed for lack of attendance, pursuant to Municipal Code, Subsection 2.06.010(C) which states,

"If a member is absent without advance permission of the board or commission or the appointing authority from three consecutive regular meetings or from 25% of the duly scheduled meetings of the board or commission within any fiscal year, the membership shall thereupon become vacant and shall be filled as any other vacancy."

CERTIFICATE OF APPLICANT: I certify that all statements in this application are true and complete to the best of my knowledge. I understand that any false statements of material fact will subject me to disqualification or dismissal if appointed. I release the City of Moreno Valley from any liability for the use of the aforesaid information.

[redacted]
Signature

2/23/19
Date

Please Note: Applications will be kept on file for potential future vacancies for one year after the application submittal date. Applications are accepted year-round. All applications are public record; personal information may be redacted to protect applicants' privacy.

CA-871 AFJROTC OPERATIONS GROUP
Canyon Springs High School
23100 Cougar Canyon DR
Moreno Valley, CA 92557

20 February, 2019

To Whom It May Concern:

I am delighted to recommend Kassandra Morin to renew her seat on the Emerging Leaders Council as she is an excellent candidate. I have known Kassandra for more than five years. As her high school JROTC instructor, I worked very closely with Kassandra on a daily basis during her four years in our program. Kassandra's strong leadership qualities and dedication to serving others landed her the Group Commander position which is the single highest rank within JROTC.

In her Group Commander position, I observed Kassandra exemplifying phenomenal leadership skills while challenging and motivating our unit of 130 cadets. She is well organized, hard working and self-disciplined. Her leadership style is compassionate yet firm. Kassandra was a highly decorated cadet in the unit, earning prestigious national awards such as the Military Order of World Wars, National Sojourners and the Air Force Association. She planned and executed numerous fundraisers and community service events, accumulating more than $15,000 and over 400 community service hours during her tenure. In 2016, she received the Gold Presidential Award for community service.

Kassandra continues to demonstrate her strong work ethic and desire to help others. She donates countless hours of her time to spend with patients at Destiny Hospice and also volunteers weekly in the nursing units at Kaiser Permanente Care Ambassador. She thrives as a volunteer while maintaining a full time position at the Cupcake Espresso Bar and taking a full load of courses at California Baptist University in their rigorous Nursing Program. Her academic credentials and campus involvement have always been impressive. Kassandra currently holds a 3.5 G.P.A. while tackling the most difficult courses. In addition to ROTC, she held leadership positions in multiple organizations on campus and is truly an asset to any organization she leads or is a part of.

In summary, Kassandra is a dynamic, altruistic young woman with the tools, talent, and drive to tackle any challenge she is presented with. It is without hesitation that I heartily recommend you consider her application to the fullest extent possible. Should you have any questions please feel free to contact me.

Sincerely,

[redacted]
Joshua C. James, Maj, USAF (Ret)
Senior Aerospace Science Instructor
[redacted]

Report to City Council

TO:	Mayor and City Council
FROM:	Michael L. Wolfe, P.E., Public Works Director/City Engineer
AGENDA DATE:	March 5, 2019
TITLE:	AUTHORIZATION TO AWARD CONSTRUCTION CONTRACT TO LEONIDA BUILDERS INC. FOR CYCLE 7 ADA PEDESTRIAN ACCESS RAMPS AND LIBERTY LANE IMPROVEMENTS - PROJECT NOS. 801 0074 & 801 0075

RECOMMENDED ACTION

Recommendations:

1. Award a construction contract to Leonida Builders Inc., 15821 Live Oaks Springs Canyon Road, Santa Clarita, CA 91387, for the Cycle 7 ADA Pedestrian Access Ramps & Liberty Lane Improvements.

2. Authorize the City Manager to execute a contract with Leonida Builders Inc. in substantial conformance with the attached contract.

3. Authorize the issuance of a Purchase Order for Leonida Builders Inc. in the amount of $616,550.00 ($560,500.00 bid amount plus 10% contingency) when the contract has been signed by all parties.

4. Authorize the Public Works Director/City Engineer to execute any subsequent related change orders to the contract, but not exceeding, the total contingency of $56,050.00 subject to the approval of the City Attorney.

5. Authorize the use of up to $40,000 from the Annual ADA Compliant Curb Ramps Project (801 0008).

SUMMARY

This report recommends approval of a contract with Leonida Builders Inc. for the construction of the Cycle 7 ADA Pedestrian Access Ramps and Liberty Lane Improvements projects. These projects are funded by Community Development Block

Grant (CDBG) funds. These improvements are consistent with the City Council's Momentum MoVal Strategic Plan and have been approved in the Fiscal Year 2017/18 and 2018/19 Capital Improvement Plan (CIP).

DISCUSSION

The Cycle 7 ADA Pedestrian Access Ramps project involves the removal and reconstruction of number of access ramps at various locations citywide. The project's base bid includes 19 locations as shown on the attached Location Map, and the alternate bid includes 4 locations for a total of 23 locations. The Liberty Lane Improvements project includes the construction of a missing segment of sidewalk along the west side of Liberty Lane north of Atwood Avenue. These projects are to upgrade the existing access ramps and sidewalks to meet current American with Disabilities Act (ADA) requirements while enhancing safety for pedestrians. Staff has combined the Cycle 7 ADA Pedestrian Access Ramps and Liberty Lane Improvements into one construction project in the effort of reducing construction costs.

The Planning Division of the Community Development Department determined on June 15, 2018 that these projects are exempt from the California Environmental Quality Act (CEQA) per CEQA Guidelines Section 15301(c) (Existing Facilities), Article 19, commencing with Section 15300. In addition, Planning Division also reviewed these projects under the National Environmental Policy Act (NEPA) as part of the CDBG funding approval and determined that these projects qualify for a Categorical Exclusion pursuant to 24 CFR Part 58.34(a)(1), and 58.34(a)(2).

The design and bidding documents were completed in January 2019 by in-house engineering staff as a cost saving solution for the City. The projects were advertised for construction bids on January 17, 2019 and formal bidding procedures were followed in conformance with the Public Contract Code. Bids were received via the electronic bid management system, PlanetBids, on February 15, 2019 and twelve (12) bids were received as follows:

	CONTRACTORS	Base Bid + Alternate Bids
1.	**Leonida Builder Inc.**	**$668,450.00**
2.	S&H Civilworks	$693,000.00
3.	All Cities Engineering	$698,062.00
4.	Calpromax	$758,000.00
5.	DOD Construction	$771,471.00
6.	L.C. Paving & Sealing	$815,470.80
7.	Western Construction	$826,234.00
8.	Hardy & Harper, Inc.	$918,000.00
9.	CT&T Concrete	$930,201.50
10.	All American Asphalt	$1,168,358.00
11.	C.S. Legacy	$1,496,768.00
12.	EBS General	$1,518,240.00

The lowest responsible bidder was determined by comparing the cumulative total for all base bid items and alternate items as stipulated in the bidding documents. Staff has reviewed the bid by Leonida Builders Inc. and finds it to be the lowest responsible bidder in possession of a valid license and bid bond. No outstanding issues were identified through review of the references submitted by Leonida Builder Inc. in their bid.

The lowest bid received is slightly higher than the available budget due to the importance of the projects, staff is recommending the award of the base bid only to Leonida Builders Inc. to move forward with construction. The award amount is $560,500.00 for the base bid items of work. A contingency of 10% of the bid amount ($56,050.00) is recommended to be included in the contractor's purchase order to account for any latent or unforeseen circumstances encountered during construction. From past project experience, construction of curb ramps can result in unforeseen circumstances due to their proximity to private property. Approval of a contingency now allows for rapid response to unforeseen conditions to avoid costly delays and additional payment to the contractor.

Approval of the recommended actions would support Objective 4 of the *Momentum MoVal* Strategic Plan: "Manage and maximize Moreno Valley's public Infrastructure to ensure an excellent quality of life, develop and implement innovative, cost effective infrastructure maintenance programs, public facilities management strategies, and capital improvement programming and project delivery."

ALTERNATIVES

1. Approve and authorize the recommended actions as presented in this staff report. *This alternative will provide for the timely construction of the Cycle 7 ADA Pedestrian Access Ramps & Liberty Lane Improvements.*

2. Do not approve and authorize the recommended actions as presented in this staff report. *This alternative will delay the timely construction of the Cycle 7 ADA Pedestrian Access Ramps & Liberty Lane Improvements and may result in a loss of grant funding.*

FISCAL IMPACT

The Cycle 7 ADA Pedestrian Access Ramps project and the Liberty Lane Improvements project are funded by Community Development Block Grant (2512) funds. To ensure sufficient contingency available to finish these two important projects, staff is recommending using up to $40,000 of Measure A (Fund 2001) money available in the Annual ADA Compliant Curb Ramps Project (801 0008). There is no impact to the General Fund.

AVAILABLE FUNDS IN FISCAL YEAR 2018-2019 FOR CONSTRUCTION:
Cycle 7 ADA Pedestrian Access Ramps & Liberty Lane Improvements
(Account No. 2512-70-77-80001, Project No. 801 0074) $589,584.00
(Account No. 2512-70-77-80001, Project No. 801 0075) $47,361.00

Annual ADA Compliant Curb Ramps
(Account No. 2001-70-77-80001, Project No. 801 0008) $40,000.00
Total Available Funds $676,945.00

ESTIMATED PROJECT CONSTRUCTION RELATED COSTS:
Construction Contract (Includes 10% Contingency) $616,550.00
Construction Staking and Materials Testing Services $30,000.00
Project Administration and Inspection* $30,000.00
Total $676,550.00
*Project management and inspection will be provided by City staff.

ANTICIPATED PROJECT SCHEDULE:
Start Construction ..... April 2019
Complete Construction ..... September 2019

NOTIFICATION

Prior to construction, all utilities, adjacent property owners, business owners, law enforcement, fire department, and other emergency services responders in the area will be notified in a timely manner of the proposed construction.

PREPARATION OF STAFF REPORT

Prepared By:
Quang Nguyen, P.E.
Senior Engineer

Department Head Approval:
Michael L. Wolfe, P.E.
Public Works Director/City Engineer

Concurred By:
Henry Ngo, P.E.
Capital Projects Division Manager

CITY COUNCIL GOALS

Public Safety. Provide a safe and secure environment for people and property in the community, control the number and severity of fire and hazardous material incidents, and provide protection for citizens who live, work and visit the City of Moreno Valley.

Public Facilities and Capital Projects. Ensure that needed public facilities, roadway improvements, and other infrastructure improvements are constructed and maintained.

Positive Environment. Create a positive environment for the development of Moreno Valley's future.

CITY COUNCIL STRATEGIC PRIORITIES

1. **Economic Development**
2. **Public Safety**
3. **Library**

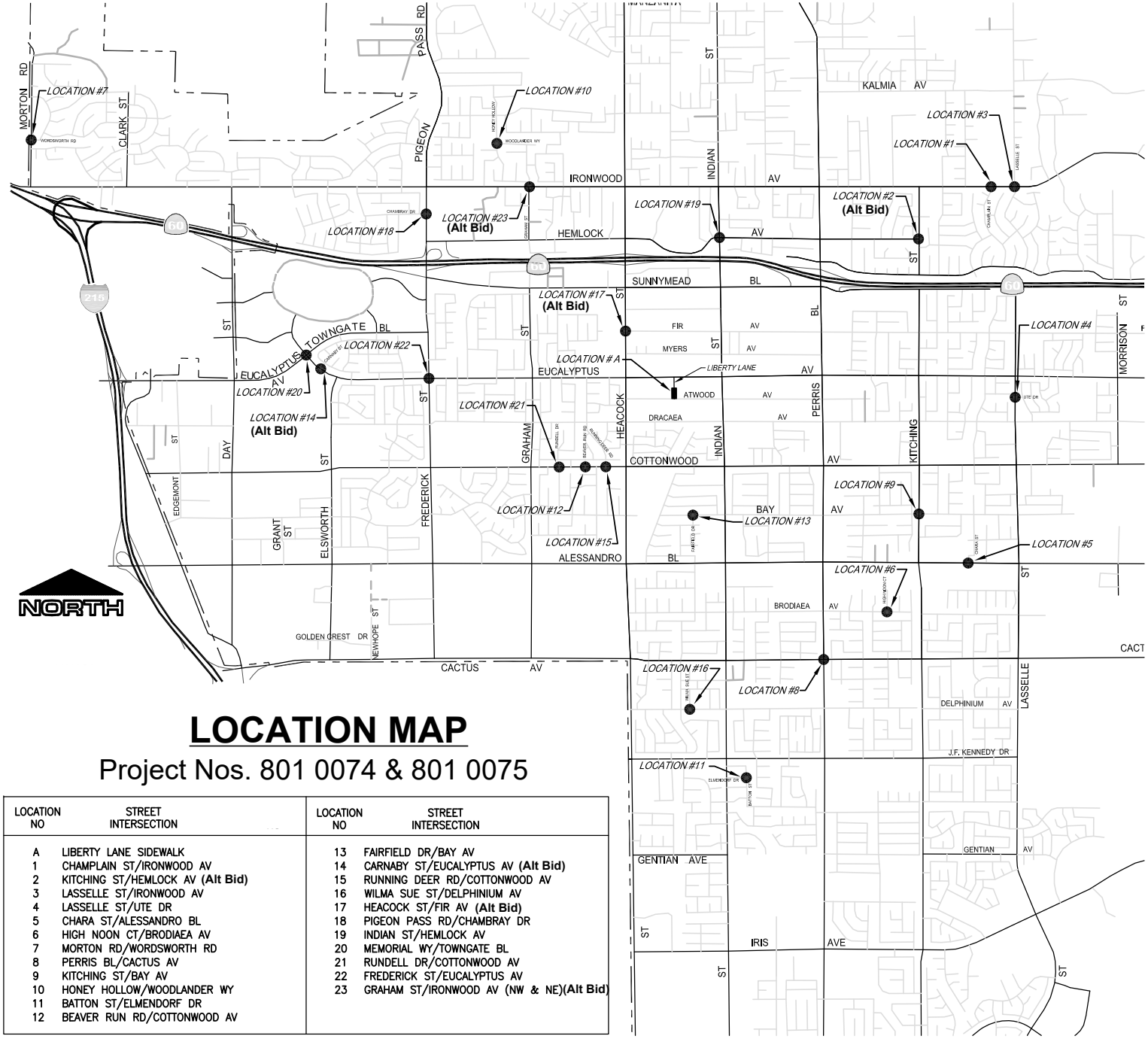
4. **Infrastructure**
5. **Beautification, Community Engagement, and Quality of Life**
6. **Youth Programs**

ATTACHMENTS

1. Location Map
2. Agreement

APPROVALS

Budget Officer Approval	✓ Approved	2/27/19 1:49 PM
City Attorney Approval	✓ Approved	2/26/19 3:19 PM
City Manager Approval	✓ Approved	2/27/19 4:32 PM



LOCATION MAP

Project Nos. 801 0074 & 801 0075

LOCATION NO	STREET INTERSECTION
A	LIBERTY LANE SIDEWALK
1	CHAMPLAIN ST/IRONWOOD AV
2	KITCHING ST/HEMLOCK AV **(Alt Bid)**
3	LASSELLE ST/IRONWOOD AV
4	LASSELLE ST/UTE DR
5	CHARA ST/ALESSANDRO BL
6	HIGH NOON CT/BRODIAEA AV
7	MORTON RD/WORDSWORTH RD
8	PERRIS BL/CACTUS AV
9	KITCHING ST/BAY AV
10	HONEY HOLLOW/WOODLANDER WY
11	BATTON ST/ELMENDORF DR
12	BEAVER RUN RD/COTTONWOOD AV
13	FAIRFIELD DR/BAY AV
14	CARNABY ST/EUCALYPTUS AV **(Alt Bid)**
15	RUNNING DEER RD/COTTONWOOD AV
16	WILMA SUE ST/DELPHINIUM AV
17	HEACOCK ST/FIR AV **(Alt Bid)**
18	PIGEON PASS RD/CHAMBRAY DR
19	INDIAN ST/HEMLOCK AV
20	MEMORIAL WY/TOWNGATE BL
21	RUNDELL DR/COTTONWOOD AV
22	FREDERICK ST/EUCALYPTUS AV
23	GRAHAM ST/IRONWOOD AV (NW & NE)**(Alt Bid)**

Agreement No._____

AGREEMENT

PROJECT NOS. 801 0074 & 801 0075
Cycle 7 ADA Pedestrian Access Ramps &
Liberty Lane Improvements

THIS Agreement, effective as of the date signed by the City of Moreno Valley by and between the City of Moreno Valley, a municipal corporation, County of Riverside, State of California, hereinafter called the "City" and **Leonida Builders Inc.**, hereinafter called the "Contractor."

That the City and the Contractor for the consideration hereinafter named, agree as follows:

1. CONTRACT DOCUMENTS. The Contract Documents consist of the following, which are incorporated herein by this reference:

A. This Agreement
B. Any and all Contract Change Orders issued after execution of this Agreement
C. Addenda Nos. **1** inclusive, issued prior to the opening of the Bids
D. Federal Provisions and Requirements
E. Any Federal Certifications, documentation and reports as required, including but not limited to Contractor's Certification on Federal Contract Requirements, Certification of Nonsegregated Facilities, Certification of Equal Employment Opportunity, Certification on Good Faith Efforts Regarding Minority Based Enterprise (MBE) and Women Based Enterprise (WBE), Race and Ethnic Data Reporting Form.
F. City of Moreno Valley Supplementary General Conditions
G. The bound Contract Documents that includes City Special Provisions, General Provisions, and Technical Provisions.
H. Standard Specifications for Public Works Construction ("Greenbook") – latest edition in effect at the Bid Deadline, as modified by the City Special Provisions
I. Reference Specifications/Reference Documents other than those listed in paragraph 2, below.
J. Project Plans
K. City Standard Plans
L. Caltrans Standard Plans
M. Eastern Municipal Water District Standard Plans
N. Governmental approvals, including, but not limited to, permits required for the Work
O. Contractor's Labor and Materials Payment Bond
P. Contractor's Faithful Performance Bond
Q. Contractor's Certificates of Insurance and Additional Insured Endorsements
R. Contractor's Bidder's Proposal, Subcontractor and Material Supplier Listing

In the event of conflict between any of the Contract Documents, the provisions placing a more stringent requirement on the Contractor shall prevail. The Contractor shall provide the better quality or greater quantity of Work and/or materials unless otherwise directed by City in writing. In the event none of the Contract Documents place a more stringent requirement or

greater burden on the Contractor, the controlling provision shall be that which is found in the document with higher precedence in accordance with the above order of precedence.

2. REFERENCE DOCUMENTS. The following Reference Documents are not considered Contract Documents and are made available to the Contractor for informational purposes:

A. None

3. SCOPE OF WORK. The Contractor shall perform and provide all materials, tools, equipment, labor, and services necessary to complete the Work described in the Contract Documents, except as otherwise provided in the Plans, Standard Specifications, or City Special Provisions to be the responsibility of others.

4. PAYMENT.

4.1. **Contract Price and Basis for Payment**. In consideration for the Contractor's full, complete, timely, and faithful performance of the Work required by the Contract Documents, the City shall pay Contractor for the actual quantity of Work required under the Bid Items awarded by the City performed in accordance with the lump sum prices and unit prices for Bid Items, if any, set forth the Bidder's Proposal submitted with the Bid. The sum of the unit prices and lump sum prices for the Bid Items awarded by the City is **Five Hundred Sixty Thousand Five Hundred Dollars ($560,500)** ("Contract Price"). It is understood and agreed that the quantities set forth in the Bidder's Proposal for which unit prices are fixed are estimates only and that City will pay and Contractor will accept, as full payment for these items of work, the unit prices set forth in the Bidder's Proposal multiplied by the actual number of units performed, constructed, or completed as directed by the City Engineer.

4.2. **Payment Procedures**. Based upon applications for payment submitted by the Contractor to the City, the City shall make payments to the Contractor in accordance with Section 7 of the Standard Specifications, as modified by Section 7 of the City Special Provisions.

5. CONTRACT TIME.

A. Initial Notice to Proceed. After the Agreement has been fully executed by the Contractor and the City, the City shall issue the "Notice to Proceed to Fulfill Preconstruction Requirements." The date specified in the Notice to Proceed to Fulfill Preconstruction Requirements constitutes the date of commencement of the Contract Time of **Sixty (60) Working Days for the Base Bid**. The Contract Time includes the time necessary to fulfill preconstruction requirements and to complete construction of the Project (except as adjusted by subsequent Change Orders).

The Notice to Proceed to Fulfill Preconstruction Requirements shall further specify that Contractor must complete the preconstruction requirements within Ten (10) Working Days after the date of commencement of the Contract Time; this duration is part of the Contract Time.

Critical preconstruction requirements include, but are not limited to, the following:

- Submitting and obtaining approval of Traffic Control Plans
- Submitting and obtaining approval of the Water Pollution Control Plan (WPCP)

- Submitting and obtaining approval of critical required submittals

- Obtaining an approved no fee Encroachment Permit
- Notifying all agencies, utilities, residents, etc., as outlined in the Contract Documents

If the City's issuance of a Notice to Proceed to Fulfill Preconstruction Requirements is delayed due to Contractor's failure to return the fully executed Agreement and insurance and bond documents within Ten (10) Working Days after Contract award, then Contractor agrees to the deduction of one (1) Working Day from the number of days to complete the Project for every Working Day of delay in the City's receipt of said documents. This right is in addition to and does not affect the City's right to demand forfeiture of Contractor's Bid Security if Contractor persistently delays in providing the required documentation.

B. Notice to Proceed with Construction. After all preconstruction requirements are met in accordance with the Notice to Proceed to Fulfill Preconstruction Requirements, the City shall issue the "Notice to Proceed with Construction," at which time the Contractor shall diligently prosecute the Work, including corrective items of Work, day to day thereafter, within the remaining Contract Time.

6. LIQUIDATED DAMAGES AND CONTROL OF WORK.

6.1. **Liquidated Damages.** The Contractor and City (collectively, the "Parties") have agreed to liquidate damages with respect to Contractor's failure to fulfill the preconstruction requirements, and/or failure to complete the Work within the Contract Time. The Parties intend for the liquidated damages set forth herein to apply to this Contract as set forth in Government Code Section 53069.85. Contractor acknowledges and agrees that the liquidated damages are intended to compensate the City solely for Contractor's failure to meet the deadline for completion of the Work and will not excuse Contractor from liability from any other breach, including any failure of the Work to conform to the requirements of the Contract Documents.

In the event that Contractor fails to fulfill the preconstruction requirements and/or fails to complete the Work within the Contract Time, Contractor agrees to pay the City **$900.00 per Calendar day** that completion of the Work is delayed beyond the Contract Time, as adjusted by Contract Change Orders. The Contractor will not be assessed liquidated damages for delays occasioned by the failure of the City or of the owner of a utility to provide for the removal or relocation of utility facilities.

The Contractor and City acknowledge and agree that the foregoing liquidated damages have been set based on an evaluation of damages that the City will incur in the event of late completion of the Work. The Contractor and City acknowledge and agree that the amount of such damages are impossible to ascertain as of the date of execution hereof and have agreed to such liquidated damages to fix the City's damages and to avoid later disputes. It is understood and agreed by Contractor that liquidated damages payable pursuant to this Agreement are not a penalty and that such amounts are not manifestly unreasonable under the circumstances existing as of the date of execution of this Agreement.

It is further mutually agreed that the City will have the right to deduct liquidated damages against progress payments or retainage and that the City will issue a Change Order or Construction Change Directive and reduce the Contract Price accordingly. In the event the

remaining unpaid Contract Price is insufficient to cover the full amount of liquidated damages, Contractor shall pay the difference to the City.

6.2. **Owner is Exempt from Liability for Early Completion Delay Damages**. While the Contractor may schedule completion of all of the Work, or portions thereof, earlier than the Contract Time, the Owner is exempt from liability for and the Contractor will not be entitled to an adjustment of the Contract Sum or to any additional costs, damages, including, but not limited to, claims for extended general conditions costs, home office overhead, jobsite overhead, and management or administrative costs, or compensation whatsoever, for use of float time or for Contractor's inability to complete the Work earlier than the Contract Time for any reason whatsoever, including but not limited to, delay cause by Owner or other Excusable Compensable Delay. See Section 6-4 of the Standard Specifications and City Special Provisions regarding compensation for delays.

6.3. Any work completed by the Contractor after the issuance of a Stop Work Notice by the City shall be rejected and/or removed and replaced as specified in Section 3-5 of the City Special Provisions.

7. INSURANCE.

7.1. **General**. The Contractor shall procure and maintain at its sole expense and throughout the term of this Agreement, any extension thereof, Commercial General Liability, Automobile Liability, and Workers' Compensation Insurance with such coverage limits as described herein.

7.2. **Additional Insured Endorsements**. The Contractor shall cause the insurance required by the Contract Document to include the City of Moreno Valley, the City Council and each member thereof, the Moreno Valley Housing Authority (MVHA), and the Moreno Valley Community Services District (CSD), and their respective officials, employees, commission members, officers, directors, agents, employees, volunteers and representatives as an additional insureds. For the Commercial General Liability coverage, said parties shall be named as additional insureds utilizing either:

1. Insurance Services Office ("ISO") Additional Insured endorsement CG 20 10 (11/85); or

2. ISO Additional Insured endorsement CG 20 10 (10/01) and Additional Insured Completed Operations endorsement CG 20 37 (10/01); or

3. Substitute endorsements providing equivalent coverage, approved by the City.

The endorsements shall be signed by a person authorized by the insurer to bind coverage on its behalf. The coverage shall contain no special limitations on the scope of protection afforded to such additional insureds. Coverage for such additional insureds does not extend to liability to the extent prohibited by Insurance Code Section 11580.4.

7.3. **Waivers of Subrogation**. All policies of insurance required by the Contract Documents shall include or be endorsed to provide a waiver by the insurers of any rights of recovery or subrogation that the insurers may have at any time against the City of Moreno

Valley, the City Council and each member thereof, the Moreno Valley Housing Authority (MVHA), and the Moreno Valley Community Services District (CSD), and their respective officials, employees, commission members, officers, directors, agents, employees, volunteers and representatives.

7.4. **Primary Coverage**. All policies and endorsements shall stipulate that the Contractor's (and the Subcontractors') insurance coverage shall be primary insurance as respects the City of Moreno Valley, the City Council and each member thereof, the Moreno Valley Housing Authority (MVHA), and the Moreno Valley Community Services District (CSD), and their respective officials, employees, commission members, officers, directors, agents, employees, volunteers and representatives, and shall be excess of the Contractor's (and its Subcontractors') insurance and shall not contribute with it.

7.5. **Coverage Applies Separately to Each Insured and Additional Insured**. Coverage shall state that the Contractor's (and its Subcontractors') insurance shall apply separately to each insured or additional insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability. Coverage shall apply to any claim or suit brought by an additional insured against a named insured or other insured.

7.6. **Self-Insurance**. Any self-insurance (including deductibles or self-insured retention in excess of $50,000) in lieu of liability insurance must be declared by Contractor and approved by the City in writing prior to execution of the Agreement. The City's approval of self-insurance, if any, is within the City's sole discretion and is subject to the following conditions:

1. Contractor must, at all times during the term of the Agreement and for a period of at least **one (1)** year after completion of the Project and any extension of the one-year correction guarantee period in accordance with section 6-8.1 of the City Special Provisions, maintain and upon Owner's reasonable request provide evidence of:

   (a) Contractor's "net worth" (defined as "total assets" [defined as all items of value owned by the Contractor including tangible items such as cash, land, personal property and equipment and intangible items such as copyrights and business goodwill]) minus total outside liabilities must be reflected in a financial statement for the prior fiscal year reflecting sufficient income and budget for Contractor to afford at least one loss in an amount equal to the amount of self-insurance;

   (b) Financial statements showing that Contractor has funds set aside/budgeted to finance the self-insured fund (i.e., Contractor has a program that fulfills functions that a primary insurer would fill; and

   (c) A claims procedure that identifies how a claim is supposed to be tendered to reach the financing provided by the self-insured fund.

2. If at any time after such self-insurance has been approved Contractor fails to meet the financial thresholds or otherwise fails to comply with the provisions set forth in this Paragraph 7, at the option of the City:

(a) The Contractor shall immediately obtain and thereafter maintain the third party insurance required under this Paragraph 7 and otherwise on the terms required above; or

(b) The insurer shall reduce or eliminate such deductibles or self-insured retention as respects the City, its officers, officials, employees and volunteers; or

(c) The Contractor shall procure a bond guaranteeing payment of losses and related investigation, claim administration, and defense expenses.

7.7. **Insurer Financial Rating**. Insurance companies providing insurance hereunder shall be rated A-VII or better in Best's Insurance Rating Guide and shall be legally licensed and qualified to conduct insurance business in the State of California.

7.8. **Notices to City of Cancellation or Changes**. Each insurance policy described in this Paragraph 7 shall contain a provision or be endorsed to state that coverage will not be cancelled without **thirty (30) days'** prior written notice by certified or registered mail to the City (this obligation may be satisfied in the alternative by requiring such notice to be provided by Contractor's insurance broker and set forth on its Certificate of Insurance provided to the City), except that cancellation for non-payment of premium shall require (10) days prior written notice by certified or registered mail. If an insurance carrier cancels any policy or elects not to renew any policy required to be maintained by Contractor pursuant to the Contract Documents, Contractor agrees to give written notice to the City at the address indicated on the first page of the Agreement. Contractor agrees to provide the same notice of cancellation and non-renewal to the City that is required by such policy(ies) to be provided to the First Named Insured under such policy(ies). Contractor shall provide confirmation that the required policies have been renewed not less than seven (7) days prior to the expiration of existing coverages and shall deliver renewal or replacement policies, certificates and endorsements to the City Clerk within fourteen (14) days of the expiration of existing coverages. Contractor agrees that upon receipt of any notice of cancellation or alteration of the policies, Contractor shall procure within five (5) days, other policies of insurance similar in all respects to the policy or policies to be cancelled or altered. Contractor shall furnish to the City Clerk copies of any endorsements that are subsequently issued amending coverage or limits within fourteen (14) days of the amendment.

7.9. **Commercial General Liability**. Coverage shall be written on an ISO Commercial General Liability "occurrence" form CG 00 01 (10/01 or later edition) or equivalent form approved by the City for coverage on an occurrence basis. The insurance shall cover liability, including, but not limited to, that arising from premises operations, stop gap liability, independent contractors, products-completed operations, personal injury, advertising injury, and liability assumed under an insured contract. The policy shall be endorsed to provide the Aggregate Per Project Endorsement ISO form CG 25 03 (11/85). Coverage shall contain no contractors' limitation or other endorsement limiting the scope of coverage for liability arising from pollution, explosion, collapse, or underground (x, c, u) property damage. Contractor shall provide Products/Completed Operations coverage to be maintained continuously for a minimum of **one (1) year** after Final Acceptance of the Work, and any extension of the one-year correction guarantee period in accordance with Section 3-13.3 of the City Special Provisions.

Contractor shall maintain Commercial General Liability insurance with the following minimum limits: $1,000,000 per occurrence / $2,000,000 aggregate / $2,000,000 products-completed operations.

7.10. **Business Automobile Liability**. Coverage shall be written on ISO form CA 00 01 (12/93 or later edition) or a substitute form providing equivalent coverage for owned, hired, leased and non-owned vehicles, whether scheduled or not, with $1,000,000 combined single limit per accident for bodily injury and property damage. If necessary, the policy shall be endorsed to provide contractual liability coverage.

7.11. **Workers' Compensation**. Contractor shall comply with the applicable sections of the California Labor Code concerning workers' compensation for injuries on the job. Compliance is accomplished in one of the following manners:

1. Provide copy of permissive self-insurance certificate approved by the State of California; or
2. Secure and maintain in force a policy of workers' compensation insurance with statutory limits and Employer's Liability Insurance with a minimal limit of **$1,000,000** per accident; or
3. Provide a "waiver" form certifying that no employees subject to the Labor Code's Workers' Compensation provision will be used in performance of this Contract.

7.12. **Subcontractors' Insurance**. The Contractor shall include all Subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each Subcontractor. All coverages for Subcontractors shall be subject to all of the requirements stated herein.

8. BONDS. The Contractor shall furnish a satisfactory Performance Bond meeting all statutory requirements of the State of California on the form provided by the City. The bond shall be furnished as a guarantee of the faithful performance of the requirements of the Contract Documents as may be amended from time to time, including, but not limited to, liability for delays and damages (both direct and consequential) to the City and the City's Separate Contractors and consultants, warranties, guarantees, and indemnity obligations, in an amount that shall remain equal to one hundred percent (100%) of the Contract Price.

The Contractor shall furnish a satisfactory Labor and Materials Payment Bond meeting all statutory requirements of the State of California on the form provided by the City in an amount that shall remain equal to one hundred percent (100%) of the Contract Price to secure payment of all claims, demands, stop notices, or charges of the State of California, of material suppliers, mechanics, or laborers employed by the Contractor or by any Subcontractor, or any person, form, or entity eligible to file a stop notice with respect to the Work.

All bonds shall be executed by a California-admitted surety insurer. Bonds issued by a California-admitted surety insurer listed on the latest version of the U.S Department of Treasury Circular 570 shall be deemed accepted unless specifically rejected by the City. Bonds issued by sureties not listed in Treasury Circular 570 must be accompanied by all documents enumerated in California Code of Civil Procedure Section 995.660(a). The bonds shall bear the same date as the Contract. The attorney-in-fact who executes the required bonds on behalf of the surety shall affix thereto a certified and current copy of the power of attorney. In the event of

changes that increase the Contract Price, the amount of each bond shall be deemed to increase and at all times remain equal to the Contract Price. The signatures shall be acknowledged by a notary public. Every bond must display the surety's bond number and incorporate the Contract for construction of the Work by reference. The terms of the bonds shall provide that the surety agrees that no change, extension of time, alteration, or modification of the Contract Documents or the Work to be performed thereunder shall in any way affect its obligations and shall waive notice of any such change, extension of time, alteration, or modification of the Contract Documents. The surety further agrees that it is obligated under the bonds to any successor, grantee, or assignee of the City.

Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

Should any bond become insufficient, or should any of the sureties, in the opinion of the City, become non-responsible or unacceptable, the Contractor shall, within ten (10) Calendar Days after receiving notice from the City, provide written documentation to the Satisfaction of the City that Contractor has secured new or additional sureties for the bonds; otherwise the Contractor shall be in default of the Contract. No further payments shall be deemed due or will be made under Contract until a new surety(ies) qualifies and is accepted by the City.

Contractor agrees that the Labor and Materials Payment Bond and Faithful Performance Bond attached to this Agreement are for reference purposes only, and shall not be considered a part of this Agreement. Contractor further agrees that said bonds are separate obligations of the Contractor and its Surety, and that any attorney's fee provision contained in any payment bond or performance bond shall not apply to this Agreement. In the event there is any litigation between the parties arising from the breach of this Agreement, each party will bear its own attorneys' fees in the litigation.

9. RECORDS. The Contractor and its Subcontractors shall maintain and keep books, payrolls, invoices of materials, and Project records current, and shall record all transactions pertaining to the Contract in accordance with generally acceptable accounting principles. Said books and records shall be made available to the City of Moreno Valley, Riverside County, the State of California, the Federal Government, and to any authorized representative thereof for purposes of audit and inspection at all reasonable times and places. All such books, payrolls, invoices of materials, and records shall be retained for at least four (4) years after Final Acceptance.

10. INDEMNIFICATION.

10.1. **General**. To the fullest extent permitted by law, the Contractor assumes liability for and agrees, at the Contractor's sole cost and expense, to promptly and fully indemnify, protect, hold harmless and defend (even if the allegations are false, fraudulent, or groundless), the City of Moreno Valley, its City Council, the Moreno Valley Housing Authority (MVHA), and the Moreno Valley Community Services District (CSD), and all of their respective officials, officers, directors, employees, commission members, representatives and agents ("Indemnitees"), from and against any and all claims, allegations, actions, suits, arbitrations, administrative proceedings, regulatory proceedings, or other legal proceeds, causes of action, demands, costs, judgments, liens, stop notices, penalties, liabilities, damages, losses, anticipated losses of revenues, and expenses (including, but not limited to, any fees of

accountants, attorneys, experts or other professionals, or investigation expenses), or losses of any kind or nature whatsoever, whether actual, threatened or alleged, arising out of, resulting from, or in any way (either directly or indirectly), related to the Work, the Project or any breach of the Contract by Contractor or any of its officers, agents, employees, Subcontractors, Sub-subcontractors, or any person performing any of the Work, pursuant to a direct or indirect contract with the Contractor ("Indemnity Claims"). Such Indemnity Claims include, but are not limited to, claims for:

A. Any activity on or use of the City's premises or facilities;
B. Any liability incurred due to Contractor acting outside the scope of its authority pursuant to the Contract, whether or not caused in part by an Indemnified Party;
C. The failure of Contractor or the Work to comply with any Applicable Law, permit or orders;
D. Any misrepresentation, misstatement or omission with respect to any statement made in the Contract Documents or any document furnished by the Contractor in connection therewith;
E. Any breach of any duty, obligation or requirement under the Contract Documents, including, but not limited to any breach of Contractor's warranties, representations or agreements set forth in the Contract Documents;
F. Any failure to coordinate the Work with City's Separate Contractors;
G. Any failure to provide notice to any party as required under the Contract Documents;
H. Any failure to act in such a manner as to protect the Project from loss, cost, expense or liability;
I. Bodily or personal injury, emotional injury, sickness or disease, or death at any time to any persons including without limitation employees of Contractor;
J. Damage or injury to real property or personal property, equipment and materials (including, but without limitation, property under the care and custody of the Contractor or the City) sustained by any person or persons (including, but not limited to, companies, corporations, utility company or property owner, Contractor and its employees or agents, and members of the general public);
K. Any liability imposed by Applicable Law including, but not limited to criminal or civil fines or penalties;
L. Any dangerous, hazardous, unsafe or defective condition of, in or on the Site, of any nature whatsoever, which may exist by reason of any act, omission, neglect, or any use or occupation of the Site by Contractor, its officers, agents, employees, or Subcontractors;
M. Any operation conducted upon or any use or occupation of the Site by Contractor, its officers, agents, employees, or Subcontractors under or pursuant to the provisions of the Contract or otherwise;
N. Any acts, errors, omission or negligence of Contractor, its officers, agents, employees, or Subcontractors;
O. Infringement of any patent rights, licenses, copyrights or intellectual property which may be brought against the Contractor or Owner arising out of Contractor's Work, for which the Contractor is responsible; and

P. Any and all claims against the City seeking compensation for labor performed or materials used or furnished to be used in the Work or alleged to have been furnished on the Project, including all incidental or consequential damages resulting to the City from such claims.

10.2. **Effect of Indemnitees' Active Negligence**. Contractor's obligations to indemnify and hold the Indemnitees harmless **exclude** only such portion of any Indemnity Claim which is attributable to the active negligence or willful misconduct of the Indemnitee, provided such active negligence or willful misconduct is determined by agreement of the parties or by findings of a court of competent jurisdiction. In instances where an Indemnitee's active negligence accounts for only a percentage of the liability for the Indemnity Claim involved, the obligation of Contractor will be for that entire percentage of liability for the Indemnity Claim not attributable to the active negligence or willful misconduct of the Indemnitee(s). Such obligation shall not be construed to negate, abridge or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this Paragraph 10. Subject to the limits set forth herein, the Contractor, at its own expense, shall satisfy any resulting judgment that may be rendered against any Indemnitee resulting from an Indemnity Claim. The Indemnitees shall be consulted with regard to any proposed settlement.

10.3. **Independent Defense Obligation.** The duty of the Contractor to indemnify and hold harmless the Indemnitees includes the separate and independent duty to defend the Indemnitees, which duty arises immediately upon receipt by Contractor of the tender of any Indemnity Claim from an Indemnitee. The Contractor's obligation to defend the Indemnitee(s) shall be at Contractor's sole expense, and not be excused because of the Contractor's inability to evaluate liability or because the Contractor evaluates liability and determines that the Contractor is not liable. This duty to defend shall apply whether or not an Indemnity Claim has merit or is meritless, or which involves claims or allegations that any or all of the Indemnitees were actively, passively, or concurrently negligent, or which otherwise asserts that the Indemnitees are responsible, in whole or in part, for any Indemnity Claim. The Contractor shall respond within thirty (30) Calendar Days to the tender of any Indemnity Claim for defense and/or indemnity by an Indemnitee, unless the Indemnitee agrees in writing to an extension of this time. The defense provided to the Indemnitees by Contractor shall be by well qualified, adequately insured and experienced legal counsel acceptable to the City.

10.4. **Intent of Parties Regarding Scope of Indemnity.** It is the intent of the parties that the Contractor and its Subcontractors of all tiers shall provide the Indemnitees with the broadest defense and indemnity permitted by Applicable Law. In the event that any of the defense, indemnity or hold harmless provisions in the Contract Documents are found to be ambiguous, or in conflict with one another, it is the parties' intent that the broadest and most expansive interpretation in favor of providing defense and/or indemnity to the Indemnitees be given effect.

10.5. **Waiver of Indemnity Rights Against Indemnitees.** With respect to third party claims against the Contractor, to the fullest extent permitted by law, the Contractor waives any and all rights to any type of express or implied indemnity against the Indemnitees.

10.6. **Subcontractor Requirements.** In addition to the requirements set forth hereinabove, Contractor shall ensure, by written subcontract agreement, that each of Contractor's Subcontractors of every tier shall protect, defend, indemnify and hold harmless the Indemnitees with respect to Indemnity Claims arising out of, in connection with, or in any way

related to each such Subcontractors' Work on the Project in the same manner in which Contractor is required to protect, defend, indemnify and hold the Indemnitees harmless. In the event Contractor fails to obtain such defense and indemnity obligations from others as required herein, Contractor agrees to be fully responsible to the Indemnitees according to the terms of this Paragraph 10.

10.7. **No Limitation or Waiver of Rights.** Contractor's obligations under this Paragraph 10 are in addition to any other rights or remedies which the Indemnitees may have under the law or under the Contract Documents. Contractor's indemnification and defense obligations set forth in this Paragraph 10 are separate and independent from the insurance provisions set forth in the Contract Documents, and do not limit, in any way, the applicability, scope, or obligations set forth in such insurance provisions. The purchase of insurance by the Contractor with respect to the obligations required herein shall in no event be construed as fulfillment or discharge of such obligations. In any and all claims against the Indemnitees by any employee of the Contractor, any Subcontractor, any supplier of the Contractor or Subcontractors, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the obligations under this Paragraph 10 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor or any supplier of either of them, under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts. Failure of the City to monitor compliance with these requirements imposes no additional obligations on the City and will in no way act as a waiver of any rights hereunder.

10.8. **Withholding to Secure Obligations.** In the event an Indemnity Claim arises prior to final payment to Contractor, the City may, in its sole discretion, reserve, retain or apply any monies due Contractor for the purpose of resolving such Indemnity Claims; provided, however, the City may release such funds if the Contractor provides the City with reasonable assurances of protection of the Indemnitees' interests. The City shall, in its sole discretion, determine whether such assurances are reasonable.

10.9. **Survival of Indemnity Obligations.** Contractor's obligations under this Paragraph 10 are binding on Contractor's and its Subcontractors' successors, heirs and assigns and shall survive the completion of the Work or termination of the Contractor's performance of the Work.

11. FEDERAL REQUIREMENTS. If the Contractor or Subcontractor is performing work on Section 3, Housing and Urban Development Act of 1968, projects for which the amount of the assistance exceeds $200,000 and the contract or subcontract exceeds $100,000:

11.1 The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (Section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

11.2 The parties to this contract agree to comply with HUD's regulations in 24 CFR part 135, which implements Section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.

11.3 The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this Section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

11.4 The contractor agrees to include this Section 3 Clause in every subcontract subject to compliance with regulations in 24 CFR part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this Section 3 Clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 135.

11.5 The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR part 135.

11.6 Noncompliance with HUD's regulations in 24 CFR part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

11.7 With respect to work performed in connection with Section 3 covered Indian housing assistance, Section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of Section 3 and Section 7(b) agree to comply with Section 3 to the maximum extent feasible, but not in derogation of compliance with Section 7(b).

12. SUCCESSORS AND ASSIGNS. The Parties bind themselves, their heirs, executors, administrators, successors and assigns the covenants, agreements and obligations contained in the Contract Documents. The Contractor shall not, either voluntarily or by action of law, assign any right or obligation of the Contractor under the Contract Documents without prior written consent of the City.

(SIGNATURE PAGE FOLLOWS)

CITY OF MORENO VALLEY, Municipal Corporation

BY: _____
Thomas M. DeSantis, City Manager

DATE: _____

INTERNAL USE ONLY

APPROVED AS TO LEGAL FORM:

_____
City Attorney

_____
Date

RECOMMENDED FOR APPROVAL:

_____
Public Works Director/City Engineer

_____
Date

_____
Chief Financial Officer / City Treasurer

_____
Date

Leonida Builders Inc.

License No./
Classification: _____

Expiration Date: _____

Federal I.D. No.: _____

PRINT NAME: _____

SIGNATURE: _____

TITLE: _____

DATE: _____

PRINT NAME: _____

SIGNATURE: _____

TITLE: _____

DATE: _____

SIGNING INSTRUCTIONS TO THE CONTRACTOR:

Signature(s) must be accompanied by a completed notary certificate of acknowledgement attached hereto. A general partner must sign on behalf of a partnership. **Two (2)** corporate officers must sign on behalf of a corporation unless the corporation has a corporate resolution that allows one person to sign on behalf of the corporation; if applicable, said resolution must be attached hereto. The corporate seal may be affixed hereto.

Report to City Council

TO:	Mayor and City Council
FROM:	Michael L. Wolfe, P.E., Public Works Director/City Engineer
AGENDA DATE:	March 5, 2019
TITLE:	TRACT 27251-1 – EXECUTE A QUITCLAIM DEED TRANSFERRING THE CITY'S TITLE INTEREST IN A STORM DRAIN EASEMENT TO THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT DEVELOPER - RSI MORENO VALLEY, LLC

RECOMMENDED ACTION

Recommendations:

1. Authorize the City Manager to execute the Quitclaim Deed transferring all rights, title, and interest in and to the storm drain easement in Lot 5 recorded on Tract Map 27251-1, recorded in Map Book 325, Pages 83 through 86 inclusive, in the Official Records of Riverside County, California, to the Riverside County Flood Control and Water Conservation District.

2. Direct the City Clerk to forward the signed Quitclaim Deed to the Riverside County Flood Control and Water Conservation District for further processing and recordation.

SUMMARY

This report recommends the execution of a quitclaim deed of the storm drain easement within Tract 27251-1 to the Riverside County Flood Control and Water Conservation District (RCFC&WCD) for future operation, maintenance, repair and improvement of their storm drain facilities. The quitclaim deed will transfer the City's right, title, and interest of the storm drain easement to RCFC&WCD. The general location of the storm drain easement is the northeast corner of the intersection of Eucalyptus Avenue and Morrison Street.

DISCUSSION

As a condition of approval for Tract 27251-1 (see Attachment 1 for general vicinity map), the project developer was required to construct storm drain improvements. On July 20, 2006, a Cooperative Agreement between the Riverside County Flood Control and Water Conservation District (RCFC&WCD), the City of Moreno Valley, and Richmond American Homes of California, Inc. was recorded for Tract 27251-1 (see Attachment 2). Since then, said tract was sold to RSI Moreno Valley, LLC which is the current owner. Per the Cooperative Agreement, RCFC&WCD is to maintain the storm drain within the storm drain easement area within Lot 5 of Tract Map 27251-1. Lot 5 is near the northeast corner of the intersection of Eucalyptus Avenue and Morrison Street. The storm drain easement was dedicated to and accepted by the City on the recorded map. Construction of the project has been completed and RCFC&WCD is ready to take over maintenance of the storm drain facility.

The City has received a request from the RCFC&WCD to quitclaim the referenced storm drain easement within Tract 27251-1, Lot 5, in accordance with the Cooperative Agreement (see Attachment 3). The quitclaim deed (see Attachment 4) transfers the City's title interest in the storm drain easement for Sunnymead Master Drainage Plan Line S-2, Stage 2 to RCFC&WCD in order to allow the RCFC&WCD to operate and maintain the drainage facility located within said storm drain easement.

ALTERNATIVES

1. Approve and authorize the recommended actions as presented in this staff report. *Staff recommends this alternative as this alternative will allow for proper maintenance of the storm drain facilities by the RCFC&WCD.*

2. Do not approve and do not authorize the recommended actions as presented in this staff report. *Staff does not recommend this alternative as this alternative would not allow for proper maintenance of the storm drain facilities by the RCFC&WCD.*

FISCAL IMPACT

No fiscal impact is anticipated.

NOTIFICATION

Publication of the agenda.

PREPARATION OF STAFF REPORT

Prepared By:
Hoang Nguyen, P.E.
Associate Engineer

Department Head Approval:
Michael L. Wolfe, P.E.
Public Works Director/City Engineer

Concurred By:
Michael D. Lloyd, P.E.
Engineering Division Manager/Assistant City Engineer

CITY COUNCIL GOALS

Public Facilities and Capital Projects. Ensure that needed public facilities, roadway improvements, and other infrastructure improvements are constructed and maintained.

CITY COUNCIL STRATEGIC PRIORITIES

1. **Economic Development**
2. **Public Safety**
3. **Library**
4. **Infrastructure**
5. **Beautification, Community Engagement, and Quality of Life**
6. **Youth Programs**

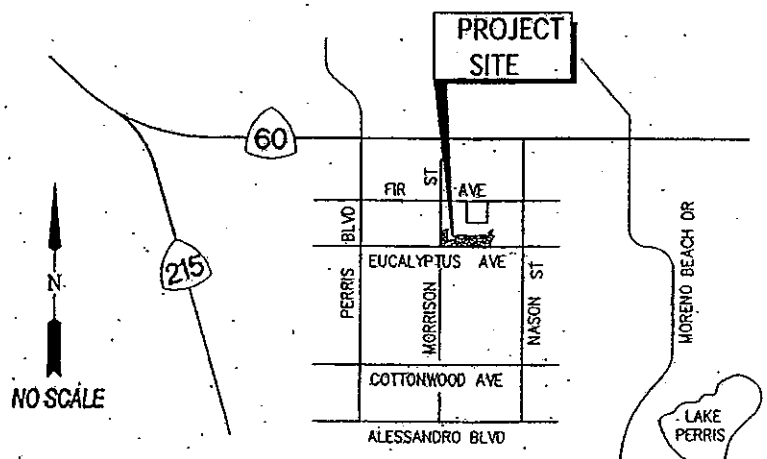
Objective 4.2: Develop and maintain a comprehensive Infrastructure Plan to invest in and deliver City infrastructure.

ATTACHMENTS

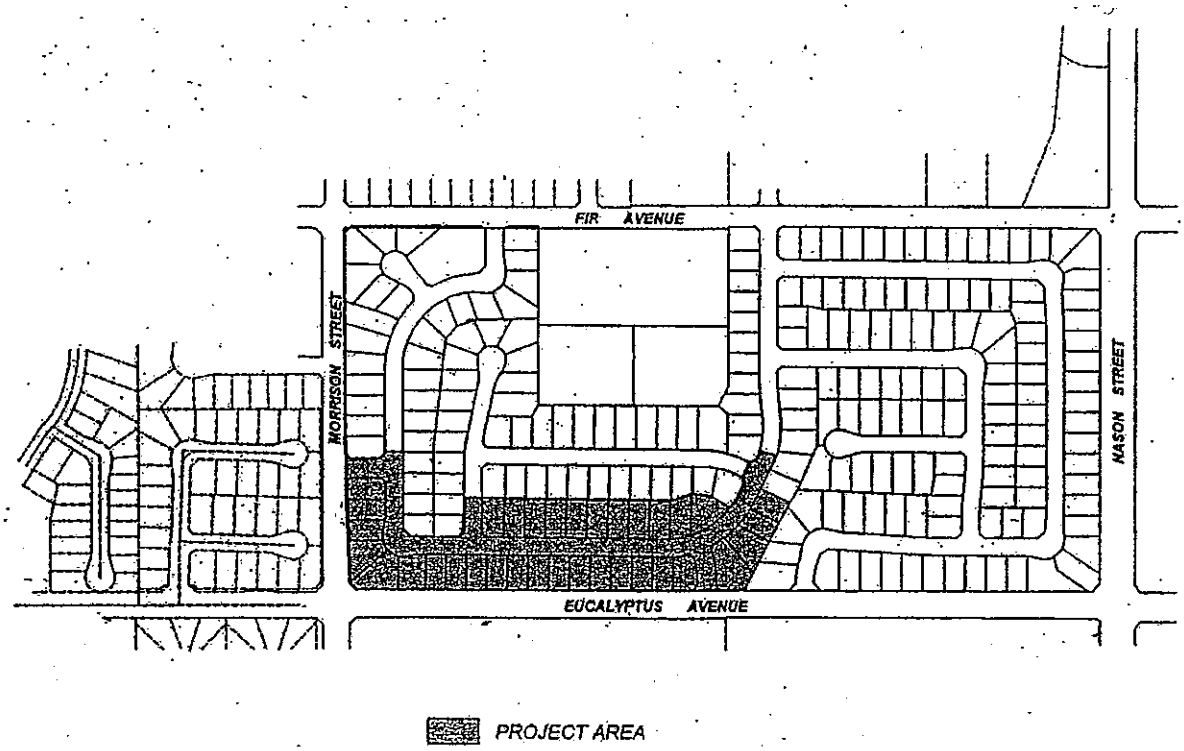
1. Vicinity Map - TR 27251-1
2. Cooperative Agreement - TR 27251-1
3. RCFC&WCD Request Letter
4. Quitclaim Deed - TR 27251-1

APPROVALS

Budget Officer Approval	✓ Approved	2/26/19 7:17 AM
City Attorney Approval	✓ Approved	2/26/19 3:22 PM
City Manager Approval	✓ Approved	2/26/19 6:11 PM



VICINITY MAP



CITY OF MORENO VALLEY PUBLIC WORKS - LAND DEVELOPMENT	TRACT 27251-1 VICINITY MAP

W:\LAND\FORMS\VICINITY MAP.doc (01/04)

EXHIBIT "A"

PLEASE COMPLETE THIS INFORMATION

RECORDING REQUESTED BY:

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

FREE RECORDING
This instrument is for the benefit of the Riverside County Flood Control and Water Conservation District and should Be recorded without a fee pursuant to Govt. Code 6103.

AND WHEN RECORDED MAIL TO:

RIVERSIDE COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
1995 MARKET STREET
RIVERSIDE, CA 92501-1770

DOC # 2006-0532060
07/20/2006 08:00A Fee:NC
Page 1 of 25
Recorded in Official Records
County of Riverside
Larry W. Ward
Assessor, County Clerk & Recorder

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AGREEMENT

Title of Document

PROJECT: Sunnymead MDP Line S-2, Stage 2

PROJECT NO: 4-0-00727

TRACT MAP NO: 27251 & 27251-1

DEVELOPER: Richmond American Homes of California, Inc.

THIS PAGE ADDED TO PROVIDE ADEQUATE SPACE FOR RECORDING INFORMATION
($3.00 Additional Recording Fee Applies)

RECORDERS COVER SHEET.DOC

COOPERATIVE AGREEMENT

Sunnymead MDP Line S-2, Stage 2
(Tract Nos. 27251 & 27251-1)

The RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, hereinafter called "DISTRICT", the CITY OF MORENO VALLEY, hereinafter called "CITY", and RICHMOND AMERICAN HOMES OF CALIFORNIA, INC., a Colorado corporation, hereinafter called "DEVELOPER", hereby agree as follows:

RECITALS

A. DEVELOPER has submitted for approval Tract Nos. 27251 and 27251-1 in the City of Moreno Valley and as a condition for approval DEVELOPER must construct certain flood control facilities in order to provide flood protection and drainage for DEVELOPER'S planned development; and

B. The required flood control facilities include construction of (i) approximately 1,950 lineal feet of underground storm drain system, hereinafter called "STORM DRAIN", as shown in concept in green on Exhibit "A" attached hereto and made a part hereof, (ii) a detention basin, hereinafter called "BASIN", as shown in concept in blue on Exhibit "A", and (iii) approximately 45 lineal feet of underground storm drain system connecting STORM DRAIN and BASIN, hereinafter called "CONNECTOR DRAIN", as shown in concept in red on Exhibit "A". Together, STORM DRAIN, BASIN and CONNECTOR DRAIN are hereinafter called "PROJECT". At its downstream terminus, STORM DRAIN connects to DISTRICT'S existing Sunnymead MDP Line S-2, Stage 1, as shown in DISTRICT'S Drawing No. 4-416; and

C. Associated with the construction of PROJECT is the construction of certain catch basins, laterals and connector pipes located within CITY held easements or rights of way, hereinafter called "APPURTENANCES"; and

D. DEVELOPER and CITY desire DISTRICT to accept ownership and responsibility for the operation and maintenance of PROJECT. Therefore, DISTRICT must review and approve DEVELOPER'S plans and specifications and subsequently inspect the construction of PROJECT; and

E. DEVELOPER and DISTRICT desire CITY to accept ownership and responsibility for the operation and maintenance of APPURTENANCES. Therefore, CITY must review and approve DEVELOPER'S plans and specifications and subsequently inspect the construction of APPURTENANCES; and

F. DISTRICT is willing to (i) review and approve DEVELOPER'S plans and specifications for PROJECT and APPURTENANCES, (ii) inspect the construction of PROJECT, and (iii) accept ownership and responsibility for the operation and maintenance of PROJECT, provided DEVELOPER (i) complies with this Agreement, (ii) pays DISTRICT the amounts specified herein to cover DISTRICT'S plan review and construction inspection costs for PROJECT, (iii) constructs PROJECT and APPURTENANCES in accordance with plans and specifications approved by DISTRICT and CITY, (iv) obtains all necessary permits, regulatory permits, licenses and rights of entry as set forth herein, (v) accepts ownership and responsibility for the operation and maintenance of PROJECT and APPURTENANCES following completion of PROJECT construction until such time as DISTRICT accepts ownership and responsibility for the operation and maintenance of PROJECT and CITY accepts ownership and responsibility for the operation and maintenance of APPURTENANCES, and (vi) obtains and conveys to DISTRICT the necessary rights of way for the inspection, operation and maintenance of PROJECT as set forth herein; and

G. CITY is willing to (i) review and approve plans and specifications prepared by DEVELOPER for PROJECT and APPURTENANCES, (ii) inspect the construction of

APPURTENANCES, (iii) accept and hold faithful performance and payment bonds submitted by DEVELOPER for PROJECT, (iv) grant DISTRICT the right to inspect, operate and maintain PROJECT within CITY rights of way, (v) consent to the recordation and conveyance of Irrevocable Offer(s) of Dedication furnished by DEVELOPER as provided herein, and (vi) accept ownership and responsibility for the operation and maintenance of APPURTENANCES, provided PROJECT and APPURTENANCES are constructed in accordance with plans and specifications approved by DISTRICT and CITY.

NOW, THEREFORE, the parties hereto mutually agree as follows:

SECTION I

DEVELOPER shall:

1. Prepare plans and specifications for PROJECT and APPURTENANCES, hereinafter called "IMPROVEMENT PLANS", in accordance with DISTRICT and CITY standards, and submit to DISTRICT and CITY for their review and approval.

2. Continue to pay DISTRICT, within thirty (30) days after receipt of periodic billings from DISTRICT, any and all such amounts as are deemed reasonably necessary by DISTRICT to cover DISTRICT'S costs associated with the review of IMPROVEMENT PLANS, review and approval of right of way and conveyance documents, and with the processing and administration of this Agreement.

3. Deposit with DISTRICT (Attention: Business Office – Accounts Receivable), at the time of providing written notice to DISTRICT of the start of PROJECT construction as set forth in Section I.8. herein, the estimated cost of providing construction inspection for PROJECT, in an amount as determined and approved by DISTRICT in accordance with Ordinance Nos. 671 and 749 of the County of Riverside, including any amendments thereto,

based upon the bonded value of PROJECT facilities to be inspected, operated and maintained by DISTRICT.

4. [This Section Intentionally Left Blank.]

5. Secure, at its sole cost and expense, all necessary licenses, agreements, permits and rights of entry as may be needed for the construction, inspection, operation and maintenance of PROJECT. DEVELOPER shall furnish DISTRICT, at the time of providing written notice to DISTRICT of the start of construction as set forth in Section I.8., with sufficient evidence of DEVELOPER having secured such necessary licenses, agreements, permits and rights of entry, as determined and approved by DISTRICT.

6. Furnish DISTRICT with copies of all permits, approvals or agreements required by any Federal or State resource and/or regulatory agency for the construction, operation and maintenance of PROJECT. Such documents include but are not limited to those issued by the U.S. Army Corps of Engineers, California Regional Water Quality Control Board, California State Department of Fish and Game and State Water Resources Control Board.

7. Provide CITY, prior to providing written notice to DISTRICT of the start of construction as set forth in Section I.8., with a faithful performance bond in the amount of 100% of the estimated cost for construction of PROJECT as determined by DISTRICT and a material and labor bond in the amount of 50% of the estimated cost for construction of the PROJECT as determined by DISTRICT. The surety, amount and form of the bonds shall be subject to the approval of DISTRICT and CITY. The bonds shall remain in full force and effect until PROJECT is accepted by DISTRICT as complete; at which time the faithful performance bond amount may be reduced to 10% for a period of one year to guarantee against any defective work, labor or materials.

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8. Notify DISTRICT in writing (Attention: Administrative Services Section), at least twenty (20) days prior to the start of construction of PROJECT. Construction shall not begin on any element of PROJECT, for any reason whatsoever, until DISTRICT has issued to DEVELOPER a written Notice to Proceed authorizing DEVELOPER to initiate PROJECT construction.

9. Grant DISTRICT, by execution of this Agreement, the right to enter upon DEVELOPER'S property where necessary and convenient for the purpose of gaining access to, and performing inspection service for, the construction of PROJECT as set forth herein.

10. Obtain and provide DISTRICT, at the time of providing written notice to DISTRICT of the start of construction of PROJECT as set forth in Section I.8., with duly executed Irrevocable Offers(s) of Dedication to the public for flood control and drainage purposes, including ingress and egress, for the rights of way deemed necessary by DISTRICT for the construction, inspection, operation and maintenance of PROJECT, as shown in concept cross-hatched in green and cross-hatched in blue on Exhibit "B" attached hereto and made a part hereof. The Irrevocable Offer(s) of Dedication shall be in a form approved by DISTRICT and shall be executed by all legal and equitable owners of the property described in the offer(s).

11. Furnish DISTRICT, when submitting the Irrevocable Offer(s) of Dedication as set forth in Section I.10., with Preliminary Reports on Title dated not more than thirty (30) days prior to date of submission of all the property described in the Irrevocable Offer(s) of Dedication.

12. Furnish DISTRICT, at the time of providing written notice to DISTRICT of the start of construction as set forth in Section I.8., with a complete list of all contractors and subcontractors to be performing work on PROJECT, including the corresponding license number

and license classification of each. At such time, DEVELOPER shall further identify in writing its designated superintendent for PROJECT construction.

13. Furnish DISTRICT, at the time of providing written notice to DISTRICT of the start of construction as set forth in Section I.8., a construction schedule which shall show the order and dates in which the DEVELOPER or DEVELOPER'S contractor proposes to carry on the various parts of work, including estimated start and completion dates. As PROJECT construction progresses, DEVELOPER shall update said construction schedule as requested by DISTRICT.

14. Furnish DISTRICT with final mylar IMPROVEMENT PLANS and assign their ownership to DISTRICT prior to the start of PROJECT construction.

15. Not permit any change to or modification of IMPROVEMENT PLANS without the prior written permission and consent of DISTRICT.

16. Comply with all Cal/OSHA safety regulations including regulations concerning confined space and maintain a safe working environment for DEVELOPER and DISTRICT employees on the site.

17. Furnish DISTRICT, at the time of providing written notice to DISTRICT of the start of construction as set forth in Section I.8., a confined space entry procedure specific to PROJECT. The procedure shall comply with requirements contained in California Code of Regulations, Title 8 Section 5158, Other Confined Space Operations, Section 5157, Permit Required Confined Space and DISTRICT Confined Space Procedures, SOM-18. The procedure shall be reviewed and approved by DISTRICT prior to the issuance of a Notice to Proceed.

18. During the construction period of PROJECT, provide Workers' Compensation Insurance in an amount required by law. A certificate of said insurance policy

shall be provided to DISTRICT, the County of Riverside and CITY at the time of providing written notice pursuant to Section I.8.

19. Commencing on the date notice is given pursuant to Section I.8. and continuing until DISTRICT accepts PROJECT for operation and maintenance:

(a) Provide and maintain or cause its contractor(s) to provide and maintain comprehensive liability insurance coverage which shall protect DEVELOPER from claim from damages for personal injury, including accidental and wrongful death, as well as from claims for property damage which may arise from DEVELOPER'S construction of PROJECT or the performance of its obligations hereunder, whether such construction or performance be by DEVELOPER, by any of its contractors, subcontractors, or by anyone employed directly or indirectly by any of them. Such insurance shall name DISTRICT, the County of Riverside and CITY as additional insureds with respect to this Agreement and the obligations of DEVELOPER hereunder. Such insurance shall provide for limits of not less than two million dollars ($2,000,000) per occurrence.

(b) Cause its insurance carrier(s) or its contractor's insurance carrier(s), who shall be authorized by the California Department of Insurance to transact the business of insurance in the State of California, to furnish DISTRICT, the County of Riverside and CITY at the time of providing written notice to DISTRICT of the start of construction as set forth in Section I.8., with certificate(s) of insurance and applicable policy endorsements showing that such insurance is in full force and

effect and that DISTRICT, the County of Riverside and CITY are named as additional insureds with respect to this Agreement and the obligations of DEVELOPER hereunder. Further, said certificate(s) shall state that the issuing company shall give DISTRICT, the County of Riverside and CITY sixty (60) days written notice in the event of any cancellation, termination, non-renewal or reduction in coverage of the policies evidenced by the certificate(s). In the event of any such cancellation, termination, non-renewal or reduction in coverage, DEVELOPER shall, forthwith, secure replacement insurance meeting the provisions of this paragraph.

Failure to maintain the insurance required by this paragraph shall be deemed a material breach of this Agreement and shall authorize and constitute authority for DISTRICT, at its sole discretion, to proceed to perform the remaining work pursuant to Section IV.3.

20. Construct, or cause to be constructed, PROJECT and APPURTENANCES at DEVELOPER'S sole cost and expense in accordance with DISTRICT and CITY approved IMPROVEMENT PLANS.

21. Within two (2) weeks of completing PROJECT construction, provide DISTRICT with written notice (Attention: Contract Administration Section) that PROJECT construction is substantially complete and requesting that DISTRICT conduct a final inspection of PROJECT.

22. Upon completion of PROJECT construction, and upon acceptance by CITY of all street rights of way deemed necessary by DISTRICT and CITY for the operation and maintenance of PROJECT, but prior to DISTRICT acceptance of PROJECT for ownership, operation and maintenance, convey, or cause to be conveyed to DISTRICT (i) flood control

easement(s), including ingress and egress, in a form approved by DISTRICT, for the rights of way as shown in concept cross-hatched in green on Exhibit "B", and (ii) fee ownership, in a form approved by DISTRICT, for the rights of way as shown in concept cross-hatched in blue on Exhibit "B".

23. At the time of recordation of the conveyance document(s) as set forth in Section I.22., furnish DISTRICT with policies of title insurance, each in the amount of not less than fifty percent (50%) of the estimated fee value, as determined by DISTRICT, for each easement parcel to be conveyed to DISTRICT, guaranteeing DISTRICT'S interest in said property as being free and clear of all liens, encumbrances, assessments, easements, taxes and leases (recorded or unrecorded), except those which, in the sole discretion of DISTRICT, are deemed acceptable.

24. At the time of recordation of the conveyance document(s) as set forth in Section I.22., furnish DISTRICT with policies of title insurance, each in the amount of not less than one hundred percent (100%) of the estimated fee value, as determined by DISTRICT, for each fee parcel to be conveyed to DISTRICT, guaranteeing DISTRICT'S interest in said property as being free and clear of all liens, encumbrances, assessments, easements, taxes and leases (recorded or unrecorded), except those which, in the sole discretion of DISTRICT, are deemed acceptable.

25. Accept ownership and sole responsibility for the operation and maintenance of PROJECT and APPURTENANCES until such time as DISTRICT accepts ownership and responsibility for operation and maintenance of PROJECT and CITY accepts ownership and responsibility for operation and maintenance of APPURTENANCES. Further, it is mutually understood by the parties hereto that prior to DISTRICT acceptance of ownership and

responsibility for the operation and maintenance of PROJECT, PROJECT shall be in a satisfactorily maintained condition as solely determined by DISTRICT.

26. Pay, if suit is brought upon this Agreement or any bond guaranteeing the completion of PROJECT, all costs and reasonable expenses and fees, including reasonable attorneys' fees, and acknowledge that, upon entry of judgment, all such costs, expenses and fees shall be computed as costs and included in any judgment rendered.

27. Upon completion of construction of PROJECT, but prior to DISTRICT acceptance of PROJECT for ownership, operation and maintenance, DEVELOPER'S civil engineer of record or construction civil engineer of record, duly registered in the State of California, shall provide DISTRICT a redlined "as-built" copy of IMPROVEMENT PLANS. After DISTRICT approval of the redlined "as-built" drawings, DEVELOPER'S engineer shall schedule with DISTRICT a time to transfer the redlined changes onto DISTRICT'S original mylars at DISTRICT'S office, after which the engineer shall review, stamp and sign PROJECT plans "AS-BUILT".

SECTION II

DISTRICT shall:

1. Review and approve IMPROVEMENT PLANS prepared by DEVELOPER prior to the start of PROJECT construction.

2. Provide CITY an opportunity to review and approve IMPROVEMENT PLANS prior to DISTRICT'S final approval.

3. Upon execution of this Agreement, record or cause to be recorded, a copy of this Agreement in the Official Records of the Riverside County Recorder.

4. Record, or cause to be recorded, the Irrevocable Offer(s) of Dedication provided by DEVELOPER pursuant to Section I.10.

5. Inspect PROJECT construction.

6. Keep an accurate accounting of all DISTRICT costs associated with the review and approval of IMPROVEMENT PLANS, the review and approval of right of way and conveyance documents and the processing and administration of this Agreement.

7. Keep an accurate accounting of all DISTRICT construction inspection costs, and within forty-five (45) days after DISTRICT acceptance of PROJECT as being complete, submit a final cost statement to DEVELOPER. If the deposit, as set forth in Section I.3. exceeds such costs, DISTRICT shall reimburse DEVELOPER the excess amount within sixty (60) days after DISTRICT acceptance of PROJECT as being complete. If at any time the costs exceed the deposit or are anticipated by DISTRICT to exceed the deposit, DEVELOPER shall pay such additional amount(s), as deemed reasonably necessary by DISTRICT to complete PROJECT, within thirty (30) days after receipt of billing from DISTRICT.

8. Accept ownership and sole responsibility for the operation and maintenance of PROJECT upon (i) DISTRICT acceptance of PROJECT construction as being complete, (ii) recordation of all conveyance documents described in Section I.22., and (iii) acceptance by CITY of all necessary street rights of way as deemed necessary by DISTRICT and CITY for the operation and maintenance of PROJECT and APPURTENANCES.

9. Provide CITY with a reproducible duplicate copy of "as-built" IMPROVEMENT PLANS upon DISTRICT acceptance of PROJECT as being complete.

SECTION III

CITY shall:

1. Review and approve IMPROVEMENT PLANS prior to the start of PROJECT construction.

2. Accept the CITY and DISTRICT approved faithful performance and payment bonds submitted by DEVELOPER as set forth in Section I.7., and hold said bonds as provided herein.

3. Inspect APPURTENACES construction.

4. Consent, by execution of this Agreement, to the recording of any Irrevocable Offer(s) of Dedication furnished by DEVELOPER pursuant to this Agreement.

5. As requested by DISTRICT, accept the Irrevocable Offer(s) of Dedication as set forth herein, and any other outstanding offers of dedication necessary for the construction, inspection, operation and maintenance of PROJECT, and, convey sufficient rights of way to DISTRICT to allow DISTRICT to construct, inspect, operate and maintain PROJECT.

6. Grant DISTRICT, by execution of this Agreement, the right to construct, inspect, operate and maintain PROJECT within CITY rights of way as set forth herein.

7. Accept ownership and sole responsibility for the operation and maintenance of APPURTENANCES upon DISTRICT acceptance of PROJECT as being complete.

SECTION IV

It is further mutually agreed:

1. All work involved with PROJECT shall be inspected by DISTRICT and shall not be deemed complete until approved and accepted in writing as complete by DISTRICT.

2. CITY and DEVELOPER personnel may observe and inspect all work being done on PROJECT, but shall provide any comments to DISTRICT personnel who shall be solely responsible for all quality control communications with the DEVELOPER'S contractor(s) during the construction of PROJECT.

3. DEVELOPER shall complete construction of PROJECT within twelve (12) consecutive months after execution of this Agreement and within ninety (90) consecutive calendar days after commencing work on PROJECT. It is expressly understood that since time is

of the essence in this Agreement, failure of DEVELOPER to perform the work within the agreed upon time shall constitute authority for DISTRICT to perform the remaining work and require DEVELOPER'S surety to pay to CITY the penal sum of any and all bonds. In which case, CITY shall subsequently reimburse DISTRICT for DISTRICT costs incurred.

4. [This Section Intentionally Left Blank.]

5. DISTRICT shall endeavor to issue DEVELOPER a Notice to Proceed within twenty (20) days of receipt of DEVELOPER'S complete written notice as set forth in Section I.8.; however, DISTRICT'S construction inspection staff is limited and, therefore, the issuance of a Notice to Proceed is subject to staff availability.

In the event DEVELOPER wishes to expedite issuance of a Notice to Proceed, DEVELOPER may elect to furnish an independent qualified construction inspector at DEVELOPER'S sole cost and expense. DEVELOPER shall furnish appropriate documentation of the individual's credentials and experience to DISTRICT for review and, if appropriate, approval. DISTRICT shall review the individual's qualifications and experience and, upon approval thereof, said individual, hereinafter called "DEPUTY INSPECTOR", shall be authorized to act on DISTRICT'S behalf on all PROJECT construction and quality control matters. If DEVELOPER'S initial construction inspection deposit furnished pursuant to Section I.3. exceeds five thousand dollars ($5,000.00), DISTRICT shall refund to DEVELOPER up to eighty percent (80%) of DEVELOPER'S initial inspection deposit within forty-five (45) days of DISTRICT'S approval of DEPUTY INSPECTOR; however, a minimum balance of five thousand dollars ($5,000.00) shall be retained on account.

6. PROJECT construction work shall be on a five (5) day, forty (40) hour work week with no work on Saturdays, Sundays or DISTRICT designated legal holidays, unless otherwise approved in writing by DISTRICT. If DEVELOPER feels it is necessary to work

more than the normal forty (40) hour work week or on holidays, DEVELOPER shall make a written request for permission from DISTRICT to work the additional hours. The request shall be submitted to DISTRICT at least seventy-two (72) hours prior to the requested additional work hours and state the reasons for the overtime and the specific time frames required. The decision of granting permission for overtime work shall be made by DISTRICT at its sole discretion and shall be final. If permission is granted by DISTRICT, DEVELOPER will be charged the cost incurred at the overtime rates for additional inspection time required in connection with the overtime work in accordance with Ordinance Nos. 671 and 749, including any amendments thereto, of the County of Riverside.

7. In the event that any claim or legal action is brought against DISTRICT or CITY in connection with this Agreement because of the actual or alleged acts or omissions by DEVELOPER, including but not limited to design, construction or failure of PROJECT or APPURTENANCES, DEVELOPER shall defend, indemnify and hold DISTRICT and CITY harmless therefrom, without cost to DISTRICT or CITY. Upon DEVELOPER'S failure to do so, DISTRICT and CITY shall be entitled to recover from DEVELOPER all of their costs and expenses, including, but not limited to, reasonable attorneys' fees.

8. DEVELOPER shall defend, indemnify and hold DISTRICT and CITY, their respective officers, agents, employees and independent contractors free and harmless from any claim or legal action whatsoever, based or asserted, pursuant to Article I, Section 19 of the California Constitution, the Fifth Amendment of the United States Constitution, or any other law or ordinance which seeks to impose any other liability or damage caused by the diversion of the waters from the natural drainage patterns, save and except claims and litigation arising through the negligence or willful misconduct of DISTRICT or CITY, which claims shall be shared by the parties on a pro rata basis based on their respective responsibilities. DEVELOPER shall defend

DISTRICT and CITY without cost to DISTRICT or CITY, and upon DEVELOPER'S failure to do so, DISTRICT and CITY shall be entitled to recover from DEVELOPER all of their costs and expenditures, including, but not limited to, reasonable attorneys' fees.

9. DEVELOPER for itself, its successors and assigns hereby releases DISTRICT and CITY, their respective officers, agents, and employees from any and all claims, demands, actions, or suits of any kind arising out of any liability, known or unknown, present or future, including, but not limited to any claim or liability, based or asserted, pursuant to Article I, Section 19 of the California Constitution, the Fifth Amendment of the United States Constitution, or any other law or ordinance which seeks to impose any other liability or damage, whatsoever, for damage caused by the discharge of drainage within or from PROJECT or APPURTENANCES. Nothing contained herein shall constitute a release by DEVELOPER of DISTRICT or CITY, their officers, agents and employees from any and all claims, demands, actions or suits of any kind arising out of any liability, known or unknown, present or future, for the negligent maintenance of PROJECT and APPURTENANCES, after the acceptance of PROJECT and APPURTENANCES by DISTRICT and CITY, respectively.

10. Any waiver by DISTRICT or by CITY of any breach of any one or more of the terms of this Agreement shall not be construed to be a waiver of any subsequent or other breach of the same or of any other term hereof. Failure on the part of DISTRICT or CITY to require exact, full and complete compliance with any terms of this Agreement shall not be construed as in any manner changing the terms hereof, or estopping DISTRICT or CITY from enforcement hereof.

11. DISTRICT and CITY each pledge to cooperate in regard to the operation and maintenance of their respective facilities as set forth herein and to discharge their respective

maintenance responsibilities in an expeditious fashion so as to avoid the creation of any nuisance condition or undue maintenance impact upon the others' facilities.

12. This Agreement is to be construed in accordance with the laws of the State of California.

13. Any and all notices sent or required to be sent to the parties of this Agreement will be mailed by first class mail, postage prepaid, to the following addresses:

RIVERSIDE COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
1995 Market Street
Riverside, CA 92501

CITY OF MORENO VALLEY
Post Office Box 88005
Moreno Valley, CA 92552-0805
Attn: Public Works Director

RICHMOND AMERICAN HOMES OF CALIFORNIA, INC.
1305 Corona Pointe Court
Corona, CA 92879
Attn: Jonathan Siemsen

14. Any action at law or in equity brought by any of the parties hereto for the purpose of enforcing a right or rights provided for by the Agreement, shall be tried in a court of competent jurisdiction in the County of Riverside, State of California, and the parties hereto waive all provisions of law providing for a change of venue in such proceedings to any other county.

15. This Agreement is the result of negotiations between the parties hereto, and the advice and assistance of their respective counsel. The fact that this Agreement was prepared as a matter of convenience by DISTRICT shall have no import or significance. Any uncertainty or ambiguity in this Agreement shall not be construed against DISTRICT because DISTRICT prepared this Agreement in its final form.

16. The rights and obligations of DEVELOPER shall inure to and be binding upon all heirs, successors and assignees.

17. DEVELOPER shall not assign or otherwise transfer any of its rights, duties or obligations hereunder to any person or entity without the written consent of the other parties

hereto being first obtained. In the event of any such transfer or assignment, DEVELOPER expressly understands and agrees that it shall remain liable with respect to any and all of the obligations and duties contained in this Agreement.

18. The individual(s) executing this Agreement on behalf of DEVELOPER hereby certify that they have the authority within their respective company(ies) to enter into and execute this Agreement, and have been authorized to do so by any and all boards of directors, legal counsel, and or any other board, committee or other entity within their respective company(ies) which have the authority to authorize or deny entering this Agreement.

19. This Agreement is intended by the parties hereto as a final expression of their understanding with respect to the subject matter hereof and as a complete and exclusive statement of the terms and conditions thereof and supersedes any and all prior and contemporaneous agreements and understandings, oral or written, in connection therewith. This Agreement may be changed or modified only upon the written consent of the parties hereto.

//

//

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on

JUL 11 2006
(to be filled in by Clerk of the Board)

RECOMMENDED FOR APPROVAL:

By _____
WARREN D. WILLIAMS
General Manager-Chief Engineer

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

By _____
MARION ASHLEY, Chairman
Riverside County Flood Control and Water Conservation District Board of Supervisors

APPROVED AS TO FORM:

JOE S. RANK
County Counsel

By _____
NEAL KIPNIS
Deputy County Counsel

Dated 6.19.06

ATTEST:

NANCY ROMERO
Clerk of the Board

By _____
Deputy

(SEAL)

Cooperative Agreement: TRs 27251 & 27251-1
JPS:blj

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JUL 11 2006 4.4

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RECOMMENDED FOR APPROVAL:

By _____
~~GEORGE GUAYANTE~~
~~Interim Public Works Director~~
Chris A. Vogt, P. E.
Public Works Director/City Engineer

CITY OF MORENO VALLEY

By _____
BONNIE FLICKINGER
Mayor

APPROVED AS TO FORM:

By _____
ROBERT HERRICK
City Attorney

ATTEST:

ALICE REED
City Clerk

By _____

(SEAL)

Cooperative Agreement: TRs 27251 & 27251-1

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RICHMOND AMERICAN HOMES OF CALIFORNIA, INC.
a Colorado corporation,

By _____
DIANA HOARD
Director of Planning

(NOTARY)

Cooperative Agreement: TRs 27251 & 27251-1

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CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of Riverside } ss.

On April 24, 2006 (Date) before me, Serina E Flores, Notary Public (Name and Title of Officer (e.g., "Jane Doe, Notary Public"))

personally appeared Diana Hoard (Name(s) of Signer(s))

☒ personally known to me

☐ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

SERINA E. FLORES
Commission # 1610189
Notary Public - California
Riverside County
My Comm. Expires Sep 30, 2009

WITNESS my hand and official seal.

Place Notary Seal Above

Signature of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: Cooperative Agreement TR's 27251 & 27251-

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____	Signer's Name: _____
☐ Individual	☐ Individual
☐ Corporate Officer — Title(s): _____	☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General	☐ Partner — ☐ Limited ☐ General
☐ Attorney in Fact	☐ Attorney in Fact
☐ Trustee	☐ Trustee
☐ Guardian or Conservator	☐ Guardian or Conservator
☐ Other: _____	☐ Other: _____
Signer Is Representing: _____	Signer Is Representing: _____
RIGHT THUMBPRINT OF SIGNER — Top of thumb here	RIGHT THUMBPRINT OF SIGNER — Top of thumb here

2006-0532069
07/26/2006 08:00A
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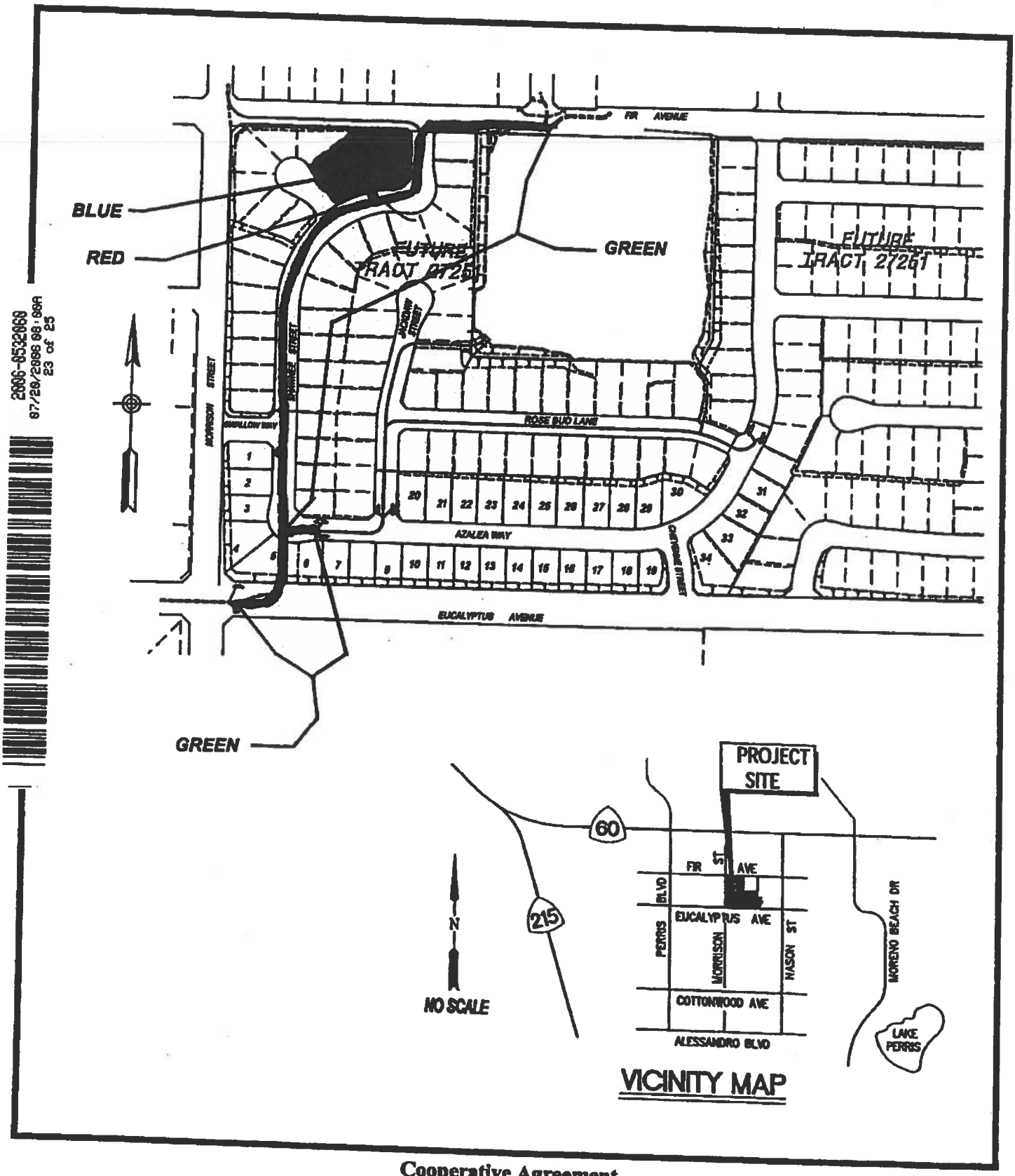
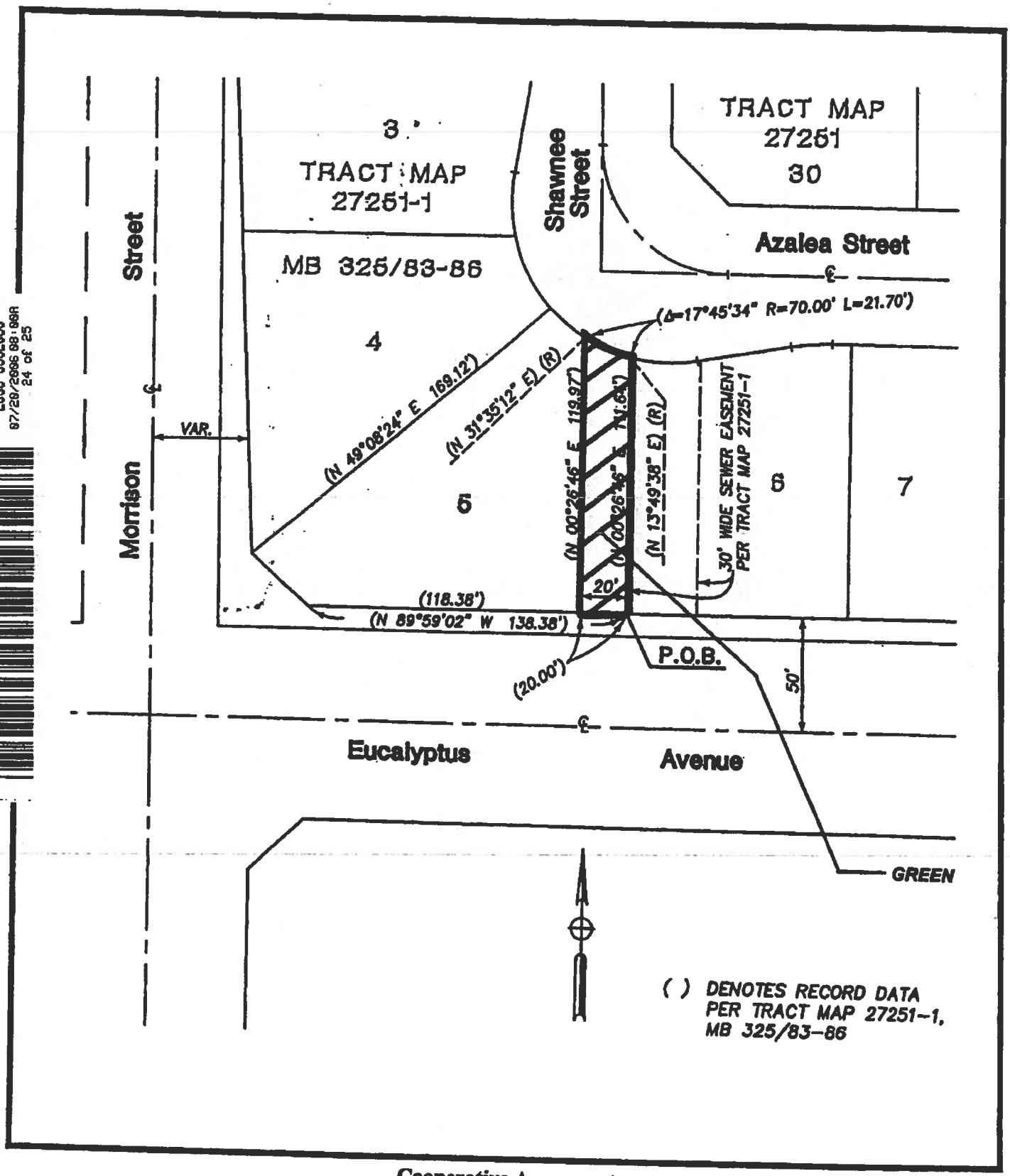
Exhibit A



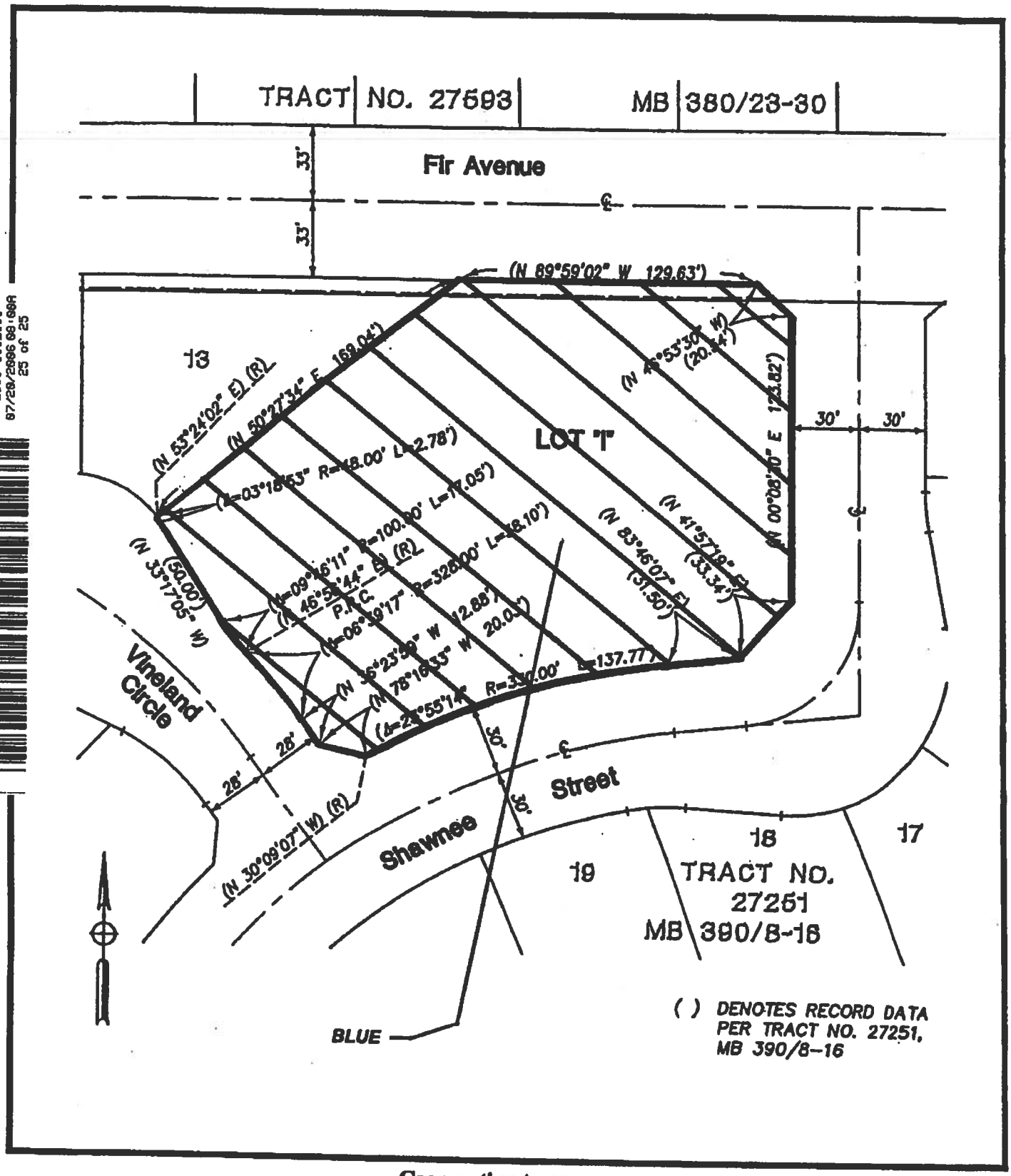
Cooperative Agreement
Tract Nos. 27251 & 27251-1
1/1

Exhibit B



Cooperative Agreement
Tract Nos. 27251 & 27251-1
1/2

Exhibit B



JASON E. UHLEY
General Manager-Chief Engineer

1995 MARKET STREET
RIVERSIDE, CA 92501
951.955.1200
FAX 951.788.9965
www.rcflood.org

223639

RIVERSIDE COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT

December 6, 2018

Mr. Michael L. Wolfe
Public Works Director/City Engineer
City of Moreno Valley
Post Office Box 88005
Moreno Valley, CA 92552-0805

Dear Mr. Wolfe:

Re: Sunnymead MDP Line S-2, Stage 2
Project No. 4-0-00727
Tract 27251

The Riverside County Flood Control and Water Conservation District is prepared to accept Sunnymead MDP Line S-2, Stage 2 for operation and maintenance in accordance with the terms of the executed Cooperative Agreement between the District, the City and Richmond American Homes of California.

We are now requesting that the City grant the District the needed easement rights as shown in the Agreement. Please proceed with the execution of the enclosed Quitclaim Deed by the City Manager and City Clerk granting the District the rights to maintain this facility.

A copy of the Cooperative Agreement and Tract Map is enclosed for your use. If you need further information, please call Ami Urista at 951.955.4518 or email at aurista@rivco.org.

Very truly yours,

FOR JIM McNEILL
Chief of Surveying and Mapping Division

Enclosures

AU:rlp

Recorded at request of, and return to:
Riverside County Flood Control and
Water Conservation District
1995 Market Street
Riverside, California 92501

NO FEE (GOV. CODE 6103)

SPACE ABOVE THIS LINE FOR RECORDER'S USE

Sunnymead MDP Line S-2, Stg. 2
Project No. 4-0-00727
Tract 27251-1
APN 487-340-005 (por.)

The undersigned grantor(s) declare(s)
DOCUMENTARY TRANSFER TAX $ NONE

QUITCLAIM DEED

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, the **CITY OF MORENO VALLEY**, does hereby remise, release, and forever quitclaim to **RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, a body politic**, all right, title and interest in and to the Public Drainage Easement, lying within Lot 5 of Tract Map 27251-1, situated in the city of Moreno Valley, County of Riverside, State of California, described as follows:

See legal description described in Exhibit "A", attached hereto and made a part hereof, to be referenced hereafter as **RCFC Parcel No. 4727-500.**

CITY OF MORENO VALLEY,
a municipal corporation:

Date: _____

By: _____
THOMAS M. DeSANTIS, City Manager

ATTEST:

PAT JACQUEZ-NARES,
Clerk to the City of Moreno Valley

By: _____
City Clerk

(SEAL)

EXHIBIT "A"

LEGAL DESCRIPTION

SUNNYMEAD MDP LINE S-2, STAGE 2 (TR 27251-1)

Parcel No. 4727-500

APN 487-340-005

That certain public drainage easement over portion of Lot 5 of Tract Map No. 27251-1 filed in Book 325, Pages 83 through 86, inclusive, of tract maps, in the City of Moreno Valley, County of Riverside, Stage of California, records of said county.

CERTIFICATE OF ACCEPTANCE

This is to certify that the interest in real property conveyed by the Quitclaim Deed, dated _____ from the CITY OF MORENO VALLEY ("Grantor") to RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT ("Grantee"), a body politic, is hereby accepted by the undersigned officer on behalf of the Board of Supervisors of the Riverside County Flood Control and Water Conservation District pursuant to authority conferred by Resolution No. 474 of the Board of Supervisors of said District adopted on May 12, 1961, and the grantee consents to the recordation thereof by its duly authorized officer.

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Date:_____

By: _____
JASON E. UHLEY
General Manager-Chief Engineer

Project: Sunnymead MDP Line S-2, Stage 2
Project No. 4-0-00727
APN 487-340-005
RCFC Parcel No. 4727-500

Report to City Council

TO:	Mayor and City Council
FROM:	Richard J. Sandzimier, Community Development Director Steve Fries, Animal Services Division Manager
AGENDA DATE:	March 5, 2019
TITLE:	PETCO FOUNDATION GRANT AWARD

RECOMMENDED ACTION

Recommendations:

1. Receive and accept a grant award in the amount of $30,000 from the Petco Foundation for the purpose of enhancing the health of community pets by providing low to no-cost spay-neuter services, pet vaccinations and microchips to low income pet owners along with maintaining the success of the TNR (Trap-Neuter-Release) Program for the community and feral cat population.

2. Approve the revenue and expense budget adjustments in the amount of $30,000 as set forth in the Fiscal Impact section of this report.

SUMMARY

This report recommends acceptance of a $30,000 grant award from the Petco Foundation and approval of the related revenue and expense budget adjustments to the Community Development Department budget. The grant funds will be used to support services for both owned and homeless community pets, targeting in particular, vulnerable pets that have higher likelihood of missing opportunity to receive important medical support services such as spay and neuter procedures, routine vaccinations, and microchipping. This is an outreach opportunity designed to achieve a 5% reduction in animal intake thereby continuing to increase the rate of positive outcomes for both dogs and cats at the Moreno Valley Animal Shelter.

DISCUSSION

The Petco Foundation provides grant funds to municipal animal shelters throughout the United States for a variety of programs to assist companion animals. The Petco

Foundation previously awarded the City the following grants:

- Trap-Neuter-Release (TNR) – Community/Feral Cat Program ($25,000 award in 2016)
- Canine Enrichment Play Yard ($20,000 award in 2017)

The Animal Services Division submitted a grant application to the Petco Foundation in September 2018 requesting funds to continue our successful efforts with our TNR Program, and included a community outreach component that could be used to assist low-income residents in gaining access to important veterinary services for their pets. On February 15, 2019, the Petco Foundation announced their grant award to the City.

The objectives of this important funding are:

- Keep community pets healthy and reduce unwanted litters of pets entering the Animal Shelter
- Achieve a 5% reduction in the annual intake of animals thereby allowing more time and space for impounded pets to achieve a positive outcome
- Assist our low income residents who own pets access to basic veterinary care for their pets through spay/neuter and routine vaccination services
- Continue with our successful TNR (Trap-Neuter-Release) Community & Feral Cat Program

This will be the third grant award to the City by the Petco Foundation.

This program funding is restricted for the purpose of an outreach program to support both owned and homeless community pets through providing important medical services to reduce the Animal Shelter's annual intake of homeless pets, while also promoting the positive outcomes for pets placed into the care of the Moreno Valley Animal Shelter.

ALTERNATIVES

1) Accept the grant award of $30,000 and approve the revenue and expense budget adjustments. *Staff recommends this alternative as it can increase the rate of positive outcomes for pets at the Moreno Valley Animal Shelter.*

2) Do not accept the grant award of $30,000. *Staff does not recommend this alternative.*

FISCAL IMPACT

The fiscal impact of accepting the $30,000 grant award will increase the Animal Services Division's expenditures and revenue budgets for FY 2018-19 as identified below.

Description	Fund	GL Account No.	Type	FY 18/19	Proposed	FY 18/19

			(Rev/Exp)	Budget	Adjustments	Amended Budget
Grant Operating Revenue	2300	2300-20-38-73313-489000	Rev	$0.00	$30,000	$30,000
Professional Svcs. - Veterinary	2300	2300-20-38-73313-620250	Exp	$0.00	$25,000	$25,000
Other Materials	2300	2300-20-38-73313-630330	Exp	$0.00	$5,000	$5,000

PREPARATION OF STAFF REPORT

Prepared By:
Steve Fries
Animal Services Division Manager

Department Head Approval:
Richard J. Sandzimier
Community Development Director

CITY COUNCIL GOALS

Positive Environment. Create a positive environment for the development of Moreno Valley's future.

CITY COUNCIL STRATEGIC PRIORITIES

1. **Economic Development**
2. **Public Safety**
3. **Library**
4. **Infrastructure**
5. **Beautification, Community Engagement, and Quality of Life**
6. **Youth Programs**

Objective 2.11: Protect people and property against animal related injury and nuisance through enforcement of local and state animal welfare laws and ordinances.

ATTACHMENTS

1. PetcoFoundationGrantAward-$30K-2-15-19

APPROVALS

Budget Officer Approval	✓ Approved	2/22/19 4:33 PM
City Attorney Approval	✓ Approved	2/25/19 1:12 PM
City Manager Approval	✓ Approved	2/26/19 6:28 PM

Steve Fries

From: foundationpartners@petco.com <do-not-reply.grants07-us-east-1@fluxx.io>
Sent: Friday, February 15, 2019 4:36 PM
To: Steve Fries
Subject: Your application to the Petco Foundation for support is approved

Dear Moreno Valley Animal Shelter,

Congratulations!

The Petco Foundation is thrilled to support your lifesaving efforts by investing $30,000.00 in your organization in response to your application for support (ID number G-AWOM05190).

Funds will be distributed 3 - 6 weeks following receipt of this email.

REQUIREMENTS:
By endorsing and depositing the grant award check, or accepting the electronic grant award deposit*, you represent and warrant that your organization will:

- Use all funds for lifesaving purposes.
- Announce and celebrate the investment as outlined by you in the grant application (you will receive further instructions in a separate email).
- Complete all assigned follow up grant reports in a timely manner.
- Complete your organization's Annual Partnership Report (accessible within the Partner Portal) each year to stay eligibl e for grant awards.

AWARD AMOUNT:

- The Petco Foundation's funding decisions are made through an evaluation process whereby your organization was compared against its peers. Multiple factors are considered including the total number of animals handled, budgets, previous funding history, relationships with Petco stores and other factors so that we may make equitable funding decisions.
- Based on this analysis, your award amount may be greater or less than the amount you suggested. As long as your use of funds stays focused on lifesaving objectives, you do not need to seek specific approval for each expenditure that deviates from the project description provided in the application. We trust that you will utilize these funds in the best manner possible to achieve the greatest return for your organization and community.

MUNICIPAL ORGANIZATIONS:

- Municipalities are reminded that, per t he certification you agreed to during the application process, funds donated shall not supplant or replace existing government funding, may not be appropriated to the general funds of the municipality, but rather must be utilized and become an additional part of the funding of the animal control sheltering department.

ELECTRONIC PAYMENTS:

- Get your funds quicker and never lose a check in the mail - sign up for electronic payments! Login into the Petco Foundation Partner Portal and you'll find a link to enrollment information and instructions on the left side menu.

Thank you for all you do for animals! We look forward to hearing about the amazing lifesaving work you are able to accomplish with this investment.

Sincerely,

The Petco Foundation Team

**Organizations receiving electronic funds that cannot agree to the grant te r ms and conditions, as outlined in this and the recognition award letters, must notify the Petco Foundation immediately at petcofoundation@petco.com and return funds within 30 days of receipt.*

The Petco Foundation is a 501c3 nonprofit, tax exempt corporation, tax ID 33-0845930

Report to City Council

TO:	Mayor and City Council
FROM:	Richard J. Sandzimier, Community Development Director
AGENDA DATE:	March 5, 2019
TITLE:	SECOND READING AND ADOPTION FOR ORDINANCE NO. ___ REGARDING TRANSPORTATION UNIFORM MITIGATION FEE (TUMF)

RECOMMENDED ACTION

That the City Council conduct second reading by title only and adopt Ordinance No. XX

SUMMARY

This report recommends adoption of Ordinance No. XX, introduced at the last City Council meeting, amending portions of Chapter 3.44 of Title 3 of the City of Moreno Valley Municipal Code, which include a process for shifting responsibility from the City to the Western Riverside Council of Governments (WRCOG) to perform calculation for and collection of fees under the Western Riverside County Transportation Uniform Mitigation Fee (TUMF) Program.

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DISCUSSION

Based on review and consideration of the Ordinance No. XX to amend portions of Chapter 3.44 of Title 3 of the City of Moreno Valley Municipal Code, which include a process for shifting responsibility from the City to the Western Riverside Council of Governments (WRCOG) to perform calculation for and collection of fees under the Western Riverside County Transportation Uniform Mitigation Fee (TUMF) Program. The City Council took actions to introduce the ordinance at the February 19, 2019 City Council meeting, and to schedule the introduced ordinance for second reading and final action at the next regular City Council meeting.

ALTERNATIVES

The City Council has the following alternatives to consider:

1. Conduct the second reading by title only and adopt Ordinance No. XX.
2. Provide revisions to the draft Ordinance and have staff return with the revised draft for another adoption process.
3. Provide alternate direction to staff.

NOTIFICATION

Agenda was posted in accordance with the Brown Act.

PREPARATION OF STAFF REPORT

Prepared By:
Claudia Manrique
Associate Planner

Department Head Approval:
Richard J Sandzimier
Community Development Director

Concurred By:
Patty Nevins
Planning Official

CITY COUNCIL GOALS

Public Safety. Provide a safe and secure environment for people and property in the community, control the number and severity of fire and hazardous material incidents, and provide protection for citizens who live, work and visit the City of Moreno Valley.

Positive Environment. Create a positive environment for the development of Moreno Valley's future.

Community Image, Neighborhood Pride and Cleanliness. Promote a sense of community pride and foster an excellent image about our City by developing and executing programs which will result in quality development, enhanced neighborhood preservation efforts, including home rehabilitation and neighborhood restoration.

CITY COUNCIL STRATEGIC PRIORITIES

1. **Economic Development**
2. **Public Safety**
3. **Library**
4. **Infrastructure**
5. **Beautification, Community Engagement, and Quality of Life**
6. **Youth Programs**

Objective 4.7: Demonstrate innovative and industry leading transportation systems.

Objective 4.8: Promote transit as an essential mode of transportation.

Objective 4.9: Expand upon existing Intelligent Transportation Systems.

ATTACHMENTS

1. Ordinance

APPROVALS

Budget Officer Approval	✓ Approved	2/20/19 2:53 PM
City Attorney Approval	✓ Approved	2/25/19 1:04 PM
City Manager Approval	✓ Approved	2/26/19 6:27 PM

Ordinance _____

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, AMENDING CHAPTER 44 OF TITLE 3 TO TRANSFER THE RESPONSIBILITY FOR CALCULATION AND COLLECTION OF FEES UNDER THE WESTERN RIVERSIDE COUNTY TRANSPORTATION UNIFORM MITIGATION FEE PROGRAM TO WESTERN RIVERSIDE COUNCIL OF GOVERNMENTS

The City Council of the City of Moreno Valley does ordain as follows:

SECTION 1. GENERAL:

1.1 Western Riverside Council of Governments (WRCOG), upon the recommendation of the WRCOG Executive Committee, has adopted a revision to the Transportation Uniform Mitigation Fee (TUMF) calculation and collection process to provide an option in which WRCOG calculates and collects the TUMF Fee on behalf of member agencies that elect to participate.

1.2 The City Council desires to amend Chapter 44 of Title 3 of the Moreno Valley Municipal Code to permit WRCOG to calculate and collect the TUMF Fee on behalf of the City.

SECTION 2. FINDINGS:

2.1 The City is a member agency of the Western Riverside Council of Governments ("WRCOG"), a joint powers agency comprised of the County of Riverside and 18 cities located in Western Riverside County. Acting in concert, the WRCOG Member Agencies developed a plan whereby the shortfall in funds needed to enlarge the capacity of the Regional System of Highways and Arterials in Western Riverside County (the "Regional System") could be made up in part by a Transportation Uniform Mitigation Fee ("TUMF") on future residential, commercial and industrial development.

2.2 WRCOG, upon the recommendation of the WRCOG Executive Committee, now desires to adopt a process in which WRCOG calculates and collects TUMF on behalf of member agencies under the Western Riverside County Transportation Uniform Mitigation Fee Program Ordinance of 2018.

2.3 The City Council finds that this Ordinance is not a "project" as defined by CEQA.

2.4. The findings set forth in Ordinance No.925 remain true and correct, and by this reference are incorporated into this Ordinance as if set forth in full herein. This Ordinance shall amend the provisions of Ordinance No. 925, and to the extent any

provisions herein conflict with any provisions of Ordinance No. 925 or any other ordinance of the City, the City Council finds and determines that it is the intent of the City Council that the provisions herein shall control.

SECTION 3. MUNICIPAL CODE AMENDED

3.1. Section 3.44.040 of Chapter 3.40, Title 3 of the City of Moreno Valley Municipal Code is hereby repealed and replaced to read as follows:

"3.44.040 Establishment of the transportation uniform mitigation fee.

A. Adoption of TUMF Schedule. The city council shall adopt an applicable TUMF schedule through a separate resolution, which may be amended from time to time.

B. Fee Calculation. The fees shall be calculated by WRCOG according to the calculation methodology fee set forth in the WRCOG TUMF Fee Calculation Handbook adopted July 14, 2003, as amended from time to time. In addition to data in the Fee Calculation Handbook, WRCOG staff and the local agency may consider the following items when establishing the appropriate fee calculation methodology:

1. Underlying zoning of the site;
2. Land-use classifications in the latest Nexus Study;
3. Project specific traffic studies;
4. Latest standardized reference manuals such as the Institute of Traffic Engineers Trip Generation Manual;
5. Previous TUMF calculations for similar uses;
6. WRCOG staff shall approve final draft credit or reimbursement agreement prior to execution.

WRCOG shall have final determination regarding the appropriate methodology to calculate the fee based on the information provided by the City of Moreno Valley. In case of any dispute among the applicant, WRCOG, or the local agency regarding the fee calculation methodology, the dispute resolution process in the TUMF administrative plan will apply.

C. Fee Adjustment. The fee schedule may be periodically reviewed and the amounts adjusted by the WRCOG executive committee. By amendment to the resolution reference in subsection A of this section, the fees may be increased or decreased to reflect the changes in actual and estimated costs of the regional system including, but not limited to, debt service, lease payments and construction costs. The adjustment of the fees may also reflect changes in the facilities required to be constructed, in estimated revenues received pursuant to this chapter, as well as the availability or lack thereof of other funds with which to construct the regional system. WRCOG shall review the TUMF Program no less than every four years after the effective date of the ordinance codified in this chapter.

D. Purpose. The purpose of the TUMF is to fund those certain improvements to the regional system as depicted in Exhibit “A” and identified in the 2016 Nexus Study, Exhibit “B” incorporated by reference herein.

E. Applicability. The TUMF shall apply to all new development within the city, unless otherwise exempt hereunder.

F. Exemptions. The following types of new development shall be exempt from the provisions of this chapter and in the TUMF administrative plan:

1. Low-income residential housing as described in Section 3.44.030 of this chapter and in the TUMF administrative plan.
2. Government/public buildings, public schools, and public facilities as described in Section 3.44.030 of this chapter and in the TUMF administrative plan. Airports that are public use airports and are appropriately permitted by Caltrans or other state agency.
3. The rehabilitation and/or reconstruction of any habitable structure in use on or after January 1, 2000, provided that the same or fewer traffic trips are generated as a result thereof.
4. Development projects which are the subject of a public facilities development agreement entered into pursuant to Government Code Section 65864 et seq., prior to the effective date of Ordinance No. 623 Section 2.2, 2003, wherein the imposition of new fees are expressly prohibited, provided that if the term of such a development agreement is extended by amendment or by any other manner after the effective date of Ordinance No. 623 Section 2.2, 2003, the TUMF shall be imposed.
5. Guest dwellings as defined in the city of Moreno Valley Municipal Code.
6. Additional single-family residential units located on the same parcel pursuant to the provisions of any agricultural zoning classifications as defined in the city of Moreno Valley Municipal Code.
7. Kennels and catteries established in connection with an existing single-family residential unit.
8. Accessory Dwelling Units, detached second units and attached second units as defined in the City of Moreno Valley Municipal Code.
9. Any sanctuary, or other activity under the same roof of a church or other house of worship that is not revenue generating and is eligible for a property tax exemption (excluding concert venues, coffee/snack shops, book stores, for-profit pre-school day-cares, etc., which would be assessed TUMF).
10. Any nonprofit corporation or nonprofit organization offering and conducting full-time day school at the elementary, middle school or high school level for students between the ages of five and eighteen (18) years.

11. New single-family homes, constructed by nonprofit organizations, specially adapted and designed for maximum freedom of movement and independent living for qualified disabled veterans.
12. Other uses may be exempt as determined by the WRCOG executive committee as further defined in the TUMF administrative plan.

G. Credit. Regional system improvements may be credited toward the TUMF in accordance with the TUMF administrative plan and the following:

Regional Tier.

1. Arterial Credits. If a developer constructs arterial improvements identified on the regional system, the developer shall receive credit for all costs associated with the arterial component based on approved Nexus Study for the regional system effective at the time the credit agreement is entered into. WRCOG staff must pre-approve any credit agreements that deviate from the standard WRCOG approved format.
2. Other Credits. In special circumstances, when a developer constructs off-site improvements such as an interchange, bridge, or railroad grade separation, credits shall be determined by WRCOG and the city in consultation with the developer. All such credits must have prior written approval from WRCOG.
3. The amount of the development fee credit shall not exceed the maximum amount determined by the Nexus Study for the regional system at the time the credit agreement is entered into or actual costs, whichever is less.

Local Tier.

1. The local jurisdictions shall compare facilities in local fee programs against the regional system and eliminate any overlap in its local fee program except where a recognized financing district has been established.
2. If there is a recognized financing district established, the local agency may credit that portion of the facility identified in both programs against the TUMF in accordance with the TUMF administrative plan. (Ord. 925 § 2, 2017)

3.2 Section 3.44.060 of Chapter 3.40, Title 3 of the City of Moreno Valley Municipal Code is hereby repealed and replaced to read as follows:

3.44.060 Procedures for the levy, collection and disposition of fees.

A. Authority of the Community Development Department. The director of community development, or designee, is hereby authorized to provide WRCOG with all necessary information concerning new Development Projects that are subject to the TUMF to enable WRCOG to calculate the TUMF fees in a manner consistent with the TUMF Administrative Plan.

B. Payment and Collection. Payment of the TUMF fees shall be as follows:

1. All fees collected hereunder shall be calculated and collected by WRCOG for deposit, investment, accounting, and expenditure in accordance with the provisions of this chapter, the TUMF Administrative Plan and Mitigation Fee Act.

2. The fees shall be paid at the time a certificate of occupancy is issued for the development project or upon final inspection, whichever comes first (the "payment date"). However, this section should not be construed to prevent payment of the fees prior to issuance of an occupancy permit or final inspection. Fees may be paid at the issuance of a building permit, and the fee payment shall be calculated based on the fee in effect at that time, provided the developer tenders the full amount of his or her TUMF obligation. If the developer makes only a partial payment prior to the payment date, the amount of the fee due shall be based on the TUMF fee schedule in place on the payment date. The fees shall be calculated according to fee schedule set forth in this chapter and the calculation methodology set forth in the Fee Calculation Handbook adopted July 14, 2003, as amended from time to time.

3. The fees required to be paid shall be the fee amounts in effect at the time payment is due under this chapter, not the date the ordinance codified in this chapter was initially adopted. The city shall not enter into a development agreement which freezes future adjustments of the TUMF.

4. If all or part of any Development Project is sold prior to payment of the fee, the property shall continue to be subject to the requirement for payment of the fee. The obligation to pay the fee shall run with the land and be binding on all the successors in interest to the property.

5. Fees shall not be waived.

C. Issuance of Certificate of Occupancy. The City shall not issue a certificate of occupancy for any Development Project until WRCOG has provided written confirmation to the City that it has collected the TUMF fee.

D. Appeals. Appeals shall be filed with WRCOG in accordance with the provisions of the TUMF administrative plan. Appealable issues shall be the application of the fee, application of credits, application of reimbursement, application of the legal action stay and application of exemption.

E. Reports to WRCOG. The director of community development, or designee, shall prepare and deliver to the executive director of WRCOG periodic reports as will be established in the administrative plan. (Ord. 925 § 2, 2017)

3.3 Section 3.44.070 of Chapter 3.40, Title 3 of the City of Moreno Valley Municipal Code is hereby repealed and replaced to read as follows:

3.44.070 Appointment of the TUMF administrator.

WRCOG is hereby appointed as the administrator of the transportation uniform mitigation fee program. WRCOG is hereby authorized to collect all fees generated from the TUMF within the city, and to invest, account for and expend such fees in accordance

with the provisions of this chapter and the Mitigation Fee Act. The detailed administrative procedures concerning the implementation of this chapter shall be contained in the TUMF administrative plan. Furthermore, the TUMF administrator shall use the Fee Calculation Handbook adopted July 14, 2003, as amended from time to time, for the purpose of calculating a developer's TUMF obligation. In addition to detailing the methodology for calculating all TUMF obligations of different categories of new development, the purpose of the Fee Calculation Handbook is to clarify for the TUMF administrator, where necessary, the definition and calculation methodology for uses not clearly defined in the respective TUMF ordinances.

WRCOG shall expend only that amount of the funds generated from the TUMF for staff support, audit, administrative expenses, and contract services that are necessary and reasonable to carry out its responsibilities and in no case shall the funds expended for salaries and benefits exceed one percent of the revenue raised by the TUMF Program. The TUMF administrative plan further outlines the fiscal responsibilities and limitations of the administrator.

SECTION 4. EFFECT

No provisions of this Ordinance shall entitle any person who has already paid the TUMF to receive a refund, credit or reimbursement of such payment. This Ordinance does not create any new TUMF.

SECTION 5. SEVERABILITY

If any one or more of the terms, provisions or sections of this Ordinance shall to any extent be judged invalid, unenforceable and/or voidable for any reason whatsoever by a court of competent jurisdiction, then each and all of the remaining terms, provisions and sections of this Ordinance shall not be affected thereby and shall be valid and enforceable.

SECTION 6. NO PROCEDURAL DEFENSES

Prohibition of Jurisdictions from raising procedural defenses, including without limitation a statute of limitations, laches, the California Government Tort Claims Act, and necessary parties in a dispute with WRCOG regarding the matters set forth herein.

SECTION 7. EFFECT OF ENACTMENT

Except as specifically provided herein, nothing contained in this ordinance shall be deemed to modify or supersede any prior enactment of the City Council, which addresses the same subject addressed herein.

SECTION 8. NOTICE OF ADOPTION

Within fifteen days after the date of adoption hereof, the City Clerk shall certify to the adoption of this ordinance and cause it to be posted in three public places within the city.

SECTION 9. EFFECTIVE DATE

This ordinance shall take effect on May 1, 2019.

INTRODUCED at a regular meeting of the City Council on February 19, 2019 and PASSED, APPROVED, and ADOPTED by the City Council on ____ the following roll call vote, to wit:

AYES:	Council Members -
NOES:	Council Members -
ABSENT:	Council Members -
ABSTAIN:	Council Members -

_____
Mayor

ATTEST: _____
Mayor

_____
Pat Jacquez-Nares, CMC & CERA, City Clerk

APPROVED AS TO FORM:

_____
Martin D. Koczanowicz, City Attorney

Report to City Council

TO:	Mayor and City Council
FROM:	Richard J. Sandzimier, Community Development Director
AGENDA DATE:	March 5, 2019
TITLE:	2018 GENERAL PLAN ANNUAL REPORT

RECOMMENDED ACTION

Recommendations: That the City Council:

1. **CERTIFY** that this action on the General Plan Annual Progress Report is exempt under the general rule provision allowed in Section 15061(b)(3) of the California Environmental Quality Act (CEQA) Guidelines.

2. **APPROVE** Resolution No. 2019-_____, approving the General Plan Annual Progress Report and directing staff to submit the report to the State Office of Planning and Research and the State Department of Housing and Community Development by April 1, 2019.

SUMMARY

Government Code Section 65400 requires that cities submit an annual progress report on the status of their General Plan and progress on its implementation to the Governor's Office of Planning and Research (OPR) and the Department of Housing and Community Development (HCD). Prior to submittal to the state, the annual report must be presented to the City Council for review and acceptance.

BACKGROUND

California State Law requires each city to adopt a comprehensive, long-term General Plan for its physical development, including consideration of any land located outside its boundaries that bears a relationship to its planning activities. The City's General Plan serves as the blueprint for future growth and development; as a blueprint for the future, the plan contains goals, objectives, policies and programs designed to provide decision makers with information and a basis for all land use related decisions.

The City of Moreno Valley incorporated on December 3, 1984, and the City's first General Plan was adopted on September 8, 1988. The last comprehensive update of the General Plan was approved by the City Council on July 11, 2006. The last update of the Housing Element of the General Plan was approved by the City Council on February 11, 2014.

The existing General Plan incorporates all required elements as follows, with dates of the last respective Element update noted:

- Circulation Element (2006)
- Community Development Element (2006)
- Conservation Element (2006)
- Housing Element (2014)
- Parks, Recreation and Open Space Element (2006)
- Safety/Noise Element (2006)

The Housing Element is the only mandatory Element of the General Plan that must be updated on a set schedule. The last update to the city's Housing Element was completed in February 2014 and HCD provided the City with certification of the document on May 19, 2014. The next required update of the Housing Element is in year 2021.

Aside from the Housing Element, state law recommends that local governments update their other general plan elements "periodically" but does not specify how often. Consistent with prudent planning practices and in light of changing local, regional, and market influences, other elements of the General Plan should be updated from time to time to ensure the policies and goals reflect desired vision for the city, are considerate of pertinent changes in planning laws and environmental regulations, and do not become stale with respect to implementation. The last comprehensive update of the City General Plan was completed in year 2006.

ANNUAL REPORT CONTENTS

The 2018 General Plan Annual Progress Report (Attachment 1) summarizes the City of Moreno Valley's progress towards implementing the goals, policies and programs of the City's General Plan. It covers the period of January 1, 2018 through December 31, 2018. The General Plan Annual Report includes a report of General Plan amendments and housing approved by the Planning Commission and City Council in 2018. Five (5) General Plan Amendments were approved during this annual reporting period.

General Plan Amendments

Two (2) of the General Plan Amendments were residential projects. The first was for an area known as the Moreno Valley Ranch Specific Plan 193. With this project, PEN16-0128, the Moreno Valley Ranch Specific Plan was amended along with an amendment, PEN16-0127, to the land use element of the General Plan to convert approximately 22 acres of Open Space/Golf Course (GC) designated property to residential land use with

a density range of up to approximately 20 dwelling units per acre. The amendments were processed concurrently with a Plot Plan to build a 417-unit multiple-family apartment complex on the 22 acres. A second General Plan Amendment affecting residential land use changed 8.85 acres of previously designated Residential 3 (R3) land to Residential 10 (R10). This change increased the potential development intensity of the land from large lot single-family dwelling units of up to three units per acre, to smaller lot single-family residential development of up to ten dwelling units per acre. Tentative Tract Map 37544 (PEN18-0092) was approved concurrently for 45 single-family lots. Both of these projects are consistent with established General Plan Goals and Objectives 9.2.1 and 9.2.2, which promote the rational utilization of presently underdeveloped and undeveloped parcels and provision of a wide range of residential opportunities and dwelling types to meet the demands of present and future residents of all socioeconomic groups.

A third General Plan Amendment, PEN16-0013, was processed to modify portions of the Festival Specific project site north of State Route 60 and east of Heacock from Commercial (C) and Office (O) land use designations to Business Park (BP). A fourth General Plan Amendment, PEN18-0024, also involved an amendment of land previously designated for Office (O) land use located at the northeast corner of Frederick and Brodiaea to Business Park (BP). Both of these amendments were processed in response to market demands for broader opportunities for industrial land uses that may provide a sound and diversified economic base and ample employment opportunities for the citizens of Moreno Valley.

Finally General Plan Amendment PEN16-0048 involved a land use designation change from Residential 2 (R2) to Office (O) on vacant land along the east side of Nason Street south of Brodiaea. The amendment enables development of a new medical office complex that is supportive and compatible with land uses at the neighboring Riverside University Health System - Medical Center (RUHS-MC) and creates opportunity for more diversified professional employment opportunities.

Housing

HCD requires the reporting of Housing Element implementation on specific State reporting forms, which were updated on January 16, 2019. The method of reporting of Housing Element implementation is established by HCD with the purpose of tracking overall housing production in a community, as well as, more specifically, a City's progress towards meeting its Regional Housing Needs Allocation (RHNA). The City's Housing Element Implementation Progress Report is included as Appendix A to the General Plan Annual Report (Attachment 1).

In summary, 434 new residential units were finaled in 2018, including ten (10) apartment units, 423 single-family residences, and one accessory dwelling unit. All ten apartments fall into the Moderate Income Level Housing (>=8 units/acre) category, and all of the single-family residences fall into the Above Moderate Income Level Housing (1-5 units/acre) category. The City's progress in meeting its Year 2014-2021 RHNA goals is summarized in the table below.

Housing Unit Construction in Relation to RHNA				
Income Level	*2014-2021 RHNA (# units)*	*2017 Annual Report Remaining RHNA Need*	*New Units 2018*	*2018 Remaining RHNA Need*
Very Low	1500	1500	0	1500
Low	993	993	0	993
Moderate	1112	1020	10	1010
Above-Moderate	2564	1906	424	1484
Total	**6,169**	**5,548**	**434**	**4,987**

In conclusion, the General Plan Annual Report prepared and presented to the City Council satisfies the State-mandated annual report on the implementation status of Moreno Valley's General Plan. The actions, plans, programs, and projects documented in the Annual Report represent the City's commitment to achieving the goals and objectives set forth in the State required seven (7) mandated Elements.

Prior to City Council consideration, the Planning Commission reviewed the proposed General Plan Annual Report on February 14, 2019, and recommended approval of the report to the City Council.

ENVIRONMENTAL

The General Plan Annual Report qualifies for the general rule exemption in accordance with Section 15061 of the California Environmental Quality Act (CEQA) Guidelines.

ALTERNATIVES

1. Approve the General Plan Annual Report (PEN19-0002) and direct staff to submit the report to the State Office of Planning and Research (OPR) and State Department of Housing and Community Development (HCD) by April 1, 2019. Staff recommends this alternative.

2. Do not approve the General Plan Annual Report, do not submit the report to the State Office of Planning and Research (OPR) and State Department of Housing and Community Development (HCD), and provide alternate direction. Staff does not recommend this alternative as it would put the City in the position of being out of compliance with State law.

FISCAL IMPACT

There is no fiscal impact associated with the approval and recommendation of the General Plan Annual Report.

NOTIFICATION

Posting of the agenda.

PREPARATION OF STAFF REPORT

Prepared by:
Claudia Manrique
Associate Planner

Approved by:
Richard J. Sandzimier
Community Development Director

Concurred By:
Patty Nevins
Planning Official

CITY COUNCIL GOALS

Public Safety. Provide a safe and secure environment for people and property in the community, control the number and severity of fire and hazardous material incidents, and provide protection for citizens who live, work and visit the City of Moreno Valley.

Positive Environment. Create a positive environment for the development of Moreno Valley's future.

Community Image, Neighborhood Pride and Cleanliness. Promote a sense of community pride and foster an excellent image about our City by developing and executing programs which will result in quality development, enhanced neighborhood preservation efforts, including home rehabilitation and neighborhood restoration.

CITY COUNCIL STRATEGIC PRIORITIES

1. **Economic Development**
2. **Public Safety**
3. **Library**
4. **Infrastructure**
5. **Beautification, Community Engagement, and Quality of Life**
6. **Youth Programs**

Objective 1.9: Ensure the City's General Plan articulates the vision for how Moreno Valley wants to evolve over time, and provides an orderly and predictable process through which this vision is developed and implemented, including new attention to economic development, sustainability, public health, and innovation.

ATTACHMENTS

1. 2018 General Plan Annual Report
2. Appendix A - Housing Element Implementation Progress Report
3. Appendix B - Annual Report GP Goals-Policies
4. Planning Commission Staff Report

5. Resolution No.

APPROVALS

Budget Officer Approval	✓ Approved	2/20/19 3:01 PM
City Attorney Approval	✓ Approved	2/25/19 1:35 PM
City Manager Approval	✓ Approved	2/26/19 6:25 PM

CITY OF MORENO VALLEY
Community Development Department
Planning Division

GENERAL PLAN ANNUAL REPORT

JANUARY 1, 2018 – DECEMBER 31, 2018

ATTACHMENT 1

TABLE OF CONTENTS

ATTACHMENTS

ACKNOWLEDGEMENTS

CITY COUNCIL (Elected)	DISTRICT	TERM EXPIRES
Dr. Yxstian A. Gutierrez, Mayor	CITYWIDE MAYOR	November 2022
Victoria Baca, Mayor Pro-Tem	1	November 2020
Dr. Carla Thornton	2	November 2022
David Marquez	3	November 2020
Ulises Cabrera	4	November 2022

PLANNING COMMISSION (Appointed)	TERM EXPIRES
Jeffrey Barnes, Chairperson	March 31, 2019
Patricia Korzec. Vice Chairperson	March 31, 2019
Alvin DeJohnette	March 31, 2021
Ray L. Baker	March 31, 2021
Jeffrey D. Sims	March 31, 2019
Robert Harris	March 31, 2021
JoAnn Stephan	March 31, 2021

CITY MANAGER
Thomas DeSantis

ASSISTANT CITY MANAGER
Allen D. Brock

COMMUNITY DEVELOPMENT DEPARTMENT
Richard Sandzimier, Community Development Director

Planning Division
Patty Nevins, Planning Official
Chris Ormsby, AICP Senior Planner
Claudia Manrique, Associate Planner
Gabriel Diaz, Associate Planner
Jeffrey Bradshaw, Associate Planner
Julia Descoteaux, Associate Planner
Leticia Esquivel, Senior Permit Technician
Grace Espino-Salcedo, Permit Technician
Summer Looy, Permit Technician
Vera Sanchez, Senior Administrative Assistant
Ashley Aparicio, Administrative Assistant

ANNUAL REPORT SUMMARY

BACKGROUND

On December 3, 1984, the City of Moreno Valley was incorporated as a general law city led by a City Council-Manager form of government. Prior to incorporation, the City of Moreno Valley consisted of 42 square miles and a population of 49,702 people. As of December 2018, the City includes 51.56 square miles with a population of 209,826 people.

The City adopted its first General Plan in 1988. The General Plan was comprehensively amended and updated on July 11, 2006. The current General Plan recognizes the community's diverse population, distinct residential neighborhoods, neighborhood and regional commercial activities, industrial potential and recreational amenities.

This document constitutes an annual report to the Planning Commission and City Council as required by state law on the updates of programs and policies in the General Plan. The document includes major projects, General Plan amendments, a status report of goal objectives, policies and programs of the current General Plan, and a Housing Program Status Report. This Annual Report includes projects and information from January 1, 2018 through and up to December 31, 2018.

The following is a summary of the current adoption status of the different required elements of the General Plan:

- Circulation Element (2006)
- Community Development Element (2006)
- Conservation Element (2006)
- Housing Element (2014)
- Parks, Recreation and Open Space Element (2006)
- Safety and Noise Element (2006)

ANALYSIS

Government Code Section 65400

California Governments Code Section 65400 requires that prior to submittal to the Office of Planning & Research and Department of Housing and Community Development, the annual report be made to the legislative body of the submitting jurisdiction on the status of the General Plan and progress towards its implementation, including activity towards its share of regional housing needs. State law requires the following:

A) A General Plan Annual Report shall be provided by April of each year to the City Council, the Office of Planning and Research (OPR) and the Department of Housing and Community Development (HCD); and

B) A status of the General Plan and progress in its implementation shall be provided in the General Plan Annual Report; and

C) Progress in meeting its share of the regional housing needs pursuant to Section 65584 of the Government Code shall be provided in the General Plan Annual Report.

Annual Review and Housing Program Summary Report

Pursuant to State Law, the Annual Report and Review of the City of Moreno Valley General Plan reports the progress in implementing the General Plan to the City Council. The City of Moreno Valley's Annual Report includes the following items:

1. A list of Major Accomplishments from January 2018 through December 2018

2. A list of General Plan Amendments from January 2018 through December 2018

3. Appendix A - Housing Element Implementation Progress Report includes the City's progress made in meeting its share of regional housing needs pursuant to State Government Code Section 65584.

4. Appendix B – Moreno Valley General Plan Complete List of Goals and Policies, which provides a status report of the 2006 General Plan goals, policies, objectives and programs towards implementing the City's blueprint for land use development.

Moreno Valley General Plan – Goals, Objectives, Policies and Programs

Appendix B evaluates the 2006 General Plan goals and policies in a comprehensive document providing the goal/policy number, a description of each goal and policy, a discussion on implementation status and the party responsible for carrying out each item.

- A goal is defined as a broad vision of what the community wants to achieve or provide to residents, landowners and business owners. It is a statement of a desired condition based on community values. Goals are general in nature and usually timeless.

- A policy is a specific statement that guides decision-making. It indicates a commitment of the City to a particular course of action. A policy is based on and assists to implement the goal.

The General Plan Annual Report also includes objectives leading up to the goal/policy as well as an update on existing programs.

General Plan Update

The State Office of Planning and Research (OPR) recommends that cities update their General Plan every ten (10) years. The City of Moreno Valley last completed an update to its General Plan on July 11, 2006, and is preparing for a comprehensive General Plan update

in the next two to three years. The General Plan update is an extensive process that includes various public meetings involving City staff, commissions and extensive community outreach. The current update is subject to extensive public outreach and several public hearings before the Planning Commission and City Council. The cost and work involved with the update can be extensive.

Momentum MoVal, the City of Moreno Valley's Strategic Plan, represents the results of active engagement by Moreno Valley residents and the City Council in charting the community's course into the future. Adopted on August 16, 2016, the document provides a course of action for the City's next comprehensive General Plan update. This includes Objective 1.9 to "Ensure the City's General Plan articulates the vision of how Moreno Valley wants to evolve over time, and provides an orderly and predictable process through which this vision is developed and implemented, including new attention to economic development, sustainability, public health, and innovation".

Four (4) initiatives have been adopted with this effort to assist in preparing for and completing the comprehensive General Plan Update. This includes two (2) initiatives related to the completion of the General Plan Annual Report. Initiative 1.9.1 required the preparation of a General Plan Annual Report to the City Council before April 1, 2017 that explains how current land use decisions relate to adopted goals, policies and other implementation measures, and as appropriate, identifies necessary course adjustments consistent with the Strategic Plan. This effort was completed in March of 2017 and serves as the continued course of action to ensure the City actions are consistent with Government Code 65400. Initiative 1.9.2 called for the formation of a working group of key City staff to research and evaluate the General Plan adopted in 2006 as a prerequisite to initiating a comprehensive update of the General Plan. The working group held periodically meetings as warranted between October 2016 and December 2017. While the group did not meet during 2018, meetings reconvene once the General Plan update process begins.

Additional initiatives included in the City's Strategic Plan articulate a plan of action to completion of the comprehensive General Plan update. These include Initiative 1.9.3, which "includes consideration of incremental set aside of funding in the annual budget development in anticipation of future General Plan update and Initiative 1.9.4, which calls for "conducting the comprehensive update of the City's General Plan and supporting environmental document, including all mandatory elements (except the Housing Element, which was updated in 2014). The comprehensive General Plan update would also include an Economic Development Element, and other desired optional Elements as authorized by the City Council."

As of January 1, 2018, California's cities, counties, and charter cities are required to either adopt an Environmental Justice Element in their General Plan or integrate Environmental Justice policies and goals into the elements of their General Plan "upon the adoption or next revision of two or more elements concurrently." Gov. Code Sec. 65302(h)(2). Moreno Valley is considering combing an Environmental Justice Element with a Healthy City component with the next comprehensive update.

CONCLUSION

The City of Moreno Valley General Plan continues to serve as an effective guide for orderly growth and development, preservation and conservation of open space and natural resources. The document also provides for the efficient expenditure of public funds.

As illustrated in the attachments provided with this document, completed public projects are in conformance with the City's General Plan goals, objectives, policies and programs for each representative element. The City of Moreno Valley's legislative bodies have used the 2006 General Plan as a primary source of long-range planning and policy direction. Future work activity that is consistent with these efforts will continue to guide future growth and preserve the quality of life within the community.

MAJOR ACCOMPLISHMENTS

The City of Moreno Valley is committed to implementing the adopted General Plan, Development Code and Design Guidelines. The Development Code and Design Guidelines, combined with the adopted Landscape Guidelines, are major tools to implement the General Plan.

The purpose of this Annual Report is to highlight significant accomplishments and summarize ongoing General Plan projects that the City of Moreno Valley has been working on since January of 2018. Major accomplishments include key projects that demonstrate how the City of Moreno Valley is carrying out the policy and vision of the General Plan. This report is prepared in accordance with Section 65040.5 of the California Government Code.

Major Accomplishments in 2018

Major development projects reviewed and approved in January 2018 through December 2018 are as follows:

- PEN17-0157 (Municipal Code Amendment): Amendments to Title 9 of the City Municipal Code setting forth land use zoning and development regulations for commercial cannabis activities.

- PEN17-0134 (Zone Change) and PEN17-0135 (Conditional Use Permit): A Change of Zone from Neighborhood Commercial (NC) to Community Commercial (CC) and Conditional Use Permit for Proposed Self-Storage Facility. The project is located at the southwest corner of John F. Kennedy Drive & Perris Boulevard.

- PEN17-0144 (Change of Zone) and PEN17-0143 (Plot Plan): A Change of Zone from Business Park Mixed Use (BPX) and Business Park (BP) to Light Industrial (LI) for a 261,807 square foot warehouse. The project is located at the southwest corner of Alessandro Boulevard and Heacock Street.

- PEN18-0027 (Tentative Parcel Map 37478) and PEN18-0028 (Plot Plan): Tentative Parcel Map 37478 and a Plot Plan for 7 building business park complex on approximately 15 acres. The project is located south of Alessandro Boulevard, north of Brodiaea Avenue and westerly of Heacock Street.

GENERAL PLAN IMPLEMENTATION

The General Plan and Development Code provide the City of Moreno Valley the tools necessary to guide the development of the City into the next century. Implementation of the General Plan includes key projects that demonstrate how the City of Moreno Valley is carrying out the policy and vision of the Plan.

General Plan Implementation in 2018

The following General Plan related projects reviewed and approved in January 2018 through December 2018 are as follows:

- PEN16-0013 (General Plan Amendment), PEN16-0014 (Change of Zone) and PEN16-0015 (Specific Plan Amendment): A General Plan Amendment, Change of Zone and Specific Plan Amendment modifying the existing Festival Specific Plan 205 (SP 205) expanding the range of land uses and development opportunities. The Festival Specific Plan 205 covers parcels located south of Ironwood Avenue, north of State Highway 60, east of Heacock Street, and west of Indian Street.

- PEN16-0048 (General Plan Amendment), PEN16-0049 (Change of Zone), PEN16-0052 (Parcel Map 36227), PEN16-0053 (Master Plot Plan), PEN16-0054-0055 Plot Plans (Medical Bld. 1&2), and PEN16-0056-0057 (Conditional Use Permits): A General Plan Amendment from Residential 2 (R2) to Office (O), Change of Zone from Residential 2 (R2) to Office (O), Tentative Parcel Map 36227 and related Plot Plan/Conditional Use Permits for a five building mixed use medical center campus. The project is located at the northeast corner of southeast corner of Brodiaea Avenue and Nason Street.

- PEN16-0127 (General Plan Amendment), PEN16-0128 (SPA), PEN16-0129 (Tentative Parcel Map 37189), and PEN16-0130 (Plot Plan): A General Plan Amendment from Open Space (OS) to Residential 20 (R20), Change of Zone from Golf Course (GC) to Residential 20 (R20), Specific Plan Amendment from Golf Course (GC) to High Density Residential (SP 193 H), and Plot Plan for a 417 unit multiple-family apartment complex on approximately 22 acres. The project is located in the Moreno Valley Ranch Specific Plan 193 on Moreno Beach Drive, south of John F Kennedy Drive.

- PEN18-0053 (General Plan Amendment), PEN18-0054 (Change of Zone), and PEN18-0092 (Tentative Tract Map 37544): A General Plan Amendment from Residential 3 (R3) to Residential 10 (R10), Change of Zone from Residential 3 (R3) to Residential Single-Family 10 (RS10), and Tentative Tract Map 37544 for 45 single-family residential lots on 8.85 acres. The project is located at the northwest corner of Quincy Street and Brodiaea Avenue.

- PEN18-0024 (General Plan Amendment), PEN18-0025 (Change of Zone), and PEN18-0023 (Plot Plan): A General Plan Amendment from Office (O) to Business Park (BP), Change of Zone from Office (O) to Light Industrial (LI), and a Plot Plan for a 204,022 square foot warehouse/light industrial building on 8.8 acres. The project is located at northeast corner of Frederick Street and Brodiaea Avenue.

SUMMARY		
Jurisdiction	City of Moreno Valley	
Reporting Year	2018	(January 1 – December 31)

Permitted Units Issued by Affordability Summary		
Income Level		Current Year
Very Low	Deed Restricted	0
	Non-Deed Restricted	0
Low	Deed Restricted	0
	Non-Deed Restricted	0
Moderate	Deed Restricted	0
	Non-Deed Restricted	10
Above Moderate		424
Total Units 44		434

Note: units serving extremely low-income households are included in the very low-income permitted units totals

Entitlement Summary	
Total Housing Applications Submitted:	0
Number of Proposed Units in All Applications Received:	316
Total Housing Units Approved:	0
Total Housing Units Disapproved:	0
Use of SB 35 Streamlining Provisions	
Number of Applications for Streamlining	0
Number of Streamlining Applications Approved	0
Total Developments Approved with Streamlining	0
Total Units Constructed with Streamlining	0

Units Constructed - SB 35 Streamlining Permits			
Income	Rental	Ownership	Total
Very Low	0	0	0
Low	0	0	0
Moderate	0	0	0
Above Moderate	0	0	0
Total	0	0	0

ANNUAL ELEMENT PROGRESS REPORT
Housing Element Implementation
(CCR Title 25 §6202)

Jurisdiction: Moreno Valley

Reporting Year: 2018 (Jan. 1 - Dec. 31)

Table A2

Housing Development Applications Received

1			2	3	4	5							6	7	8	9
Project Identifier (APN No.)						Proposed Units Affordability by Household Incomes										
						Very Low-income		Low-income		Moderate-income						
APN	Street Address	Project Name*	Date Application Received	Unit Category	Tenure R=Renter O=Owner	Deed Restricted	Non Deed Restricted	Deed Restricted	Non Deed Restricted	Deed Restricted	Non Deed Restricted	Above Moderate-income	Total Proposed Units by Project	Total Approved Units by project	Was "Application Submitted" Pursuant to SB 35 Streamlining? Y/N	Was Application approved using SB 35 Streamlining? Y/N
316110021		PEN18-0042	2/28/2018	SF	O							2	2	In Review	N	N
481171007		PEN18-0060	3/26/2018	5+	R						24		24	In Review	N	N
263132030		PEN18-0064	3/29/2018	5+	R						18		18	In Review	N	N
487461006		PEN18-0065	3/29/2018	SF	O							31	31	In Review	N	N
478090031		PEN18-0080	4/17/2018	SF	O							8	8	In Review	N	N
481200044		PEN18-0086	4/24/2018	5+	R						19		19	In Review	N	N
308040052, -053, -054		PEN18-0090 & PEN18-0107	5/1/2018	5+	O						112		112	In Review	N	N
478080014		PEN18-0092	5/8/2018	SF	O							45	45	In Review	N	N
256150001		PEN18-0123	6/21/2018	SF	O							24	24	In Review	N	N
479090021		PEN18-0127	7/2/2018	5+	R						5		5	In Review	N	N
478090019		PEN18-0154	8/17/2018	SF	O							6	6	In Review	N	N
478272003		PEN18-0222 (custom home)	11/15/2018	SF	O							1	1	In Review	N	N
473174013		PEN18-0062 (custom home)	3/27/2018	SF	O							1	1	In Review	N	N
474230005		PEN18-0063 (custom home)	3/27/2018	SF	O							1	1	In Review	N	N
474341006		PEN18-0057 (custom home)	3/21/2018	SF	O							1	1	In Review	N	N
478165021		PEN18-0047 (custom home)	3/2/2018	SF	O							1	1	In Review	N	N
481270033		PEN18-0037 (custom home)	2/22/2018	SF	O							1	1	In Review	N	N
256150031		PEN18-0005 (custom home)	1/11/2018	SF	O							1	1	In Review	N	N
291130002		PEN18-0219 (custom home)	11/6/2018	SF	O							1	1	In Review	N	N
264192013	11702 HUMMINGBIRD PL	PEN18-0236	11/29/2018	ADU	O								1	In Review	N	N
478291012	13544 MEADOWLANDS CT	PEN18-0189	9/25/2018	ADU	O								1	In Review	N	N
487140022	26576 HEMLOCK AVE	PEN18-0215	10/31/2018	ADU	O								1	In Review	N	N
259500011	9740 SHADOW DR	PEN18-0003	1/9/2018	ADU	O								1	In Review	N	N
259481013	9964 PASATIEMPO PL	PEN18-0173	9/10/2018	ADU	O								1	In Review	N	N
312063020	25522 HONDO BARRANCA	PEN18-0170	9/6/2018	ADU	O								1	In Review	N	N
484112012	14305 AGAVE ST	PEN18-0155	8/17/2018	ADU	O								1	In Review	N	N
475280095	24394 IRONWOOD AVE	PEN18-0004	1/10/2018	ADU	O								1	In Review	N	N
471300014	9921 MICHAEL WY	PEN18-0134	7/10/2018	ADU	O								1	In Review	N	N
481240013	24465 FIR AVE	PEN18-0089	4/30/2018	ADU	O								1	In Review	N	N
475080008	11355 HUBBARD ST	PEN18-0087	4/25/2018	ADU	O								1	In Review	N	N
482462019	14170 GALVIN CT	PEN18-0071	4/5/2018	ADU	O								1	In Review	N	N
474230005		PEN18-0068	3/29/2018	ADU	O								1	In Review	N	N
475032032	11135 INDIAN ST	PEN18-0076	4/11/2018	ADU	O								1	In Review	N	N
		0		Total by Income ▸ ▸		0	0	0	0	0	178	124	382	0	0	0

*Note: This field is voluntary

TABLE A2 - New Units (Certificate of Occupany in 2018)

APN	ADDRESS	STATUS_DATE	Project Name (Description)	Infill Units?		DWELLING_UNITS	Demolished or Destroyed Units	Notes
263120020	13076 EDGEMONT ST	05/25/2018	8 UNIT APT BLDG TYPE 2 9952 SF, PATIO COVERS 472 SF, COVERED	N		8		
291291003	13921 COURAGE ST A	03/27/2018	New 2-story duplex - Unit "A" - 1,357 living square footage and 490 square foot	N		1		
291291003	13941 COURAGE ST B	03/27/2018	New 2-story duplex - Unit "B" - 1,535 living square footage and 483 square foot	N		2		
481200040	24890 MYERS AVE	09/25/2018	New second unit, 1240 sf with 200 sf porch	N		1		
478040032	13920 CURTIS ST	07/24/2018	Custom home 3127sf, garage 913sf, two front porches 85 & 108sf, rear cover	N		1		
304590033	27275 HAMMETT CT	06/06/2018	TR 30268, Lot 80, Phase 11, SFD 2836, Gar 426, Porch 12	N		1		
304590030	27305 HAMMETT CT	07/16/2018	PAC COMM TR 30268, Lot 77, Ph 11, SFD 3773, Gar 420, Porch 84	N		1		
304590008	27310 HAMMETT CT	03/07/2018	PAC COMM TR 30268, Lot 55, Ph 11, SFD 3773, Gar 420, Porch 84	N		1		
304590003	27260 HAMMETT CT	03/07/2018	PAC COMM TR 30268, Lot 50, Ph 11, SFD 3773, Gar 420, Porch 84	N		1		
304590032	27285 HAMMETT CT	06/05/2018	PAC COMM TR 30268, Lot 79, Ph 11, SFD 4381, Gar 619, Porch 110	N		1		
304590004	27270 HAMMETT CT	03/07/2018	PAC COMM TR 30268, Lot 51, Ph 11, SFD 4381, Gar 619, Porch 133	N		1		
304590002	27250 HAMMETT CT	03/07/2018	PAC COMM TR 30268, Lot 49, Ph 11, SFD 4381, Gar 619, Porch 36	N		1		
304582010	27230 HAMMETT CT	03/07/2018	PAC COMM TR 30268, Lot 47, Ph 11, SFD 4381, Gar 619, Porch 133	N		1		
304590029	27315 HAMMETT CT	04/19/2018	PAC COMM TR 30268, Lot 76, PH 11, SFD 2630, Gar 421, Porch 172	N		1		
304590007	27300 HAMMETT CT	03/07/2018	PAC COMM TR 30268, Lot 54, PH 11, SFD 2630, Gar 421, Porch 98	N		1		
304590001	27240 HAMMETT CT	03/07/2018	PAC COMM TR 30268, Lot 48, PH 11, SFD 2630, Gar 421, Porch 22	N		1		
260480020	10479 NIGHTHAWK CT	03/20/2018	Lennar TR 32515, Lot 20 SFD 1794, Gar 467, Porch 50	N		1		
260480018	10490 NIGHTHAWK CT	03/20/2018	Lennar TR 32515, Lot 18 SFD 1794, Gar 467, Porch 50	N		1		
260480019	10489 NIGHTHAWK CT	03/20/2018	Lennar TR 32515, Lot 19, SFD 2206, Gar 467, Porch 50	N		1		
260480016	10470 NIGHTHAWK CT	03/20/2018	Lennar TR 32515, Lot 16, SFD 2203, Gar 417, Porch 33	N		1		
260480023	10449 NIGHTHAWK CT	03/20/2018	Lennar TR 32515, Lot 23, SFD 2232, Gar 428, Porch 54	N		1		
260480022	10459 NIGHTHAWK CT	03/20/2018	Lennar TR 32515, Lot 22 SFD 2419, Gar 417, Porch 36	N		1		
260480014	10450 NIGHTHAWK CT	03/20/2018	Lennar TR 32515, Lot 14, SFD 2583, Gar 421, Porch 57	N		1		
260480021	10469 NIGHTHAWK CT	03/20/2018	Lennar TR 32515, Lot 21 SFD 2590, Gar 417, Porch 35	N		1		
260480017	10480 NIGHTHAWK CT	03/19/2018	Lennar TR 32515, Lot 17 SFD 2590, Gar 623, Porch 35	N		1		
260480015	10460 NIGHTHAWK CT	03/22/2018	Lennar TR 32515, Lot 15 SFD 2590, Gar 623, Porch 35	N		1		
304590017	27335 HAMMETT CT	06/25/2018	TR 30268, Lot 64 Ph 12, SFD 2836, Gar 426, Porch 80	N		1		
304590013	27360 HAMMETT CT	08/09/2018	PAC COMM TR 30268, Lot 60, Ph 12, SFD 3773, Gar 420, Porch 84	N		1		
304590015	27355 HAMMETT CT	06/25/2018	PAC COMM TR 30268, Lot 62, Ph 12, SFD 3773, Gar 420, Porch 84	N		1		
304590014	27370 HAMMETT CT	07/05/2018	PAC COMM TR 30268, Lot 61, Ph 12, SFD 4381, Gar 619, Porch 133	N		1		
304590011	27340 HAMMETT CT	06/25/2018	PAC COMM TR 30268, Lot 58, Ph 12, SFD 4381, Gar 619, Porch 36	N		1		
304590009	27320 HAMMETT CT	07/03/2018	PAC COMM TR 30268, Lot 56, Ph 12, SFD 4381, Gar 619, Porch 110	N		1		
304590016	27345 HAMMETT CT	06/25/2018	TR 30268 Pac Comm. Lot 63 SFD 2630, Gar 421, Porch 172	N		1		
304590012	27350 HAMMETT CT	10/11/2018	TR 30268 Pac Comm. Lot 59 SFD 2630, Gar 421, Porch 98	N		1		
304590010	27330 HAMMETT CT	06/25/2018	TR 30268 Pac Comm. Lot 57 SFD 2630, Gar 421, Porch 22	N		1		
486542028	27842 SAND DOLLAR WAY	02/07/2018	FRONTIER TR 36882 Lot 16, SFD 3524, Gar 703, Porch 126	N		1		
486542030	14330 LANDSDOWNE LN	02/07/2018	FRONTIER TR 36882 Lot 18, SFD 3524, Gar 703, Porch 126	N		1		
486542031	14344 LANDSDOWNE LN	02/07/2018	FRONTIER TR 36882, Lot 19, SFD 3052, Gar 808, Porch 160	N		1		
486543007	27807 SAND DOLLAR WAY	02/07/2018	FRONTIER TR 36882, Lot 35, SFD 3052, Gar 808, Porch 160	N		1		
486542029	14316 LANDSDOWNE LN	02/07/2018	Frontier TR 36882 Lot 17, SFD 2708, Gar 417, Porch 38	N		1		
475150044	24880 METRIC DR	08/07/2018	Metric Homes, TR 35606 Lot 1 SFD 2452, Gar 816, Porch 30	N		1		
475150045	24892 METRIC DR	04/23/2018	Metric Homes, TR 35606, Lot 2 SFD 2457, Gar 816, Porch 25	N		1		
150046	24904 METRIC DR	10/18/2018	Metric Homes, TR 35606, Lot 3 SFD 2356, Gar 576, Porch 120	N		1		

475150047	24916 METRIC DR	08/29/2018	Metric Homes, TR 35606, Lot 4 SFD 2452, Gar 576, Porch 30	N		1		
475150048	24928 METRIC DR	09/14/2018	Metric Homes, TR 35606, Lot 5 SFD 2457, Gar 576, Porch 25	N		1		
475150049	24940 METRIC DR	09/12/2018	Metric Homes, TR 35606, Lot 6 SFD 2356, Gar 576, Porch 120	N		1		
486542034	14386 LANDSDOWNE LN	03/26/2018	Frontier TR 36882 Lot 22, SFD 2708, Gar 417, Porch 38	N		1		
486543006	27810 BAHAMA BAY ST	03/26/2018	FRONTIER TR 36882, Lot 34, SFD 3052, Gar 808, Porch 160	N		1		
486542035	27817 BAHAMA BAY ST	03/26/2018	FRONTIER TR 36882, Lot 23, SFD 3052, Gar 808, Porch 160	N		1		
486542033	14372 LANDSDOWNE LN	03/26/2018	FRONTIER TR 36882, Lot 21, SFD 3052, Gar 808, Porch 160	N		1		
486542036	27803 BAHAMA BAY ST	03/26/2018	FRONTIER TR 36882 Lot 24, SFD 3524, Gar 703, Porch 126	N		1		
486542032	14358 LANDSDOWNE LN	03/26/2018	FRONTIER TR 36882 Lot 20, SFD 3524, Gar 703, Porch 126	N		1		
478452018	28614 TUBEROSE LN	09/06/2018	KB Home TR 36436 Model Home Lot 156, Plan 5 SFD 3061, Gar 417, Porch	N		1		
304590027	15963 SAND HILLS CT	09/05/2018	TR 30268, Lot 74 Ph 13, SFD 2836, Gar 426, Porch 12	N		1		
304590022	15982 SAND HILLS CT	09/06/2018	PAC COMM TR 30268, Lot 69, Ph 13, SFD 3773, Gar 420, Porch 84	N		1		
304590025	15979 SAND HILLS CT	09/05/2018	PAC COMM TR 30268, Lot 72, Ph 13, SFD 4381, Gar 619, Porch 36	N		1		
304590018	15950 SAND HILLS CT	10/11/2018	PAC COMM TR 30268, Lot 65, Ph 13, SFD 4381, Gar 619, Porch 133	N		1		
304590028	15955 SAND HILLS CT	09/05/2018	PAC COMM TR 30268, Lot 75, PH 11, SFD 2630, Gar 421, Porch 172	N		1		
304590026	15971 SAND HILLS CT	09/05/2018	PAC COMM TR 30268, Lot 73, PH 13, SFD 2630, Gar 421, Porch 98	N		1		
304590023	15990 SAND HILLS CT	09/05/2018	PAC COMM TR 30268, Lot 70, PH 13, SFD 2630, Gar 421, Porch 22	N		1		
304590021	15974 SAND HILLS CT	09/05/2018	PAC COMM TR 30268, Lot 68, PH 13, SFD 2630, Gar 421, Porch 172	N		1		
304590019	15958 SAND HILLS CT	09/27/2018	PAC COMM TR 30268, Lot 66, PH 13, SFD 2630, Gar 421, Porch 22	N		1		
488371020	27976 AIDAN CIR	06/20/2018	Frontier TR 31618 Build Out, Lot 53, Plan 4B; SFD 2708 GAR 417 PORCH 38	N		1		
488371021	27960 AIDAN CIR	06/20/2018	Frontier TR 31618 Build Out, Lot 54, Plan 4C; SFD 2708 GAR 417 PORCH 38	N		1		
488371022	27942 AIDAN CIR	06/20/2018	Frontier TR 31618 Build Out, Lot 55; Plan 3A; SFD 3524 GAR 703 PORCH 126	N		1		
486542038	27775 BAHAMA BAY ST	03/26/2018	Frontier TR 36882 Lot 26, SFD 2708, Gar 417, Porch 38	N		1		
486542037	27789 BAHAMA BAY ST	03/26/2018	FRONTIER TR 36882, Lot 25, SFD 3052, Gar 808, Porch 160	N		1		
486543004	27782 BAHAMA BAY ST	03/26/2018	FRONTIER TR 36882, Lot 32, SFD 3052, Gar 808, Porch 160	N		1		
486543005	27796 BAHAMA BAY ST	03/26/2018	FRONTIER TR 36882 Lot 33, SFD 3524, Gar 703, Porch 126	N		1		
486542039	27761 BAHAMA BAY ST	03/27/2018	FRONTIER TR 36882, Ph 8 Plan 2 Lot 27, SFD 3052, Gar 808, Porch 160	N		1		
486543002	27754 BAHAMA BAY ST	03/27/2018	FRONTIER TR 36882, Ph 8 Plan 2 Lot 30, SFD 3052, Gar 808, Porch 160	N		1		
486542040	27747 BAHAMA BAY ST	03/27/2018	Frontier TR 36882 PH 8 Plan 1 Lot 28, SFD 2708, Gar 417, Porch 38	N		1		
486543001	27740 BAHAMA BAY ST	03/27/2018	FRONTIER TR 36882 Plan 3 Lot 29, SFD 3524, Gar 703, Porch 126	N		1		
486543003	27768 BAHAMA BAY ST	03/27/2018	FRONTIER TR 36882 PH 8 Plan 3 Lot 31, SFD 3524, Gar 703, Porch 126	N		1		
260480064	23090 POPPY WAY	02/08/2018	Lennar TR 32515, Lot 64, SFD 2162, Gar 467, Porch 45	N		1		
260480066	23114 POPPY WAY	02/08/2018	Lennar TR 32515, Lot 66, SFD 2162, Gar 467, Porch 45	N		1		
260480067	23126 POPPY WAY	02/08/2018	Lennar TR 32515, Lot 67, SFD 2162, Gar 467, Porch 45	N		1		
260480065	23102 POPPY WAY	02/12/2018	Lennar TR 32515, Lot 65, SFD 1772, Gar 467, Porch 45	N		1		
260480068	23138 POPPY WAY	02/13/2018	Lennar TR 32515, Lot 68, SFD 2232, Gar 428, Porch 54	N		1		
260480070	23162 POPPY WAY	02/12/2018	Lennar TR 32515, Lot 70, SFD 2322, Gar 428, Porch 54	N		1		
260480069	23150 POPPY WAY	02/12/2018	Lennar TR 32515, Lot 69 SFD 1794, Gar 467, Porch 50	N		1		
487590015	26833 REGENCY WAY	02/21/2018	RSI TR 31305 Ph 1 Lot 31, SFD 3266, Gar 678, Porch 66	N		1		
487591006	26832 REGENCY WAY	02/22/2018	RSI TR 31305 Lot 38, SFD 2401, Gar 459, Porch 56	N		1		
487590014	26847 REGENCY WAY	02/15/2018	RSI TR 31305 Lot 30, SFD 2401, Gar 459, Porch 56	N		1		
487591009	26874 REGENCY WAY	02/21/2018	RSI TR 31305 Lot 41, SFD 2401, Gar 459, Porch 56	N		1		
487590011	26889 REGENCY WAY	02/15/2018	RSI TR 31305 Lot 27, SFD 2401, Gar 459, Porch 56	N		1		
487590009	26917 REGENCY WAY	02/15/2018	RSI TR 31305 Ph 1 Lot 25, SFD 2401, Gar 459, Porch 56	N		1		
487591007	26846 REGENCY WAY	02/21/2018	RSI TR 31305 Lot 39, SFD 3004, Gar 657, Porch 97	N		1		
487590010	26903 REGENCY WAY	02/15/2018	RSI TR 31305 Lot 26, SFD 3004, Gar 657, Porch 97	N		1		
487590013	26861 REGENCY WAY	02/21/2018	RSI TR 31305 Lot 29, SFD 2730, Gar 451, Porch 49	N		1		
591008	26860 REGENCY WAY	02/21/2018	RSI TR 31305 Ph 1 Lot 40, Plan 4B/C, SFD 3267, Gar 678, Porch 68	N		1		

487590012	26875 REGENCY WAY	02/15/2018	RSI TR 31305 Lot 28, SFD 3267, Gar 678, Porch 68	N		1		
260480034	10446 SPARROW CT	02/26/2018	Lennar TR 32515, Lot 34, SFD 2232, Gar 428, Porch 54	N		1		
260480038	10486 SPARROW CT	03/14/2018	Lennar TR 32515, Lot 38 SFD 1794, Gar 467, Porch 50	N		1		
260480039	10485 SPARROW CT	03/14/2018	Lennar TR 32515, Lot 39, SFD 2206, Gar 467, Porch 50	N		1		
260480042	10455 SPARROW CT	03/14/2018	Lennar TR 32515, Lot 42, SFD 2203, Gar 417, Porch 33	N		1		
260480036	10466 SPARROW CT	02/26/2018	Lennar TR 32515, Lot 36 SFD 2419, Gar 417, Porch 36	N		1		
260480040	10475 SPARROW CT	03/14/2018	Lennar TR 32515, Lot 40 SFD 2419, Gar 623, Porch 36	N		1		
260480043	10445 SPARROW CT	03/27/2018	Lennar TR 32515, Lot 43 SFD 2419, Gar 623, Porch 36	N		1		
260480037	10476 SPARROW CT	03/14/2018	Lennar TR 32515, Lot 37 SFD 2590, Gar 623, Porch 35	N		1		
260480041	10465 SPARROW CT	03/14/2018	Lennar TR 32515, Lot 41 SFD 2590, Gar 417, Porch 35	N		1		
260480056	10427 PEREGRINE PL	04/10/2018	Lennar TR 32515, PH 6 Plan 3A Lot 56, SFD 2232, Gar 428, Porch 54	N		1		
260480059	10397 PEREGRINE PL	04/10/2018	Lennar TR 32515, PH 6 Plan 3X-A Lot 59, SFD 2640, Gar 428, Porch 54	N		1		
260480057	10417 PEREGRINE PL	04/10/2018	Lennar TR 32515, PH 6 Plan 6B Lot 57, SFD 2590, Gar 417, Porch 35	N		1		
260480058	10407 PEREGRINE PL	04/26/2018	Lennar TR 32515, PH 6 Plan 4C Lot 58, SFD 2419, Gar 417, Porch 36	N		1		
260480061	10408 PEREGRINE PL	04/13/2018	Lennar TR 32515, PH 6 Plan 4X-B Lot 61, SFD 2419, Gar 623, Porch 36	N		1		
260480062	10418 PEREGRINE PL	05/24/2018	Lennar TR 32515, PH 6 Plan 4A Lot 62, SFD 2419, Gar 417, Porch 36	N		1		
260480060	10387 PEREGRINE PL	04/10/2018	Lennar TR 32515, PH 6 Plan 1Y-B Lot 60, SFD 2162, Gar 467, Porch 45	N		1		
260480063	10428 PEREGRINE PL	04/13/2018	Lennar TR 32515, PH 6 Plan 5B Lot 63, SFD 2583, Gar 421, Porch 57	N		1		
487561009	26798 BUCKEYE TER	08/16/2018	PAC COMM TR 33256, PLAN 2, LOT 65, SFD 2981, GAR 419, PORCH 145	N		1		
487560010	26775 BUCKEYE TER	08/16/2018	PAC COMM TR 33256, PLAN 2, LOT 15, SFD 2981, GAR 419, PORCH 145	N		1		
487560009	26763 BUCKEYE TER	08/23/2018	PAC COMM TR 33256, PLAN 4, LOT 14, SFD 4163, GAR 580, PORCH 136	N		1		
487560011	26787 BUCKEYE TER	08/23/2018	PAC COMM TR 33256, PLAN 4, LOT 16, SFD 4163, GAR 580, PORCH 136	N		1		
487560012	26799 BUCKEYE TER	08/23/2018	TR 33256, PLAN 3, LOT 17, SFD 3454, GAR 625, PORCH 131	N		1		
487561006	26762 BUCKEYE TER	08/23/2018	TR 33256, PLAN 3, LOT 62, SFD 3454, GAR 625, PORCH 131	N		1		
487582002	26926 SUGARCANE DR	04/16/2018	RSI TR 31305 Ph 2 Lot 60, SFD 3266, Gar 678, Porch 66	N		1		
487582005	12874 LARKDALE LN	04/16/2018	RSI TR 31305 Ph 2 Lot 63, Plan 1AX, SFD 2401, Gar 459, Porch 56	N		1		
487582007	12902 LARKDALE LN	04/17/2018	RSI TR 31305 Ph 2 Lot 65, Plan 1B, SFD 2401, Gar 459, Porch 56	N		1		
487582004	12860 LARKDALE LN	04/16/2018	RSI TR 31305 Ph 2 Lot 62, Plan 4B, SFD 3267, Gar 678, Porch 68	N		1		
487582001	26912 SUGARCANE DR	04/17/2018	RSI TR 31305 Ph 2 Lot 59 Plan 2B, SFD 2730, Gar 451, Porch 49	N		1		
487582003	26940 SUGARCANE DR	04/16/2018	RSI TR 31305 Ph 2 Lot 61 Plan 2CX, SFD 2730, Gar 451, Porch 49	N		1		
487582006	12888 LARKDALE LN	04/16/2018	RSI TR 31305 Ph 2 Lot 64 Plan 3C, SFD 3008, Gar 653, Porch 15	N		1		
260480055	10426 SPARROW CT	06/01/2018	Lennar TR 32515, PH 7 Plan 5C Lot 55, SFD 2583, Gar 421, Porch 57	N		1		
260480053	10406 SPARROW CT	05/16/2018	Lennar TR 32515, PH 7 Plan 2A Lot 53, SFD 2203, Gar 417, Porch 33	N		1		
260480047	10395 SPARROW CT	05/10/2018	Lennar TR 32515, PH 7 Plan 2A Lot 47, SFD 2203, Gar 417, Porch 33	N		1		
260480049	10375 SPARROW CT	05/14/2018	Lennar TR 32515, PH 7 Plan 6X-B Lot 49, SFD 2590 Gar 623 Porch 35	N		1		
260480054	10416 SPARROW CT	05/24/2018	Lennar TR 32515, PH 7 Plan 4A Lot 54, SFD 2419, Gar 417, Porch 36	N		1		
260480044	10425 SPARROW CT	05/14/2018	Lennar TR 32515, PH 7 Plan 4B Lot 44, SFD 2419, Gar 417, Porch 36	N		1		
260480046	10405 SPARROW CT	05/14/2018	Lennar TR 32515, PH 7 Plan 4B Lot 46, SFD 2419, Gar 417, Porch 36	N		1		
260480051	10386 SPARROW CT	05/16/2018	Lennar TR 32515, PH 7 Plan 4X-C Lot 51, SFD 2419, Gar 623, Porch 36	N		1		
260480052	10396 SPARROW CT	05/16/2018	Lennar TR 32515, PH 7 Plan 6B Lot 52, SFD 2590, Gar 417, Porch 35	N		1		
260480048	10385 SPARROW CT	05/24/2018	Lennar TR 32515, PH 7 Plan 6B Lot 48, SFD 2590, Gar 417, Porch 35	N		1		
260480050	10365 SPARROW CT	05/14/2018	Lennar TR 32515, PH 7 Plan 6B Lot 50, SFD 2590, Gar 417, Porch 35	N		1		
260480045	10415 SPARROW CT	05/10/2018	Lennar TR 32515, PH 7 Plan 6C Lot 45, SFD 2590, Gar 417, Porch 35	N		1		
478451001	14453 BOTTLEBRUSH WAY	04/02/2018	KB Homes-Bella Cortina TR 36436 PH 1 Plan 3B Lot 46: SFD 2128 GARAGE	N		1		
478452006	28612 BUTTERCUP WAY	04/26/2018	KB Homes-Bella Cortina TR 36436 PH 1 Plan 3B Lot 144: SFD 2128 GARAGE	N		1		
478452004	28592 BUTTERCUP WAY	04/17/2018	KB Homes-Bella Cortina TR 36436 PH 1 Plan 3B Lot 142: SFD 2128 GARAGE	N		1		
478451006	14403 BOTTLEBRUSH WAY	04/26/2018	KB Homes-Bella Cortina TR 36436 PH 1 Plan 3D Lot 51: SFD 2128 GARAGE	N		1		
452001	28562 BUTTERCUP WAY	04/16/2018	KB Homes-Bella Cortina TR 36436 PH 1 Plan 3A Lot 139: SFD 2128 GARAGE	N		1		

478451002	14443 BOTTLEBRUSH WAY	04/02/2018	KB Homes-Bella Cortina TR 36436 PH 1 Plan 1A Lot 47: SFD 1772 GARAGE	N		1		
478452005	28602 BUTTERCUP WAY	05/01/2018	KB Homes-Bella Cortina TR 36436 PH 1 Plan 1A Lot 143: SFD 1772 GARAGE	N		1		
478452011	14404 BOTTLEBRUSH WAY	04/02/2018	KB Homes-Bella Cortina TR 36436 PH 1 Plan 1C Lot 149: SFD 1772 GARAGE	N		1		
478451005	14413 BOTTLEBRUSH WAY	04/17/2018	KB Homes-Bella Cortina TR 36436 PH 1 Plan 2A Lot 50: SFD 1905 GARAGE	N		1		
478451003	14433 BOTTLEBRUSH WAY	04/02/2018	KB Homes-Bella Cortina TR 36436 PH 1 Plan 2B Lot 48: SFD 1905 GARAGE	N		1		
478452002	28572 BUTTERCUP WAY	04/26/2018	KB Homes-Bella Cortina TR 36436 PH 1 Plan 2D Lot 140: SFD 1905 GARAGE	N		1		
478451004	14423 BOTTLEBRUSH WAY	05/17/2018	KB Homes-Bella Cortina TR 36436 PH 1 Plan 5C Lot 49: SFD 3061 GARAGE	N		1		
478452012	14414 BOTTLEBRUSH WAY	04/02/2018	KB Homes-Bella Cortina TR 36436 PH 1 Plan 3B Lot 150: SFD 2617 GARAGE	N		1		
487591014	26887 TWIN HILLS CIR	05/10/2018	RSI (Athens) TR 31305 PH 3 Lot 46, SFD 3266, Gar 678, Porch 66	N		1		
487591016	26859 TWIN HILLS CIR	05/10/2018	RSI (Athens) TR 31305 PH 3 Plan 3A Lot 48, SFD 3004, Gar 657, Porch 97	N		1		
487581004	26858 TWIN HILLS CIR	05/10/2018	RSI (Athens) TR 31305 PH 3 Plan 2BX Lot 55, SFD 2730, Gar 451, Porch 49	N		1		
487581006	26886 TWIN HILLS CIR	05/10/2018	RSI (Athens) TR 31305 PH 3 Plan 2B Lot 57, SFD 3008, Gar 653, Porch 15	N		1		
487581005	26872 TWIN HILLS CIR	05/10/2018	RSI (Athens) TR 31305 PH 3 Plan 1AX Lot 56, SFD 2401, Gar 459, Porch 56	N		1		
487591015	26873 TWIN HILLS CIR	05/10/2018	RSI (Athens) TR 31305 PH 3 Plan 1CX Lot 47, SFD 2401, Gar 459, Porch 56	N		1		
487581007	26900 TWIN HILLS CIR	05/10/2018	RSI (Athens) TR 31305 PH 3 Plan 1CX Lot 58, SFD 2401, Gar 459, Porch 56	N		1		
475150056	11612 SABLE WAY	10/29/2018	Metric Homes, TR 35606, PH 2, Lot 13, Plan 3 w/2 car - SFD 2452, Gar 576,	N		1		
475150058	24893 METRIC DR	11/29/2018	Metric Homes, TR 35606, PH 2 Lot 15, Plan 2 w/3 car SFD 2356, Gar 576, Porch	N		1		
487591017	26845 TWIN HILLS CIR	06/12/2018	RSI (Athens) TR 31305 PH 4 Plan 2BX Lot 49, SFD 2730, Gar 451, Porch 49	N		1		
487581001	26816 TWIN HILLS CIR	06/12/2018	RSI (Athens) TR 31305 PH 4 Plan 2AX Lot 52, SFD 2730, Gar 451, Porch 49	N		1		
487591018	26831 TWIN HILLS CIR	06/12/2018	RSI (Athens) TR 31305 PH 4 Plan 1AX Lot 50, SFD 2401, Gar 459, Porch 56	N		1		
487591019	26817 TWIN HILLS CIR	06/12/2018	RSI (Athens) TR 31305 PH 4 Plan 4C Lot 51, SFD 3267, Gar 678, Porch 56	N		1		
487581002	26830 TWIN HILLS CIR	06/12/2018	RSI (Athens) TR 31305 PH 4 Plan 4B Lot 53, SFD 3267, Gar 678, Porch 68	N		1		
487581003	26844 TWIN HILLS CIR	06/12/2018	RSI (Athens) TR 31305 PH 4 Plan 4B Lot 54, SFD 3008, Gar 653, Porch 15	N		1		
260490002	10414 GRAY PARTRIDGE PL	08/21/2018	Lennar TR 32515 Ph 8 Plan 1XA Lot #72, SFD 1794, Gar 467, Porch 50	N		1		
260490008	10400 SNOWY PLOVER CT	08/29/2018	LENNAR TR 32515 Ph 8 Plan 1XB Lot #78 ,SFD 1794, Gar 467, Porch 50	N		1		
260490007	10392 SNOWY PLOVER CT	08/20/2018	Lennar TR 32515, PH 8, Plan 4X-A Lot 77, SFD 2419, Gar 623, Porch 36	N		1		
260490003	10413 GRAY PARTRIDGE PL	08/14/2018	Lennar TR 32515 Ph 8, Lot 73 Plan 1ZB, SFD 2206, Gar 467, Porch 50	N		1		
260490005	10397 GRAY PARTRIDGE PL	08/20/2018	Lennar TR 32515 Ph 8, Lot 75 Plan 1ZA, SFD 2206, Gar 467, Porch 50	N		1		
260490009	10399 SNOWY PLOVER CT	08/20/2018	Lennar TR 32515 Ph 8, Lot 79 Plan 1ZA, SFD 2206, Gar 467, Porch 50	N		1		
260490010	10391 SNOWY PLOVER CT	08/23/2018	Lennar TR 32515 PH 8 LOT 80 Plan 6XB, SFD 2590, Gar 623, Porch 35	N		1		
260490004	10405 GRAY PARTRIDGE PL	08/20/2018	Lennar TR 32515 PH 8 LOT 74 Plan 2XC SFD 2204, Gar 621, Porch 33	N		1		
260490001	10406 GRAY PARTRIDGE PL	08/21/2018	Lennar TR 32515 PH 8 LOT 71 Plan 3B, SFD 2232, Gar 428, Porch 54	N		1		
260490006	10384 SNOWY PLOVER CT	08/20/2018	Lennar TR 32515 PH 8 LOT 76 Plan 3B, SFD 2232, Gar 428, Porch 54	N		1		
488440017	27369 CAPROCK WAY	08/09/2018	Beazer - TR 36933 PH 1 Lot 153 Plan 1D; SFD 1542 sf, Garage 429, sf Porch	N		1		
488440013	27401 CAPROCK WAY	08/13/2018	Beazer - TR 36933 PH 1 Lot 149 Plan 1B; SFD 1542 sf, Garage 429, sf Porch 24	N		1		
488440012	27409 CAPROCK WAY	08/13/2018	Beazer - TR 36933 PH 1 Lot 148 Plan 4A; SFD 1982 sf, Garage 428, sf Porch 15	N		1		
488440014	27393 CAPROCK WAY	08/13/2018	Beazer - TR 36933 PH 1 Lot 150 Plan 4C; SFD 1982 sf, Garage 428, sf Porch	N		1		
488440011	27417 CAPROCK WAY	08/13/2018	Beazer - TR 36933 PH 1 Lot 147 Plan 3D; SFD 1818 sf, Garage 428, sf Porch	N		1		
488440015	27385 CAPROCK WAY	08/09/2018	Beazer - TR 36933 PH 1 Lot 151 Plan 3A; SFD 1818 sf, Garage 428, sf Porch 22	N		1		
488440016	27377 CAPROCK WAY	08/13/2018	Beazer - TR 36933 PH 1 Lot 152 Plan 2B; SFD 1733 sf, Garage 428, sf Porch 15	N		1		
488430039	12699 TIGERS EYE WAY	08/24/2018	Beazer - TR 36933 PH 2 Lot 116 Plan 1AR; SFD 1542 sf, Garage 429, sf Porch	N		1		
488430042	12675 TIGERS EYE WAY	08/27/2018	Beazer - TR 36933 PH 2 Lot 119 Plan 1A; SFD 1542 sf, Garage 429, sf Porch 24	N		1		
488430047	12702 TIGERS EYE WAY	08/28/2018	Beazer - TR 36933 PH 2 Lot 124 Plan 1D; SFD 1542 sf, Garage 492, sf Porch	N		1		
488430038	12707 TIGERS EYE WAY	08/24/2018	Beazer - TR 36933 PH 2 Lot 115 Plan CR ; SFD 1733 sf, Garage 428, sf Porch	N		1		
488430046	12694 TIGERS EYE WAY	08/28/2018	Beazer - TR 36933 PH 2 Lot 123 Plan 2A; SFD 1733 sf, Garage 428, sf Porch 15	N		1		
488430040	12691 TIGERS EYE WAY	08/24/2018	Beazer - TR 36933 PH 2 Lot 117 Plan 3BR; SFD 1818 sf, Garage 428, sf Porch	N		1		
488430044	12678 TIGERS EYE WAY	08/27/2018	Beazer - TR 36933 PH 2 Lot 121 Plan 3A; SFD 1818 sf, Garage 428, sf Porch 22	N		1		
430041	12683 TIGERS EYE WAY	08/27/2018	Beazer - TR 36933 PH 2 Lot 118 Plan 4DR; SFD 1982 sf, Garage 428, sf Porch	N		1		

488430043	12670 TIGERS EYE WAY	08/27/2018	Beazer - TR 36933 PH 2 Lot 120 Plan 4DR; SFD 1982 sf, Garage 428, sf Porch	N		1		
488430045	12686 TIGERS EYE WAY	08/27/2018	Beazer - TR 36933 PH 2 Lot 122 Plan 4B - 12686 Tigers Eye; SFD 1982 sf,	N		1		
487591011	12943 LARKDALE LN	07/17/2018	RSI (ATHENS) TR 31305 PH 5 LOT 43 PLAN 4A SFD 3266, GAR 678, PORCH	N		1		
487591013	12915 LARKDALE LN	07/17/2018	RSI (ATHENS) TR 31305 PH 5 LOT 45 PLAN 4B SFD 3267, GAR 678, PORCH	N		1		
487592001	12916 LARKDALE LN	07/17/2018	RSI (ATHENS) TR 31305 PH 5 LOT 66 PLAN 4C SFD 3267, GAR 678, PORCH	N		1		
487592002	12930 LARKDALE LN	07/17/2018	RSI (ATHENS) TR 31305 PH 5 LOT 67 PLAN 1A SFD 2401, GAR 459, PORCH	N		1		
487591010	12957 LARKDALE LN	07/17/2018	RSI (ATHENS) TR 31305 PH 5 LOT 42 PLAN 1B SFD 2401, GAR 459, PORCH	N		1		
487592003	12944 LARKDALE LN	07/17/2018	RSI (ATHENS) TR 31305 PH 5 LOT 68 PLAN 2B SFD 2730, GAR 451, PORCH	N		1		
487591012	12929 LARKDALE LN	07/17/2018	RSI (ATHENS) TR 31305 PH 5 LOT 44 PLAN 3C SFD 3008, GAR 653, PORCH	N		1		
488371019	27994 AIDAN CIR	10/23/2018	TR 31618 Frontier Build Out Lot 52 (Parking Lot) Plan 2A; SFD 3052 GAR 808	N		1		
478451007	14393 BOTTLEBRUSH WAY	06/07/2018	KB Homes-Bella Cortina TR 36436 PH 5 Plan 4C Lot 52: SFD 2617 GARAGE	N		1		
478451008	14383 BOTTLEBRUSH WAY	10/31/2018	KB Homes-Bella Cortina TR 36436 PH 5 Plan 5B Lot 53: SFD 3061 GARAGE	N		1		
478451009	14373 BOTTLEBRUSH WAY	10/31/2018	KB Homes-Bella Cortina TR 36436 PH 5 Plan 1D Lot 54: SFD 1772 GARAGE	N		1		
478440014	14363 BOTTLEBRUSH WAY	10/31/2018	KB Homes-Bella Cortina TR 36436 PH 5 Plan 2B Lot 55: SFD 1905 GARAGE	N		1		
478440015	14353 BOTTLEBRUSH WAY	10/31/2018	KB Homes-Bella Cortina TR 36436 PH 5 Plan 4D Lot 56: SFD 2617 GARAGE	N		1		
478440018	14323 BOTTLEBRUSH WAY	10/31/2018	KB Homes-Bella Cortina TR 36436 PH 5 Plan 1B Lot 59: SFD 1772 GARAGE	N		1		
478440029	14324 BOTTLEBRUSH WAY	10/31/2018	KB Homes-Bella Cortina TR 36436 PH 5 Plan 3D Lot 70: SFD 2128 GARAGE	N		1		
478452003	28582 BUTTERCUP WAY	06/07/2018	KB Homes-Bella Cortina TR 36436 PH 5 Plan 4C Lot 141: SFD 2617 GARAGE	N		1		
478440016	14343 BOTTLEBRUSH WAY	10/31/2018	KB Homes-Bella Cortina TR 36436 PH 6 Plan 3A Lot 57: SFD 2128 GARAGE	N		1		
478440017	14333 BOTTLEBRUSH WAY	09/20/2018	KB Homes-Bella Cortina TR 36436 PH 6 Plan 5C Lot 58: SFD 3061 GARAGE	N		1		
478440019	14313 BOTTLEBRUSH WAY	09/11/2018	KB Homes-Bella Cortina TR 36436 PH 6 Plan 2C Lot 60: SFD 1905 GARAGE	N		1		
478440020	14303 BOTTLEBRUSH WAY	09/18/2018	KB Homes-Bella Cortina TR 36436 PH 6 Plan 5B Lot 61: SFD 3061 GARAGE	N		1		
478440023	14273 BOTTLEBRUSH WAY	08/28/2018	KB Homes-Bella Cortina TR 36436 PH 6 Plan 3B Lot 64: SFD 2128 GARAGE	N		1		
478440024	14274 BOTTLEBRUSH WAY	08/28/2018	KB Homes-Bella Cortina TR 36436 PH 6 Plan 5C Lot 65: SFD 3061 GARAGE	N		1		
478440027	14304 BOTTLEBRUSH WAY	09/05/2018	KB Homes-Bella Cortina TR 36436 PH 6 Plan 3A Lot 68: SFD 2128 GARAGE	N		1		
478440028	14314 BOTTLEBRUSH WAY	08/28/2018	KB Homes-Bella Cortina TR 36436 PH 6 Plan 4B Lot 69: SFD 2617 GARAGE	N		1		
474490025	10367 PROSPECTOR LN	08/20/2018	KB Homes-Daybreak TR 31592 PH 1 Plan 4C Lot 5: SFD 2977 GARAGE 417	N		1		
474490025	10355 PROSPECTOR LN	08/20/2018	KB Homes-Daybreak TR 31592 PH 1 Plan 2D Lot 6: SFD 2347 GARAGE 417	N		1		
474490025	10343 PROSPECTOR LN	08/10/2018	KB Homes-Daybreak TR 31592 PH 1 Plan 3B Lot 7: SFD 2696 GARAGE 416	N		1		
474490025	10331 PROSPECTOR LN	06/11/2018	KB Homes-Daybreak TR 31592 PH 1 Plan 4A Lot 8: SFD 2977 GARAGE 417	N		1		
474490025	10319 PROSPECTOR LN	08/20/2018	KB Homes-Daybreak TR 31592 PH 1 Plan 3B Lot 9: SFD 2696 GARAGE 416	N		1		
474490025	10307 PROSPECTOR LN	06/11/2018	KB Homes-Daybreak TR 31592 PH 1 Plan 1A Lot 10: SFD 2159 GARAGE 417	N		1		
474490025	24813 PROSPECT HILL LN	09/19/2018	KB Homes-Daybreak TR 31592 PH 1 Plan 6A Lot 18: SFD 2854 GARAGE 417	N		1		
474490025	24825 PROSPECT HILL LN	12/31/2018	KB Homes-Daybreak TR 31592 PH 1 Plan 5C Lot 19: SFD 2456 GARAGE 418	N		1		
474490025	24837 PROSPECT HILL LN	06/11/2018	KB Homes-Daybreak TR 31592 PH 1 Plan 4B Lot 20: SFD 2977 GARAGE 417	N		1		
474742003	10356 PROSPECTOR LN	06/06/2018	KB Homes-Daybreak TR 31592 PH 1 Plan 4C Lot 23: SFD 2977 GARAGE 417	N		1		
474490025	10368 PROSPECTOR LN	11/29/2018	KB Homes-Daybreak TR 31592 PH 1 Plan 1B Lot 24: SFD 2159 GARAGE 417	N		1		
474490025	10333 CLOUD HAVEN DR	06/04/2018	KB Homes-Daybreak TR 31592 PH 1 Plan 4C Lot 41: SFD 2977 GARAGE 417	N		1		
260490028	10347 SNOWY PLOVER CT	10/17/2018	Lennar TR 32515 PH 9 LOT 103 Plan 4XA, SFD 2419, Gar 623, Porch 36 - SCE	N		1		
260490029	10339 SNOWY PLOVER CT	10/17/2018	Lennar TR 32515 PH 9 LOT 104 Plan 4C, SFD 2419, Gar 417, Porch 36 - SCE	N		1		
260490030	10331 SNOWY PLOVER CT	10/17/2018	Lennar TR 32515 PH 9 LOT 105 Plan 2XC, SFD 2204, Gar 621, Porch 33 - SCE	N		1		
260490031	10332 SNOWY PLOVER CT	10/17/2018	Lennar TR 32515 PH 9 LOT 106 Plan 6XB, SFD 2590, Gar 623, Porch 35 - SCE	N		1		
260490032	10340 SNOWY PLOVER CT	10/23/2018	Lennar TR 32515 PH 9 LOT 107 Plan 1YA, SFD 2162, Gar 467, Porch 45 - SCE	N		1		
260490033	10348 SNOWY PLOVER CT	10/23/2018	Lennar TR 32515 PH 9 LOT 108 Plan 1C, SFD 1772, Gar 467, Porch 45 - SCE	N		1		
260490034	10356 SNOWY PLOVER CT	10/23/2018	Lennar TR 32515 PH 9 LOT 109 Plan 1YB, SFD 2162, Gar 467, Porch 45 - SCE	N		1		
260490035	10368 SNOWY PLOVER CT	10/23/2018	Lennar TR 32515 PH 9 LOT 110 Plan 3C, SFD 2232, Gar 428, Porch 54 - SCE	N		1		
488440005	27463 CAPROCK WAY	09/12/2018	Beazer - TR 36933 PH 3 Lot 141 Plan 1R - SFD 1542 SF, Garage 429 SF, Porch	N		1		
440006	27457 CAPROCK WAY	09/12/2018	Beazer - TR 36933 PH 3 Lot 142 Plan 2R - SFD 1733 SF, Garage 428 SF, Porch	N		1		

488440007	27449 CAPROCK WAY	09/12/2018	Beazer - TR 36933 PH 3 Lot 143 Plan 3R - SFD 1818 SF, Garage 428 SF, Porch	N		1		
488440008	27441 CAPROCK WAY	09/12/2018	Beazer - TR 36933 PH 3 Lot 144 Plan 4R - SFD 1982 SF, Garage 428 SF, Porch	N		1		
488440009	27433 CAPROCK WAY	09/12/2018	Beazer - TR 36933 PH 3 Lot 145 Plan 1L - SFD 1542 SF, Garage 429 SF, Porch	N		1		
488440010	27425 CAPROCK WAY	09/12/2018	Beazer - TR 36933 PH 3 Lot 146 Plan 2L - SFD 1733 SF, Garage 428 SF, Porch	N		1		
488430048	12697 HORFELS CT	09/24/2018	Beazer - TR 36933 PH 4 Lot 125 Plan 2R - SFD 1733 SF, Garage 428 SF, Porch	N		1		
488430049	12689 HORFELS CT	09/24/2018	Beazer - TR 36933 PH 4 Lot 126 Plan 1R - SFD 1542 SF, Garage 429 SF, Porch	N		1		
488430050	12681 HORFELS CT	09/24/2018	Beazer - TR 36933 PH 4 Lot 127 Plan 4R - SFD 1982 SF, Garage 428 SF, Porch	N		1		
488430051	12673 HORFELS CT	09/25/2018	Beazer - TR 36933 PH 4 Lot 128 Plan 3R - SFD 1818 SF, Garage 428 SF, Porch	N		1		
488430052	12665 HORFELS CT	09/25/2018	Beazer - TR 36933 PH 4 Lot 129 Plan 4L - SFD 1982 SF, Garage 428 SF, Porch	N		1		
488430053	12662 HORFELS CT	09/27/2018	Beazer - TR 36933 PH 4 Lot 130 Plan 1R - SFD 1542 SF, Garage 429 SF, Porch	N		1		
488091025	12670 HORFELS CT	09/27/2018	Beazer - TR 36933 PH 4 Lot 131 Plan 2L - SFD 1733 SF, Garage 428 SF, Porch	N		1		
488091025	12678 HORFELS CT	09/26/2018	Beazer - TR 36933 PH 4 Lot 132 Plan 1L - SFD 1542 SF, Garage 429 SF, Porch	N		1		
488430055	12686 HORFELS CT	09/26/2018	Beazer - TR 36933 PH 4 Lot 133 Plan 2L - SFD 1733 SF, Garage 428 SF, Porch	N		1		
488430057	12694 HORFELS CT	09/26/2018	Beazer - TR 36933 PH 4 Lot 134 Plan 1L - SFD 1542 SF, Garage 429 SF, Porch	N		1		
260490012	10370 NIGHTINGALE CT	11/16/2018	Lennar TR 32515 PH 10 LOT 82 Plan 3XA, SFD 2640, Gar 428, Porch 54 - SCE	N		1		
260490013	10378 NIGHTINGALE CT	11/16/2018	Lennar TR 32515 PH 10 LOT 83 Plan 2XA, SFD 2204, Gar 621, Porch 33 - SCE	N		1		
260490014	10386 NIGHTINGALE CT	11/27/2018	Lennar TR 32515 PH 10 LOT 84 Plan 1XC, SFD 1794, Gar 621, Porch 50 - SCE	N		1		
260490015	10385 NIGHTINGALE CT	11/27/2018	Lennar TR 32515 PH 10 LOT 85 Plan 1ZB, SFD 2206, Gar 467, Porch 50 - SCE	N		1		
260490016	10377 NIGHTINGALE CT	11/21/2018	Lennar TR 32515 PH 10 LOT 86 Plan 6XA, SFD 2590, Gar 623, Porch 35 - SCE	N		1		
260490017	10369 NIGHTINGALE CT	11/20/2018	Lennar TR 32515 PH 10 LOT 87 Plan 5C, SFD 2583, Gar 421, Porch 57 - SCE	N		1		
260490024	10335 SANDERLING CT	11/21/2018	Lennar TR 32515 PH 10 LOT 99 Plan 5C, SFD 2583, Gar 421, Porch 57 - SCE	N		1		
260490025	10328 SANDERLING CT	11/21/2018	Lennar TR 32515 PH 10 LOT 100 Plan 1ZC, SFD 2206, Gar 467, Porch 50 -	N		1		
260490026	10336 SANDERLING CT	11/21/2018	Lennar TR 32515 PH 10 LOT 101 Plan 4B, SFD 2419, Gar 417, Porch 36 - SCE	N		1		
260490027	10344 SANDERLING CT	11/27/2018	Lennar TR 32515 PH 10 LOT 102 Plan 1XB, SFD 1794, Gar 467, Porch 50 -	N		1		
478440021	14293 BOTTLEBRUSH WAY	09/05/2018	KB Homes-Bella Cortina TR 36436 PH 7 Plan 1C Lot 62: SFD 1772 GARAGE	N		1		
478440022	14283 BOTTLEBRUSH WAY	09/05/2018	KB Homes-Bella Cortina TR 36436 PH 7 Plan 2A Lot 63: SFD 1905 GARAGE	N		1		
478440025	14284 BOTTLEBRUSH WAY	08/28/2018	KB Homes-Bella Cortina TR 36436 PH 7 Plan 4D Lot 66: SFD 2617 GARAGE	N		1		
478440026	14294 BOTTLEBRUSH WAY	08/28/2018	KB Homes-Bella Cortina TR 36436 PH 7 Plan 2B Lot 67: SFD 1905 GARAGE	N		1		
478440030	28560 YAROW WAY	11/21/2018	KB Homes-Bella Cortina TR 36436 PH 7 Plan 2B Lot 71: SFD 1905 GARAGE	N		1		
478440031	28570 YAROW WAY	11/27/2018	KB Homes-Bella Cortina TR 36436 PH 7 Plan 5A Lot 72: SFD 3061 GARAGE	N		1		
478441018	28591 YAROW WAY	09/05/2018	KB Homes-Bella Cortina TR 36436 PH 7 Plan 2A Lot 135: SFD 1905 GARAGE	N		1		
478441019	28581 YAROW WAY	09/05/2018	KB Homes-Bella Cortina TR 36436 PH 7 Plan 4C Lot 136: SFD 2617 GARAGE	N		1		
478441020	28571 YAROW WAY	09/05/2018	KB Homes-Bella Cortina TR 36436 PH 7 Plan 3D Lot 137: SFD 2128 GARAGE	N		1		
478441021	28561 YAROW WAY	10/04/2018	KB Homes-Bella Cortina TR 36436 PH 7 Plan 1C Lot 138: SFD 1772 GARAGE	N		1		
487580001	26910 CLAYSTONE DR	09/20/2018	RSI TR 31305 PH 6 Plan 1A Lot 1, SFD 2401, Gar 459, Porch 56 - MVU	N		1		
487580002	26924 CLAYSTONE DR	09/20/2018	RSI TR 31305 PH 6 Plan 2BX Lot 2, SFD 2730, Gar 451, Porch 49 - MVU	N		1		
487580003	26938 CLAYSTONE DR	09/20/2018	RSI TR 31305 PH 6 Plan 3C Lot 3, SFD 3008, Gar 653, Porch 15 - MVU	N		1		
487582016	26939 CLAYSTONE DR	09/19/2018	RSI TR 31305 PH 6 Plan 4B Lot 83, SFD 3267, Gar 678, Porch 68 - MVU	N		1		
487582017	26925 CLAYSTONE DR	09/19/2018	RSI TR 31305 PH 6 Plan 3A Lot 84, SFD 3004, Gar 657, Porch 97 - MVU	N		1		
487582018	26911 CLAYSTONE DR	09/19/2018	RSI TR 31305 PH 6 Plan 4C Lot 85, SFD 3267, Gar 678, Porch 56 - MVU	N		1		
488371018	27977 AIDAN CIR	06/20/2018	(Frontier Estancia) MODEL HOME CONVERSION AND CofO - TRACT 31618,	N		1		
488371017	27961 AIDAN CIR	06/20/2018	(Frontier Estancia) MODEL HOME CONVERSION AND CofO - TRACT 31618,	N		1		
488371016	27943 AIDAN CIR	06/20/2018	(Frontier Estancia) MODEL HOME CONVERSION AND CofO - TRACT 31618,	N		1		
487580004	26952 CLAYSTONE DR	09/27/2018	RSI TR 31305 PH 7 Plan 4A Lot 4, SFD 3266, Gar 678, Porch 66 - MVU	N		1		
487580005	26966 CLAYSTONE DR	09/27/2018	RSI TR 31305 PH 7 Plan 3B Lot 5, SFD 3008, Gar 653, Porch 15 - MVU	N		1		
487580006	26980 CLAYSTONE DR	09/27/2018	RSI TR 31305 PH 7 Plan 2A Lot 6, SFD 2730, Gar 451, Porch 49 - MVU	N		1		
487580007	26994 CLAYSTONE DR	10/05/2018	RSI TR 31305 PH 7 Plan 2B Lot 7, SFD 2730, Gar 451, Porch 49 - MVU	N		1		
580008	12806 WAINWRIGHT LN	10/05/2018	RSI TR 31305 PH 7 Plan 3C Lot 8, SFD 3008, Gar 653, Porch 15 - MVU	N		1		

487582015	12805 WAINWRIGHT LN	10/05/2018	RSI TR 31305 PH 7 Plan 3A Lot 82, SFD 3004, Gar 657, Porch 97 - MVU	N		1		
487580009	12820 WAINWRIGHT LN	10/30/2018	RSI TR 31305 PH 8 Plan 4A Lot 9, SFD 3266, Gar 678, Porch 66 - MVU	N		1		
487580010	12834 WAINWRIGHT LN	10/30/2018	RSI TR 31305 PH 8 Plan 3B Lot 10, SFD 3008, Gar 653, Porch 15 - MVU	N		1		
487580011	12848 WAINWRIGHT LN	10/30/2018	RSI TR 31305 PH 8 Plan 4C Lot 11, SFD 3267, Gar 678, Porch 56 - MVU	N		1		
487582012	12847 WAINWRIGHT LN	10/30/2018	RSI TR 31305 PH 8 Plan 2A Lot 79, SFD 2730, Gar 451, Porch 49 - MVU	N		1		
487582013	12833 WAINWRIGHT LN	11/28/2018	RSI TR 31305 PH 8 Plan 1A Lot 80, SFD 2401, Gar 459, Porch 56 - MVU	N		1		
487582014	12819 WAINWRIGHT LN	11/19/2018	RSI TR 31305 PH 8 Plan 4B Lot 81, SFD 3267, Gar 678, Porch 68 - MVU	N		1		
487561007	26774 BUCKEYE TER	06/26/2018	(Pacific Communities) MODEL HOME CONVERSION AND CofO - TRACT	N		1		
478440034	14325 BEGONIA LN	10/29/2018	KB Homes-Bella Cortina TR 36436 PH 8A Plan 3D Lot 75: SFD 2128 GARAGE	N		1		
478440035	14315 BEGONIA LN	11/19/2018	KB Homes-Bella Cortina TR 36436 PH 8A Plan 1B Lot 76: SFD 1772 GARAGE	N		1		
478440036	14305 BEGONIA LN	11/19/2018	KB Homes-Bella Cortina TR 36436 PH 8A Plan 3AR Lot 77: SFD 2128 GARAGE	N		1		
478440043	14306 BEGONIA LN	11/21/2018	KB Homes-Bella Cortina TR 36436 PH 8A Plan 1C Lot 84: SFD 1772 GARAGE	N		1		
478440044	14316 BEGONIA LN	12/04/2018	KB Homes-Bella Cortina TR 36436 PH 8A Plan 5B Lot 85: SFD 3061 GARAGE	N		1		
478440045	14326 BEGONIA LN	10/29/2018	KB Homes-Bella Cortina TR 36436 PH 8A Plan 4C Lot 86: SFD 2617 GARAGE	N		1		
478440046	14336 BEGONIA LN	10/29/2018	KB Homes-Bella Cortina TR 36436 PH 8A Plan 2B Lot 87: SFD 1905 GARAGE	N		1		
478441015	28621 YAROW WAY	11/06/2018	KB Homes-Bella Cortina TR 36436 PH 8A Plan 2A Lot 132: SFD 1905 GARAGE	N		1		
478441017	28601 YAROW WAY	11/06/2018	KB Homes-Bella Cortina TR 36436 PH 8A Plan 3C Lot 134: SFD 2128 GARAGE	N		1		
474490025	10295 PROSPECTOR LN	11/14/2018	TR 31592 KB Homes-Daybreak PH 2 Plan 2C Lot 11: SFD 2347 GARAGE 416	N		1		
474490025	10283 PROSPECTOR LN	11/16/2018	TR 31592 KB Homes-Daybreak TR 31592 PH 2 Plan 1A Lot 12: SFD 2159	N		1		
474490025	10260 PROSPECTOR LN	11/05/2018	TR 31592 KB Homes-Daybreak TR 31592 PH 2 Plan 6B Lot 15: SFD 2854	N		1		
474490025	10369 CLOUD HAVEN DR	11/05/2018	TR 31592 KB Homes-Daybreak TR 31592 PH 2 Plan 3C Lot 38: SFD 2696	N		1		
474490025	10357 CLOUD HAVEN DR	11/05/2018	TR 31592 KB Homes-Daybreak TR 31592 PH 2 Plan 4B Lot 39: SFD 2977	N		1		
474490025	10345 CLOUD HAVEN DR	12/31/2018	TR 31592 KB Homes-Daybreak TR 31592 PH 2 Plan 5A Lot 40: SFD 2456	N		1		
487582009	12889 WAINWRIGHT LN	12/31/2018	RSI TR 31305 PH 9 Plan 4A Lot 76, SFD 3266, Gar 678, Porch 66 - MVU	N		1		
478440037	14295 BEGONIA LN	11/19/2018	KB Homes-Bella Cortina TR 36436 PH PH 8B Plan 2BR Lot 78: SFD 1905	N		1		
478440041	14286 BEGONIA LN	11/21/2018	KB Homes-Bella Cortina TR 36436 PH 8B Plan 2CR Lot 82: SFD 1905 GARAGE	N		1		
478440038	14285 BEGONIA LN	11/19/2018	KB Homes-Bella Cortina TR 36436 PH 8B Plan 3D Lot 79: SFD 2128 GARAGE	N		1		
478440042	14296 BEGONIA LN	11/21/2018	KB Homes-Bella Cortina TR 36436 PH 8B Plan 3AR Lot 83: SFD 2128 GARAGE	N		1		
478462013	28641 YAROW WAY	11/06/2018	KB Homes-Bella Cortina TR 36436 PH 8B Plan 3CR Lot 130: SFD 2128	N		1		
478440039	14275 BEGONIA LN	11/19/2018	KB Homes-Bella Cortina TR 36436 PH 8B Plan 4BR Lot 80: SFD 2617 GARAGE	N		1		
478462014	28631 YAROW WAY	11/06/2018	KB Homes-Bella Cortina TR 36436 PH 8B Plan 4B Lot 131: SFD 2617 GARAGE	N		1		
478440040	14276 BEGONIA LN	11/21/2018	KB Homes-Bella Cortina TR 36436 PH 8B Plan 5AR Lot 81: SFD 3061 GARAGE	N		1		
478462011	28661 YAROW WAY	11/06/2018	KB Homes-Bella Cortina TR 36436 PH 8B Plan 5DR Lot 128: SFD 3061	N		1		
478462012	28651 YAROW WAY	11/06/2018	KB Homes-Bella Cortina TR 36436 PH 8B Plan 1AR Lot 129: SFD 1772	N		1		
478462005	14340 BLUE BONNET LN	11/21/2018	KB Homes-Bella Cortina TR 36436 PH 8C Plan 2AR Lot 122: SFD 1905	N		1		
478462009	28681 YAROW WAY	11/21/2018	KB Homes-Bella Cortina TR 36436 PH 8C Plan 3A Lot 126: SFD 2128 GARAGE	N		1		
478462006	14350 BLUE BONNET LN	11/21/2018	KB Homes-Bella Cortina TR 36436 PH 8C Plan 3B Lot 123: SFD 2128 GARAGE	N		1		
478462008	28691 YAROW WAY	11/21/2018	KB Homes-Bella Cortina TR 36436 PH 8C Plan 4DR Lot 125: SFD 2617	N		1		
478462007	28701 YAROW WAY	11/21/2018	KB Homes-Bella Cortina TR 36436 PH 8C Plan 5C Lot 124: SFD 3061 GARAGE	N		1		
474490025	10647 SUNNYMEAD CREST LN	12/31/2018	KB-Daybreak TR 31592 PH 3A Plan 4DR Lot 42: SFD 2977 GARAGE 417	N		1		
474490025	10515 SUNNYMEAD CREST LN	11/30/2018	KB-Daybreak TR 31592 PH 3A Plan 4B Lot 53: SFD 2977 GARAGE 417	N		1		
474490025	10539 SUNNYMEAD CREST LN	11/30/2018	KB-Daybreak TR 31592 PH 3A Plan 4DR Lot 51: SFD 2977 GARAGE 417	N		1		
474490025	10563 SUNNYMEAD CREST LN	11/30/2018	KB-Daybreak TR 31592 PH 3A Plan 4BR Lot 49: SFD 2977 GARAGE 417	N		1		
474490025	10599 SUNNYMEAD CREST LN	11/29/2018	KB-Daybreak TR 31592 PH 3A Plan 4AR Lot 46: SFD 2977 GARAGE 417	N		1		
474490025	10623 SUNNYMEAD CREST LN	12/31/2018	KB-Daybreak TR 31592 PH 3A Plan 4CR Lot 44: SFD 2977 GARAGE 417	N		1		
474490025	10587 SUNNYMEAD CREST LN	11/30/2018	KB-Daybreak TR 31592 PH 3A Plan 2DR Lot 47: SFD 2347 GARAGE 416	N		1		
474490025	10551 SUNNYMEAD CREST LN	11/30/2018	KB-Daybreak TR 31592 PH 3A Plan 1AR Lot 50: SFD 2159 GARAGE 417	N		1		
474490025	10611 SUNNYMEAD CREST LN	12/31/2018	KB-Daybreak TR 31592 PH 3A Plan 1BR Lot 45: SFD 2159 GARAGE 417	N		1		

474490025	10527 SUNNYMEAD CREST LN	12/31/2018	KB-Daybreak TR 31592 PH 3A Plan 3CR Lot 52: SFD 2696 GARAGE 416	N		1		
474490025	10575 SUNNYMEAD CREST LN	11/30/2018	KB-Daybreak TR 31592 PH 3A Plan 3AR Lot 48: SFD 2696 GARAGE 416	N		1		
485112006	24817 QUENADA DR	02/09/2018	RSI TR 22180-2 PH 7 Plan 5A Lot 24, SFD 2902, Gar 607, Porch 146	N		1		
485112007	24805 QUENADA DR	02/09/2018	RSI TR 22180-2 PH 7 Plan 3B Lot 25, SFD 2520, Gar 421 Porch 170	N		1		
485112008	24793 QUENADA DR	02/09/2018	RSI TR 22180-2 PH 7 Plan 4BX Lot 26, SFD 2601, Gar 612, Porch 59	N		1		
485112022	24781 QUENADA DR	02/09/2018	RSI TR 22180-2 PH 7 Plan 1B Lot 27, SFD 2106, Gar 422, Porch 59	N		1		
485112023	24769 QUENADA DR	02/09/2018	RSI TR 22180-2 PH 7 Plan 3C Lot 28, SFD 2520, Gar 421 Porch 170	N		1		
485113011	24794 QUENADA DR	02/09/2018	RSI TR 22180-2 PH 7 Plan 2C Lot 47, SFD 2309, Gar 439, Porch 77	N		1		
485113009	24770 QUENADA DR	02/12/2018	RSI TR 22180-2 PH 7 Plan 4BX Lot 45, SFD 2601, Gar 612, Porch 49	N		1		
485113010	24782 QUENADA DR	02/12/2018	RSI TR 22180-2 PH 7 Plan 3D Lot 46, SFD 2520, Gar 421 Porch 170	N		1		
485113011	24794 QUENADA DR	02/14/2018	RSI TR 22180-2 PH 7 Plan 2C Lot 47, SFD 2309, Gar 439, Porch 77	N		1		
485113003	15385 OBAN CIR	04/23/2018	RSI TR 22180-2 PH 8 Plan 3B Lot 39 SFD 2520, Gar 421 Porch 170	N		1		
485113004	15373 OBAN CIR	04/23/2018	RSI TR 22180-2 PH 9 Plan 5D Lot 40 SFD 2902, Gar 607, Porch 105	N		1		
485113005	15374 OBAN CIR	04/23/2018	RSI TR 22180-2 PH 8 Plan 3C Lot 41 SFD 2520, Gar 421 Porch 170	N		1		
485113007	15398 OBAN CIR	04/23/2018	RSI TR 22180-2 PH 9 Plan 5C Lot 43 SFD 2902, Gar 607, Porch 105	N		1		
485113033	15379 OBAN CIR	04/23/2018	RSI TR 22180-2 PH 9 Plan 4CX Lot 38 - SFD 2601, Gar 612, Porch 49	N		1		
485121014	24757 QUENADA DR	04/23/2018	RSI TR 22180-2 PH 8 Plan 2A Lot 29 SFD 2309, Gar 439, Porch 101	N		1		
485121015	24745 QUENADA DR	04/23/2018	RSI TR 22180-2 PH 8 Plan 5D Lot 30 SFD 2902, Gar 607, Porch 118	N		1		
485121016	24733 QUENADA DR	04/23/2018	RSI TR 22180-2 PH 8 Plan 4BX Lot 31 - SFD 2601, Gar 612, Porch 49	N		1		
485121017	24721 QUENADA DR	04/23/2018	RSI TR 22180-2 PH 8 Plan 3A Lot 32 SFD 2520, Gar 421 Porch 170	N		1		
485121020	24710 QUENADA DR	04/23/2018	RSI TR 22180-2 PH 8 Plan 3B Lot 35 SFD 2520, Gar 421 Porch 170	N		1		
485121025	24734 QUENADA DR	04/23/2018	RSI TR 22180-2 PH 7 Plan 1D Lot 37, SFD 2106, Gar 422, Porch 59	N		1		
485113006	15386 OBAN CIR	04/24/2018	RSI TR 22180-2 PH 9 Plan 2B Lot 42 SFD 2309, Gar 439, Porch 101	N		1		
485113013	15424 EL BRASO DR	04/30/2018	RSI TR 22180-2 PH 10 Plan 3B Lot 49 SFD 2520, Gar 421 Porch 170	N		1		
485113012	15436 EL BRASO DR	05/01/2018	RSI TR 22180-2 PH 10 Plan 4DX Lot 48 - SFD 2601, Gar 612, Porch 59	N		1		
485113014	15412 EL BRASO DR	05/01/2018	RSI TR 22180-2 PH 10 Plan 5C Lot 50 SFD 2902, Gar 607, Porch 105	N		1		
485113015	15400 EL BRASO DR	05/02/2018	RSI TR 22180-2 PH 10 Plan 2D Lot 51 SFD 2309, Gar 439, Porch 94	N		1		
485113016	15388 EL BRASO DR	05/02/2018	RSI TR 22180-2 PH 10 Plan 4AX Lot 52 - SFD 2601, Gar 612, Porch 49	N		1		
485113017	15376 EL BRASO DR	05/02/2018	RSI TR 22180-2 PH 10 Plan 5D Lot 53 SFD 2902, Gar 607, Porch 105	N		1		
485113018	24848 EL BRASO DR	05/02/2018	RSI TR 22180-2 PH 10 Plan 3A Lot 54 SFD 2520, Gar 421 Porch 170	N		1		
485113019	24860 EL BRASO DR	05/02/2018	RSI TR 22180-2 PH 10 Plan 4CX Lot 55 - SFD 2601, Gar 612, Porch 59	N		1		
485114011	24865 EL BRASO DR	05/02/2018	RSI TR 22180-2 PH 10 Plan 2B Lot 76 SFD 2309, Gar 439, Porch 77	N		1		
485113018	24848 EL BRASO DR	05/07/2018	RSI TR 22180-2 PH 10 Plan 3A Lot 54 SFD 2520, Gar 421 Porch 170	N		1		
485113019	24860 EL BRASO DR	05/07/2018	RSI TR 22180-2 PH 10 Plan 4CX Lot 55 - SFD 2601, Gar 612, Porch 59	N		1		
485114011	24865 EL BRASO DR	05/07/2018	RSI TR 22180-2 PH 10 Plan 2B Lot 76 SFD 2309, Gar 439, Porch 77	N		1		
485113020	24872 EL BRASO DR	06/26/2018	RSI TR 22180-2 PH 11 Plan 4BX Lot 56, SFD 2601, Gar 612, Porch 49	N		1		
485113021	24884 EL BRASO DR	06/26/2018	RSI TR 22180-2 PH 11 Plan 2A Lot 57 SFD 2309, Gar 439, Porch 101	N		1		
485114009	24889 EL BRASO DR	06/26/2018	RSI TR 22180-2 PH 11 Plan 1C Lot 74, SFD 2106, Gar 422, Porch 59	N		1		
485114010	24877 EL BRASO DR	06/26/2018	RSI TR 22180-2 PH 11 Plan 5D Lot 75 SFD 2902, Gar 607, Porch 118	N		1		
485113022	24896 EL BRASO DR	06/27/2018	RSI TR 22180-2 PH 11 Plan 3C Lot 58 SFD 2520, Gar 421 Porch 170	N		1		
485113023	24908 EL BRASO DR	06/27/2018	RSI TR 22180-2 PH 11 Plan 5A Lot 59, SFD 2902, Gar 607, Porch 146	N		1		
485114007	24913 EL BRASO DR	06/28/2018	RSI TR 22180-2 PH 11 Plan 4DX Lot 72, SFD 2601, Gar 612, Porch 59	N		1		
485114008	24901 EL BRASO DR	06/28/2018	RSI TR 22180-2 PH 11 Plan 3A Lot 73 SFD 2520, Gar 421 Porch 170	N		1		
485113024	24920 EL BRASO DR	07/30/2018	RSI TR 22180-2 PH 12 Plan 3B Lot 60, SFD 2520, Gar 412, Porch 170 - MVU	N		1		
485113027	24956 EL BRASO DR	07/30/2018	RSI TR 22180-2 PH 12 Plan 5D Lot 63, SFD 2902, Gar 607, Porch 118 - MVU	N		1		
485114004	24949 EL BRASO DR	07/30/2018	RSI TR 22180-2 PH 12 Plan 5A Lot 69, SFD 2902, Gar 607, Porch 146 - MVU	N		1		
485114006	24925 EL BRASO DR	07/30/2018	RSI TR 22180-2 PH 12 Plan 2A Lot 71, SFD 2309, Gar 439, Porch 101 - MVU	N		1		
485113025	24932 EL BRASO DR	07/31/2018	RSI TR 22180-2 PH 12 Plan 4X Lot 61, SFD 2601, Gar 612, Porch 59 - MVU	N		1		

485113026	24944 EL BRASO DR	07/31/2018	RSI TR 22180-2 PH 12 Plan 2B Lot 62, SFD 2309, Gar 439, Porch 77 - MVU	N		1		
485114003	24961 EL BRASO DR	07/31/2018	RSI TR 22180-2 PH 12 Plan 1B Lot 68, SFD 2106, Gar 422, Porch 59 - MVU	N		1		
485114005	24937 EL BRASO DR	07/31/2018	RSI TR 22180-2 PH 12 Plan 3D Lot 70, SFD 2520, Gar 421, Porch 170 - MVU	N		1		
308620013	15942 SULPHUR SPRINGS RD	08/16/2018	MODEL HOME CONVERSION AND CofO- TRACT 29920, LOT 13, PLAN 2RA	N		1		
308620015	15918 SULPHUR SPRINGS RD	08/16/2018	MODEL HOME CONVERSION AND CofO - TRACT 29920, LOT 15, PLAN 5B	N		1		
485111001	15378 BLACK SHADOW DR	09/05/2018	RSI TR 22180-2 PH 13 Plan 2B Lot 1, SFD 2309, Gar 439, Porch 77 - MVU	N		1		
485111002	15390 BLACK SHADOW DR	09/05/2018	RSI TR 22180-2 PH 13 Plan 3A Lot 2, SFD 2520, Gar 421, Porch 170 - MVU	N		1		
485111003	15402 BLACK SHADOW DR	09/05/2018	RSI TR 22180-2 PH 13 Plan 5C Lot 3, SFD 2902, Gar 607, Porch 105 - MVU	N		1		
485111004	15414 BLACK SHADOW DR	09/05/2018	RSI TR 22180-2 PH 13 Plan 2A Lot 4, SFD 2309, Gar 439, Porch 101 - MVU	N		1		
308620011	15911 SULPHUR SPRINGS RD	09/06/2018	PAC COMM TR 30268 / 29920 PH 13B Lot 11 Plan 5A, SFD 2630, Gar 421,	N		1		
485113028	24968 EL BRASO DR	09/11/2018	RSI TR 22180-2 PH 13 Plan 3C Lot 64, SFD 2520, Gar 421, Porch 170 - MVU	N		1		
485113029	24980 EL BRASO DR	09/11/2018	RSI TR 22180-2 PH 13 Plan 1A Lot 65, SFD 2106, Gar 422, Porch 59 - MVU	N		1		
485114001	24985 EL BRASO DR	09/11/2018	RSI TR 22180-2 PH 13 Plan 4AX Lot 66, SFD 2601, Gar 612, Porch 49 - MVU	N		1		
485114002	24973 EL BRASO DR	09/11/2018	RSI TR 22180-2 PH 13 Plan 2D Lot 67, SFD 2309, Gar 439, Porch 94 - MVU	N		1		
308620012	15923 SULPHUR SPRINGS RD	09/19/2018	MODEL HOME CONVERSION AND CofO - TRACT 29920, LOT 12, PLAN 4C	N		1		
485111005	15426 BLACK SHADOW DR	10/02/2018	RSI TR 22180-2 PH 14 Plan 4CX Lot 5, SFD 2601, Gar 612, Porch 59 - MVU	N		1		
485111006	15438 BLACK SHADOW DR	10/02/2018	RSI TR 22180-2 PH 14 Plan 3B Lot 6, SFD 2520, Gar 421, Porch 170 - MVU	N		1		
485111007	15450 BLACK SHADOW DR	10/10/2018	RSI TR 22180-2 PH 14 Plan 1A Lot 7, SFD 2106, Gar 422, Porch 59 - MVU	N		1		
485111008	15462 BLACK SHADOW DR	10/10/2018	RSI TR 22180-2 PH 14 Plan 4DX Lot 8, SFD 2601, Gar 612, Porch 59 - MVU	N		1		
485111010	24997 QUENADA DR	10/10/2018	RSI TR 22180-2 PH 14 Plan 2B Lot 10, SFD 2309, Gar 439, Porch 77 - MVU	N		1		
485111011	24985 QUENADA DR	10/11/2018	RSI TR 22180-2 PH 14 Plan 4AX, Lot 11, SFD 2601, Gar 612, Porch 49 - MVU	N		1		
485114022	24980 QUENADA DR	10/11/2018	RSI TR 22180-2 PH 14 Plan 3D Lot 87, SFD 2520, Gar 421, Porch 170 - MVU	N		1		
485111009	15474 BLACK SHADOW DR	10/15/2018	RSI TR 22180-2 PH 14 Plan 5C Lot 9, SFD 2902, Gar 607, Porch 105 - MVU	N		1		
485112005	24829 QUENADA DR	11/05/2018	RSI TR 22180-2 PH 6 Plan 2D Lot 23, SFD 2309, Gar 439, Porch 94	N		1		
485111013	24961 QUENADA DR	11/06/2018	RSI TR 22180-2 PH 15 Plan 3C Lot 13, SFD 2520, Gar 421, Porch 170 - MVU	N		1		
485111014	24949 QUENADA DR	11/06/2018	RSI TR 22180-2 PH 15 Plan 5B Lot 14, SFD 2902, Gar 607, Porch 146 - MVU	N		1		
485111012	24973 QUENADA DR	11/07/2018	RSI TR 22180-2 PH 15 Plan 2C Lot 12, SFD 2309, Gar 439, Porch 77 - MVU	N		1		
485111015	24937 QUENADA DR	11/07/2018	RSI TR 22180-2 PH 15 Plan 2C Lot 15, SFD 2309, Gar 439, Porch 77 - MVU	N		1		
485114018	24932 QUENADA DR	11/07/2018	RSI TR 22180-2 PH 15 Plan 3A Lot 83, SFD 2520, Gar 421, Porch 170 - MVU	N		1		
485114019	24944 QUENADA DR	11/07/2018	RSI TR 22180-2 PH 15 Plan 4BX Lot 84, SFD 2601, Gar 612, Porch 49 - MVU	N		1		
485114020	24956 QUENADA DR	11/08/2018	RSI TR 22180-2 PH 15 Plan 2D Lot 85, SFD 2309, Gar 439, Porch 94 - MVU	N		1		
485114021	24968 QUENADA DR	11/08/2018	RSI TR 22180-2 PH 15 Plan 1B Lot 86, SFD 2106, Gar 422, Porch 59 - MVU	N		1		
485111017	24913 QUENADA DR	11/21/2018	RSI TR 22180-2 PH 16 Lot 17 Plan 4AX, SFD 2601, Gar 612, Porch 49 - MVU	N		1		
485114017	24920 QUENADA DR	11/21/2018	RSI TR 22180-2 PH 16 Plan 5B Lot 82, SFD 2902, Gar 607, Porch 146 - MVU	N		1		
485111018	24901 QUENADA DR	11/27/2018	RSI TR 22180-2 PH 16 Plan 3D Lot 18, SFD 2520, Gar 421, Porch 170 - MVU	N		1		
485114014	24884 QUENADA DR	11/27/2018	RSI TR 22180-2 PH 16 Plan 5A Lot 79, SFD 2902, Gar 607, Porch 146 - MVU	N		1		
485111016	24925 QUENADA DR	12/03/2018	RSI TR 22180-2 PH 16 Lot 16 Plan 1D, SFD 2106, Gar 422, Porch 59 - MVU	N		1		
485114015	24896 QUENADA DR	12/03/2018	RSI TR 22180-2 PH 16 Plan 2C Lot 80, SFD 2309, Gar 439, Porch 77 - MVU	N		1		
485114016	24908 QUENADA DR	12/10/2018	RSI TR 22180-2 PH 16 Plan 3C Lot 81, SFD 2520, Gar 421, Porch 170 - MVU	N		1		
292212005	12178 Zinnia St	NA	Demolition of SFD Due to Fire - Slab, Footings and Driveway to Remain				Destroyed	Fire
479661020	25172 Bronze Dr	NA	Demolition of SFD Due to Fire - Slab, Footings and Driveway to Remain				Destroyed	Fire
316210037	24921 Nandina Ave	NA	Demolish (1) SFD with Accessory Structures and Clear Property For				Demolished	Torn down
291140009	22459 Cottonwood Ave	NA	Demoltion of residence and garage to comply with CCR18-0565				Destroyed	Fire

Table B
Regional Housing Needs Allocation Progress
Permitted Units Issued by Affordability

Income Level		RHNA Allocation by Income Level	2014	2015	2016	2017	2018	Total Units to Date (all years)	Total Remaining RHNA by Income Level
Very Low	Deed Restricted	1500							1500
	Non-Deed Restricted								
Low	Deed Restricted	993							993
	Non-Deed Restricted								
Moderate	Deed Restricted	1112						102	1010
	Non-Deed Restricted					92	10		
Above Moderate		2564	93	103	119	341	424	1080	1484
Total RHNA		6169							
Total Units			93	103	119	433	434	1182	4987

ANNUAL ELEMENT PROGRESS REPORT
Housing Element Implementation
(CCR Title 25 §6202)

Jurisdiction	Moreno Valley	
Reporting Year	2018	(Jan. 1 - Dec. 31)

Note: * Optional field
Cells in grey contain auto-calculation formulas

Table C
Sites Identified or Rezoned to Accommodate Shortfall Housing Need

Project Identifier				Date of Rezone	Affordability by Household Income				Type of Shortfall	Sites Description							
1				2	3				4	5	6	7	8		9	10	11
APN	Street Address	Project Name*	Local Jurisdiction Tracking ID*	Date of Rezone	Very-Low Income	Low-Income	Moderate Income	Above Moderate Income	Type of Shortfall	Parcel Size (Acres)	General Plan Designation	Zoning	Minimum Density Allowed	Maximum Density Allowed	Realistic Capacity	Vacant/Nonvacant	Description of Existing Uses
Summary Row: Start Data Entry Below																	

Table D
Program Implementation Status pursuant to GC Section 65583
Describe progress of all programs including local efforts to remove governmental constraints to the maintenance, improvement, and development of housing as identified in the housing element.

1	2	3	4
Name of Program	**Objective**	**Timeframe**	**Status of the Program Implementation**
Action 1.1	Review and update the General Plan periodically (if an update is needed) to ensure that growth trends are addressed. *Responsible Agency: City of Moreno Valley Planning Division* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: General Fund*	Ongoing 2014 – 2021	General Plan Comprehensive Update tentatively scheduled to start in 2019.
Action 1.2	Encourage variety of housing development through various Overlay zone alternatives (Senior Housing, Planned Development, Mixed Use) or with the density bonus incentives. *Responsible Agency: City of Moreno Valley Planning Division and Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: General Fund* *Objective: Target 1 mixed-use project over the planning period.*	Ongoing 2014 – 2021	Ongoing
Action 1.3	The Moreno Valley Housing Authority will utilize available funding, HOME, CDBG, etc. allocations to provide the following incentives which may be applied to an affordable housing project: 1) Lease or purchase of City owned property at low rates; 2) Provision of off-site improvements. *Responsible Agency: Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: CDBG, HOME, General Fund*	Ongoing 2014 – 2021	Ongoing
Action 1.4	Encourage a mixture of diverse housing types and densities in new developments, guided by specific plans	Ongoing 2014 – 2021	Ongoing

	and the Mixed Use Overlay District, around Sunnymead and Alessandro Boulevards and throughout the City. Focus development activity within the Village Specific Plan (SP 204) area to suitably zoned underutilized land and the potential for mixed-use projects exists for the development of affordable housing. *Responsible Agency: City of Moreno Valley Planning Division and Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: General Fund, Moreno Valley Housing Authority* *Objective: Target 1 mixed-use project over the planning period.*		
Action 1.5	Support the use of innovative building techniques and construction materials for residential development, such as energy efficient buildings that utilize solar panels and sustainable building materials that are recyclable. *Responsible Agency: City of Moreno Valley Planning Division and Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021 (latest grant funded through December 2014)* *Potential Funding Source: General Fund, Grants* *Objective: Using SC Edison grants to develop innovative development standards for energy conservation.*	Ongoing 2014 – 2021	Ongoing Latest grant funded through December 2014.
Action 1.6	Work with Habitat for Humanity to utilize vacant Housing Authority owned infill lots for single-family development to provide housing for lower income families and individuals. *Responsible Agency: City of Moreno Valley Planning Division, Business Support & Neighborhood Programs Division and Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: CDBG& NSP 3 funds for acquisition of property to be rehabilitated and sold* *Objective: Approval of 8 unit Tract Map and building 8 units in the planning period. Tentative Tract map for project*	Ongoing 2014 – 2021	Approval of 8 Unit Tract Map and building of 8 units in the planning period (Fall 2014).

	was approved at Planning Commission in on December 12, 2013. Building of units to begin in Fall 2014.		
Action 1.7	Continue to track affordable housing units City-wide. This includes monitoring the method by which units remain affordable to lower-income households (i.e. covenants, deed restrictions, loans, etc.). Responsible Agency: City of Moreno Valley Business Support & Neighborhood Programs Division and Moreno Valley Housing Authority Timeframe: Ongoing 2014-2021 Potential Funding Source: General Fund	Ongoing 2014 – 2021	Ongoing
Action 1.8	The Planning Division will utilize design, development, processing and streamlining incentives, such as reductions in parking requirements, and other standards, to encourage residential uses and to promote more intense residential development in the Mixed Use Districts Overlay and Residential 30 (R30) areas. Information on these financial and regulatory incentives will be made available on the City's website and in public places at City Hall. *Responsible Agency: City of Moreno Valley Planning Division* *Timeframe: Ongoing 2014-2021* *Potential Funding Sources: General Fund, Tax Credits, HOME funds, CDBG, CHFA funds, HUD, Local Lenders* *Objective: Promote development of one mixed use project for lower and moderate-income households*	Ongoing 2014 – 2021	Ongoing
Action 1.9	Establish parking standards for senior and affordable housing developments that are located in proximity to transit stops. *Responsible Agency: City of Moreno Valley Planning Division* *Timeframe: Adopt by end of 2014* *Potential Funding Source: General Fund* *Objective: To promote high density housing near transportation opportunities. Promote development of*	Ongoing 2014 – 2021	Ongoing Parking standards are reduced for senior/affordable projects.

	one senior and affordable housing development over the planning period.		
Action 1.10	To encourage the development of affordable residential and mixed-use projects, the City will offer incentives such as a reduction in development standards (i.e. lot size and parking requirements) and with assistance from the Moreno Valley Housing Authority, subsidize a portion of development costs to encourage lot consolidation and to promote more intense residential and mixed-use development on vacant and underutilized sites within the Village Specific Plan (SP 204) area. While the City is more than able to accommodate the remaining RHNA allocation for the planning period on sites larger than one acre, this program allows for the City to begin planning for the future by encouraging property owners to consolidate adjacent properties to develop larger projects. *Responsible Agency: The City of Moreno Valley Planning Division and Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: General Fund*	Ongoing 2014 – 2021	Ongoing

Action 2.1	Utilize resources such as HOME funds, California Housing Finance Agency single-family and multiple-family programs, HUD Section 208/811 loans, and HOPE II and III Homeownership programs to stimulate private developer and non-profit entity efforts in the development and financing of housing for lower and moderate-income households. *Responsible Agency: Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: HOME funds, CDBG, CHFA funds, HUD, Local Lenders*	*Ongoing 2014-2021*	Ongoing
Action 2.2	The Moreno Valley Housing Authority should facilitate discussions between developers and local banks to meet their	*Ongoing 2014-2021*	Ongoing

	obligations pursuant to the California Community Reinvestment Act (CCRA) providing favorable financing to developers involved in projects designed to provide lower and moderate-income housing opportunities. *Responsible Agency: Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021*		
Action 2.3	Consider pursuing a program through the Moreno Valley Housing Authority, if funding is available, or through interested certified Community Housing Development Organization's (CHDO) and/or non-profit organizations, to purchase affordability covenants on existing multiple-family units, subject to restrictions that the affordability covenants would be in effect for not less than 30 years, and that at least 20 percent of the units would be affordable to extremely low- and very low-income households. *Responsible Agency: Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: Moreno Valley Housing Authority, CDBG, HOME, Bond Financing* *Objective: Target one project of a minimum of 40 units for extremely-low and very-low incomes.*	*Ongoing 2014-2021*	Ongoing
Action 2.4	To comply with Senate Bill 2, the City has amended the Moreno Valley Industrial Area Plan (SP 208) to permit emergency shelters by right in the Industrial Support Area without a conditional use permit or other discretionary permit. The City will continue to monitor the inventory of sites appropriate to accommodate emergency shelters and will work with appropriate organizations to ensure the needs of the homeless population whenever possible. *Responsible Agency: City of Moreno Valley Planning Division*	*Ongoing 2014-2021*	Ongoing

	Timeframe: 2014-2021 *Potential Funding Source: General Fund, Emergency Shelter Grant Funds* *Objective: Yearly review of inventory sites in the Moreno Valley Industrial Area Plan (SP 208)*		
Action 2.5	The City will maintain a list of mortgage lenders participating in the California Housing Finance Agency (CHFA) program and refer the program to builders or corporations interested in developing housing in the City. *Responsible Agency: Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021*	*Ongoing 2014-2021*	Ongoing List available from the Moreno Valley Housing Authority.
Action 2.6	Continue cooperation with the Riverside County Housing Authority to provide Section 8 rental assistance and work with property owners to encourage expansion of rental projects participating in the program. *Responsible Agency: Moreno Valley Housing Authority and Riverside County Housing Authority* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: Riverside County Housing Authority, HUD Section 8*	*Ongoing 2014-2021*	Ongoing City continues to work with the Moreno Valley Housing Authority.
Action 2.7	Provide incentives for development of lower income housing through the density bonus program. Actively promote its use in conjunction with mixed-use projects in the Mixed Use Districts Overlay, for senior housing, and within multiple-family zones. *Responsible Agency: City of Moreno Valley Planning Division and Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: General Fund, Tax Credits* *Objective: Target 1 mixed-use project over the planning period.*	*Ongoing 2014-2021*	Ongoing Density program is ongoing.

Action 2.8	Continue to support the City's effort of encouraging multiple-family developments with affordability covenants on units through offering development incentives. These incentives could include reduction in development standards, and expedited permit processing. *Responsible Agency: Moreno Valley Housing Authority* *Timeframe: 2014-2021* *Potential Funding Source: CDBG, HOME funds, Bond Financing* Potential Funding Source: General Fund *Objective: Target 1 mixed-use project over the planning period.*	*Ongoing 2014-2021*	Ongoing Development incentives are ongoing.
Action 2.9	Pursuant to Government Code Section 65583, the City of Moreno Valley is obligated to remove potential and actual governmental constraints upon the maintenance, improvement, or development of housing for all income levels and for persons with disabilities. To address the needs of this population, the City amended the Zoning Code to adopt formal reasonable accommodation procedures. Reasonable accommodation provides a basis for residents with disabilities to request flexibility in the application of land use and zoning regulations or, in some instances, even a waiver of certain restrictions or requirements from the local government to ensure equal access to housing opportunities. The City will provide information regarding the City's reasonable accommodation ordinance and make information on the program more widely available to residents. *Responsible Agency: City of Moreno Valley Planning Division* *Timeframe: 2014-2021* *Potential Funding Source: General Fund, HUD Section 202/811 funds*	*Ongoing 2014-2021*	Ongoing
Action 2.10	Prioritize resources such as HOME funds, California Housing Finance Agency single-family and multiple-family programs, HUD Section	*Ongoing 2014-2021*	Ongoing

	208/811 loans for the development of rental projects that provide units with two or three bedrooms. *Responsible Agency: Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: CHFA funds, HUD loans, HOPE funds, HOME funds* *Objective: Promote the development of 20 rental units with two or three bedrooms*		
Action 2.11	The City will adopt a density bonus ordinance in compliance with Government Code Section 65915. *Responsible Agency: Planning Division* *Timing: Adopt by end of 2014* *Funding: General Fund* *Objective: To promote the financial feasibility of development affordable to lower-income households utilizing density bonuses and incentives and concessions.*	*Ongoing 2014-2021*	Ongoing

Action 3.1	The City shall expedite and prioritize development processing time of applications for new construction or rehabilitation of housing for lower and moderate-income households and seniors (Previously referred to as Program 8.16). Expedited permit processing would allow complete development applications to be reviewed at an accelerated rate by City Staff in order to ensure that permit processing times do not create a potential constraint on the development of affordable units by adding to the overall cost of the project. *Responsible Agency: City of Moreno Valley Planning Division* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: General Fund*	*Ongoing 2014-2021*	Ongoing Expedited permit processing is available for new construction or rehabilitation.
Action 3.2	To accommodate the needs of extremely low-income households and households with special needs	*Ongoing 2014-2021*	Ongoing

	and comply with Senate Bill 2, the City amended Zoning Code Section 9.09.190 to include Single room occupancy (SRO) facilities. Residential 30 (R30), the Mixed Use District Overlay and Community Commercial (CC)allow Single Room Occupancy (SRO) housing as a permitted use without a conditional use permit or other discretionary permit. The City will continue to monitor the inventory of sites appropriate to accommodate single-room occupancy units and will work with the appropriate organizations to ensure the needs of extremely low-income residents are met. *Responsible Agency: City of Moreno Valley Planning Division* *Timeframe: 2014-2021* *Potential Funding Source: General Fund* *Objective: Yearly review of site inventory.*		
Action 3.3	Continue to permit manufactured housing on permanent foundations in residential zones subject to compatibility criteria (manufactured housing is subject to the same design review criteria as custom or tract homes). *Responsible Agency: City of Moreno Valley Planning Division* *Timeframe: Ongoing 2014-2021*	*Ongoing 2014-2021*	Ongoing Continues to be allowed.
Action 3.4	In accordance with Government Code Section 65589.7 as revised in 2005, immediately following City Council adoption, the City must deliver a copy of the 2014-2021 Housing Element to all public agencies or private entities that provide water or sewer services to properties within the City of Moreno Valley. *Responsible Agency: City of Moreno Valley Planning Division* *Timeframe: By March 1, 2014* *Potential Funding Source: General Fund*	*Ongoing 2014-2021*	Completed by March 1, 2014.

Action 3.5	Administer contract with fair housing agency (Previously referred to as Program 8.7). These services provide educating households on their rights and responsibilities and assist residents with fair housing issues. *Responsible Agency: City of Moreno Valley Business Support & Neighborhood Programs Division* *Timeframe: 2014-2021* *Potential Funding Source: General Fund* *Objective: To assist 2,500 households during the planning cycle of 2014-2021.*	*Ongoing 2014-2021*	Ongoing Services are ongoing.
Action 3.6	Maintain Development Impact Fees (DIF) at a lower level for affordable units (Previously referred to as Program 8.15). The City offers 25% reduction in the Development Impact Fees (DIF) for affordable housing developments. *Responsible Agency: City of Moreno Valley Planning Division* *Timeframe: Ongoing* *Potential Funding Source: General Fund* *Objective: 600 affordable units over the planning cycle.*	*Ongoing 2014-2021*	Ongoing
Action 3.7	Defer Development Impact Fee for affordable units, until issuance of Certificate of Occupancy (Previously referred to as Program 8.14). *Responsible Agency: City of Moreno Valley Planning Division* *Timeframe: Ongoing* *Potential Funding Source: General Fund* *Objective: 600 affordable units over the planning cycle.*	*Ongoing 2014-2021*	Ongoing
Action 3.8	Waive Traffic Uniform Mitigation Fee (TUMF) for affordable units (Previously referred to as Program 8.17). *Responsible Agency: City of Moreno Valley Planning Division*	*Ongoing 2014-2021*	Ongoing

	Timeframe: Ongoing *Potential Funding Source: General Fund* *Objective: 600 affordable units over the planning cycle.*		
Action 3.9	Apply for grant funds to upgrade water infrastructure in the Box Springs Municipal Water Company (BSMWC) service area (Previously referred to as Program 8.22). *Responsible Agency: City of Moreno Valley Planning Division and Business Support & Neighborhood Programs Division* *Timeframe: Ongoing* *Potential Funding Source: Grants* *Objective: The City will continue to research grant opportunities.*	*Ongoing 2014-2021*	N/A

Action 4.1	Continue to provide favorable home purchasing options to lower and moderate-income households, when funds are available, through the County of Riverside's First Time Homebuyers Down Payment Assistance Program and homeownership assistance with the County Mortgage Credit Certificate (MCC) program. *Responsible Agency: County of Riverside Housing Authority and Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: County of Riverside Economic Development Department*	*Ongoing 2014-2021*	Ongoing
Action 4.2	Continue to work with Habitat for Humanity in the development of single-family homes for lower income families. *Responsible Agency: Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: HOME Funds* *Objective: Approval of 8 unit Tract Map and building 8 units in the*	*Ongoing 2014-2021*	Ongoing SF homes built in 2014. Program remains in place, but no recent activity.

	planning period. Tentative Tract map was approved at Planning Commission on December 12, 2013. Building of units to begin in Fall 2014.		
Action 4.3	The Moreno Valley Housing Authority shall provide support to the California Housing Finance Agency (CHFA) program, which supports construction of new owner-occupied units in conjunction with non-profit organizations and/or private developers through advertisement and referral to the program. *Responsible Agency: Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: HOME Funds, CHFA Funds*	*Ongoing 2014-2021*	Ongoing
Action 4.4	The City shall establish relationships with local lenders, developers and other constituencies such as realtors, and non-profit organizations through community outreach workshops that emphasize specific ideas, issues, and expectations for future development in Moreno Valley. *Responsible Agency: Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: General Fund*	*Ongoing 2014-2021*	Ongoing
Action 4.5	Provide funds for Homebuyer Assistance Program (HAP) silent seconds. Work with approved lenders that have HAP experience. The goal of the program is to provide homeownership for low and moderate income families (Previously referred to as Program 8.10). *Responsible Agency: City of Moreno Valley Business Support & Neighborhood Programs Division* *Timeframe: 2014-2021* *Potential Funding Source: CDBG funds* *Objective: Target of 15 units during the planning cycle of 2014-2021.*	*Ongoing 2014-2021*	Ongoing

Action 5.1	Maintain code compliance to ensure building safety and integrity of residential neighborhoods. Enforce the building code through issuance of a permit prior to construction, repair, addition to, or relocation of any residential structure. *Responsible Agency: City of Moreno Valley Planning Division and Building Division* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: General Fund*	*Ongoing 2014-2021*	Ongoing
Action 5.2	Monitor the substandard dwellings which cannot be economically repaired and remove when necessary and feasible. *Responsible Agency: Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: General Fund* *Objective: Target of 3 units during the planning period.*	*Ongoing 2014-2021*	Ongoing
Action 5.3	Administer a program to provide grant funds for neighborhood beautification in targeted neighborhoods (Previously referred to as Program 8.3). *Responsible Agency: City of Moreno Valley Business Support & Neighborhood Programs Division* *Timeframe: 2014-2021* *Potential Funding Source: CDBG funds* *Objective: Target of 3 units per year during the planning cycle of 2014-2021.*	*Ongoing 2014-2021*	Ongoing
Action 5.4	Receive and approve applications for Mobile Home Grant Program (the goal of the program is to correct substandard living conditions for very low-income owner-occupants). Market program via City Links newsletter. Continue to distribute program material to mobile home parks (Previously referred to as Program 8.4).	*Ongoing 2014-2021*	Ongoing

	Responsible Agency: City of Moreno Valley Business Support & Neighborhood Programs Division and Habitat for Humanity *Timeframe: 2014-2021* *Potential Funding Source: CDBG funds* *Objective: Target of 3 mobile homes per year during the planning cycle of 2014-2021.*		
Action 5.5	Provide enhanced code compliance services in the CDBG target areas. Fund 5,000 hours of code enforcement in the CDBG target areas (Previously referred to as Program 8.5). *Responsible Agency: City of Moreno Valley Business Support & Neighborhood Programs Division and Code and Neighborhood Services Division.* *Timeframe: 2014-2021* *Potential Funding Source: CDBG funds* *Objective: Target is to fund 5,000 hours of code enforcement over the next planning cycle of 2014-2021.*	*Ongoing 2014-2021*	Ongoing
Action 5.6	Conduct five (5) annual neighborhood clean-ups, improving the living environment of residents. Provide bins for trash disposal. *Responsible Agency: City of Moreno Valley Business Support & Neighborhood Programs Division and Code and Neighborhood Services Division.* *Timeframe: 2014-2021* *Potential Funding Source: CDBG funds* *Objective: Target of 5 clean ups per year during the planning cycle of 2014-2021.*	*Ongoing 2014-2021*	Ongoing

Action 6.1	Encourage maximum utilization of Federal, State, and local government programs, such as the County of Riverside Home Weatherization Program and Western Riverside Council of Governments HERO	*Ongoing 2014-2021*	

	program, and assist homeowners in providing energy conservation measures. *Responsible Agency: Moreno Valley Housing Authority* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: County of Riverside*		
Action 6.2	Maintain and distribute literature on energy conservation, including solar power, additional insulation, and subsidies available from utility companies, and encourage homeowners and landlords to incorporate these features into construction and remodeling projects. *Responsible Agency: City of Moreno Valley Planning Division* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: General Fund*	*Ongoing 2014-2021*	Ongoing Moreno Valley Utilities (MVU)
Action 6.3	Facilitate sustainable development in the City by enforcing the goals, policies, and implementation measures established in the proposed Sustainable Community section in the Conservation Element. *Responsible Agency: City of Moreno Valley Planning Division and Building Division* *Timeframe: Ongoing 2014-2021*	*Ongoing 2014-2021*	Ongoing
Action 6.4	The City shall implement its local action plan for reduction of greenhouse gas emissions. *Responsible Agency: City of Moreno Valley Planning Division* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: General Fund*	*Ongoing 2014-2021*	Ongoing
Action 6.5	Implement residential Solar Initiative Program to MV Utility customers (Previously referred to as Program 8.31). Literature for the public on energy saving programs offered by local utility companies are available in	*Ongoing 2014-2021*	Ongoing

	City Hall offices and on the City's website. *Responsible Agency: City of Moreno Valley Planning Division and Moreno Valley Utilities* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: General Fund* *Objective: The City will continue to encourage homeowners and landlords to incorporate energy conservation within construction and remodeling projects.*		
Action 6.6	Market energy efficiency program for residents of MV Utility area (Previously referred to as Program 8.34). The City has energy efficiency information posted on its website and information regarding various programs is mailed out to MV Utility customers in their bills. *Responsible Agency: City of Moreno Valley Planning Division and Moreno Valley Utilities* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: General Fund*	*Ongoing 2014-2021*	Ongoing

Action 7.1	The City, in conjunction with the Riverside County Fair Housing Council, shall support efforts dedicated to working towards the elimination of the discrimination of housing by actively pursuing any complaints of housing discrimination within the City. Information detailing fair housing practices will be made available at City Hall and on the City's website. Additionally, the City will participate with the Riverside County Fair Housing Council to conduct workshops and seminars about landlord and tenant responsibilities and rights (Previously referred to as Program 8.7). *Responsible Agency: City of Moreno Valley Business Support & Neighborhood Programs Division*	*Ongoing 2014-2021*	Ongoing

	and Riverside County Fair Housing Council *Timeframe: Ongoing 2014-2021* *Potential Funding Source: CDBG* *Objective: To assist 2,500 households during the planning cycle of 2014-2021.*		
Action 7.2	The housing needs of persons with developmental disabilities are typically not addressed by Title 24 Regulations, and requires in addition to basic affordability, slight modifications to existing units, and in some instances, a varying range of supportive housing facilities. To accommodate residents with developmental disabilities, the City will seek State and Federal monies, as funding becomes available, in support of housing construction and rehabilitation targeted for persons with developmental disabilities. Moreno Valley will also provide regulatory incentives, such as expedited permit processing, and fee waivers and deferrals, to projects targeted for persons with developmental disabilities. To further facilitate the development of units to accommodate persons with developmental disabilities, the City shall reach out to developers of supportive housing to encourage development of projects targeted for special needs groups. Finally, as housing is developed or identified, Moreno Valley will work with the Inland Regional Center to implement an outreach program informing families within the City of housing and services available for persons with developmental disabilities. Information will be made available on the City's website. *Responsible Agency: City of Moreno Valley Business Support & Neighborhood Programs Division* *Timeframe: Ongoing 2014-2021* *Potential Funding Source: General Fund*	*Ongoing 2014-2021*	Ongoing

ANNUAL ELEMENT PROGRESS REPORT

Housing Element Implementation

(CCR Title 25 §6202)

Jurisdiction	Moreno Valley
Reporting Period	2018 (Jan. 1 - Dec. 31)

Note: + Optional field

Cells in grey contain auto-calculation formulas

Table E

Commercial Development Bonus Approved pursuant to GC Section 65915.7

Project Identifier				Units Constructed as Part of Agreement				Description of Commercial Development Bonus	Commercial Development Bonus Date Approved
1				2				3	4
APN	Street Address	Project Name+	Local Jurisdiction Tracking ID+	Very Low Income	Low Income	Moderate Income	Above Moderate Income	Description of Commercial Development Bonus	Commercial Development Bonus Date Approved
Summary Row: Start Data Entry Below									

Attachment: Appendix A - Housing Element Implementation Progress Report [Revision 1] (3438 : 2018 General Plan Annual Progress Report)

ANNUAL ELEMENT PROGRESS REPORT
Housing Element Implementation
(CCR Title 25 §6202)

Jurisdiction	Moreno Valley	
Reporting Period	2018	(Jan. 1 - Dec. 31)

Note: + Optional field
Cells in grey contain auto-calculation formulas

Table F
Units Rehabilitated, Preserved and Acquired for Alternative Adequate Sites pursuant to Government Code section 65583.1(c)(2)

This table is optional. Jurisdictions may list (for informational purposes only) units that do not count toward RHNA, but were substantially rehabilitated, acquired or preserved. To enter units in this table as progress toward RHNA, please contact HCD at APR@hcd.ca.gov. HCD will provide a password to unlock the grey fields. Units may only be credited to the table below when a jurisdiction has included a program in its housing element to rehabilitate, preserve or acquire units to accommodate a portion of its RHNA which meet the specific criteria as outlined in Government Code section 65583.1(c)(2).

Activity Type	Units that Do Not Count Towards RHNA+ Listed for Informational Purposes Only				Units that Count Towards RHNA + Note - Because the statutory requirements severly limit what can be counted, please contact HCD to receive the password that will enable you to populate these fields.				The description should adequately document how each unit complies with subsection (c)(7) of Government Code Section 65583.1+
	Extremely Low-Income+	Very Low-Income+	Low-Income+	TOTAL UNITS+	Extremely Low-Income+	Very Low-Income+	Low-Income+	TOTAL UNITS+	
Rehabilitation Activity									
Preservation of Units At-Risk									
Acquisition of Units									
Total Units by Income									

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KEY	
Planning	Police
Land Development	Waste Coordinator
Special Districts	Transportation
Economic Development	Building
Parks / Community Services	Multiple Departments
Emergency Operations / Fire	

Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
The City Structure Land Use Element Goals and Policies			
9.2 Community Development Element Goals, Objectives, Policies and Programs			
9.2.1 Community Development Element Goals			
Goal 2.1	A pattern of land uses, which organizes future growth, minimizes conflicts between land uses, and which promotes the rational utilization of presently underdeveloped and undeveloped parcels.	Land use designations provided in the General Plan minimizes conflicts between land uses and allows for buffers between industrial, commercial and more sensitive residential land uses. In higher intensity Specific Plans such as the Industrial Area Plan (SP 208), buffers have been established between industrial land uses and existing more sensitive residential development. This is an ongoing goal of the City.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Goal 2.2	An organized, well-designed, high quality, and functional balance of urban and rural land uses that will meet the needs of a diverse population, and promote the optimum degree of health, safety, well-being, and beauty for all areas of the community, while maintaining a sound economic base.	The City of Moreno Valley strives to approve well-designed, high quality projects. There is a functional balance between urban and rural land uses that will meet the needs of the residents. For example, more rural land use designations are provided in the northern and eastern portions of the city, while urban land uses are provided in the western and southern portions. This practice allows for good sensible land use planning, while maintaining a sound economic base. This is an ongoing goal of the City.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Goal 2.3	Achieves an overall design statement that will establish a visually unique image throughout the City.	The City of Moreno Valley's General Plan provides for an overall design statement which establishes unique visual images throughout the City. The Municipal Code, which is consistent with the General Plan, establishes overall design guidelines and standards for residential, commercial and industrial development proposals, and reviews items such as, color, unity/diversity massing, and building proportion. This is an ongoing City goal.	Planning
Goal 2.4	A supply of housing in sufficient numbers suitable to meet the diverse needs of future residents and to support healthy economic development without creating an oversupply of any particular type of housing.	The downturn of the economy in 2007 limited new housing development in the City until recently. In the last year, new residential housing projects have been submitted and housing product has been very diverse. This includes such project types as smaller lot Planned Unit Developments for the senior or first time homeowner and multiple family housing such as apartments. This is an ongoing City goal.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Goal 2.5	Maintenance of systems for water supply and distribution; wastewater collection, treatment, and disposal; solid waste collection and disposal; and energy distribution which are capable of meeting the present and future needs of all residential, commercial, and industrial customers within the City of Moreno Valley.	A specific goal for the City is to maintain water supply, wastewater collection/treatment/disposal and solid waste collection capable of meeting the present and future needs of City residents. MVU prepares an annual Distribution System Plan, which forecasts the future electrical needs of MVU's service area. Capital improvement projects are then developed and prioritized to ensure that the system will meet the present and future needs of MVU customers. This is an ongoing goal.	Water Purveyors/Waste Coordinator /MVU

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
9.2.2 Community Development Element Objectives and Policies			
Objective 2.1	Balance the provision of urban and rural lands within Moreno Valley by providing adequate land for present and future urban and economic development needs, while retaining the significant natural features and the rural character and lifestyle of the northeastern portion of the community.	The City of Moreno Valley continues to provide a balance of urban and rural land. The majority of the City is urbanized, with a continued emphasis of retaining natural features as well as the urban lifestyle with larger lots and larger animal keeping opportunities north of State Route 60 in the northeaster portion of the community. This is an ongoing City objective.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Objective 2.2	Provide a wide range of residential opportunities and dwelling types to meet the demands of present and future residents of all socioeconomic groups.	The City has a very diverse residential mix, including a wide range of residential opportunities to meet the demand of all socioeconomic groups. As included in Moreno Valley's approved 2014 Housing Element, the City strives for affordable housing opportunities. The City allows opportunities for Planned Unit Developments (PUD's) that provide smaller lot housing for the senior and first time home buyer. Although the market has been slow for condominium development, apartment projects have recently picked up momentum . There are also continued opportunities for market rate single family home development, from tract maps that have been carried over from before the economic downturn. This is an ongoing City objective.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Policies:			
2.2.1	In determining allowable density for residential parcels an "adjusted net acreage" shall be used. Adjusted net acres shall mean the land area that would remain after dedication of ultimate rights-of-ways for arterial streets, freeways and park dedications.	All allowable density of residential projects in the City are determined by calculating an adjusted net average of buildable area after infrastructure dedication for streets, utilities, parks etc. This is a continuing City policy.	Planning
2.2.2	The primary purpose of areas designated **Hillside Residential** is to balance the preservation of hillside areas with the development of view-oriented residential uses. a. Within the Hillside Residential category, appropriate	Section 9.03.040 B "Residential Site Development Standards" of the Municipal Code establishes standards for hillside residential development consistent with the goals, objectives and policies of the General Plan. Hillside residential development	Planning

Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
	residential uses include large lot residential uses. Lots smaller than one acre may only be permitted as clustered units to minimize grading, and other impacts on the environment, inclusive of the Multi-Species Habitat Conservation Plan. b. The maximum residential density within Hillside Residential areas shall be determined by the steepness of slopes within the project. The maximum allowable density shall not exceed one dwelling unit per acre on sloping hillside property and shall decrease with increasing slope gradient. c. Future development within Hillside Residential areas shall occur in such a manner as to maximize preservation of natural hillside contours, vegetation and other characteristics. Hillside area developments should minimize grading by following the natural contours as much as possible. d. Development within Hillside Residential areas shall	includes large lot residential uses, with the maximum allowable density not to exceed one dwelling unit per acre on sloping hillside property, including a decreasing density with an increasing slope gradient. Allowable development would preserve the preservation of natural hillsides. A slope analysis is the likely vehicle for development in hillside residential areas to determine the percentage of slope. **Goals, objectives and policies of hillside residential development will be further evaluated with the next comprehensive General Plan update.**	

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
	be evaluated to determine the precise boundaries of the area. If the Community Development Director determines that adequate slope information is not available, applicants requesting to develop within these areas shall complete a slope analysis for the proposed development site. Portions of the development that exceed an average slope of 10% shall adhere to the policies within the Hillside Residential category. Portions of the development where the slopes are less than 10% on average shall adhere		

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
2.2.3	The primary purpose of areas designated **Rural Residential** is to provide for and protect rural lifestyles, as well as to protect natural resources and hillsides in the rural portions of the City. a. The maximum residential density within Rural Residential and areas shall be determined by the steepness of slopes within the individual project area. The maximum allowable density shall be 0.4 dwelling units per acre (an average lot size of 2.5 acres) on flat terrain and shall decrease with increasing slope gradient. b. Within the Rural Residential category, appropriate residential uses include large lot residential uses. Lots smaller than 2.5 acres may only be permitted as clustered units to minimize grading and other impacts on the environment, inclusive of the Multi-Species Habitat Conservation Plan.	Section 9.03.040 A "Residential Site Development Standards" of the Municipal Code establishes standards for rural residential development consistent with the goals, objectives and policies of the General Plan. This includes large lot residential development allowing a maximum density of 0.4 dwelling units per acre on flat terrain, with a decrease in density as the slope gradient increases. This is an ongoing policy.	Planning
2.2.4	The primary purpose of areas designated **Residential 1** is to provide for and protect rural lifestyles. The maximum allowable density for projects within the Residential 1 areas shall be 1.0 dwelling unit per acre.	Section 9.03.040 "Residential Site Development Standards" of the Municipal Code establishes requirements for Residential 1 development consistent with the goals, objectives and policies of the General Plan. Development shall not exceed 1 dwelling unit per acre. This is an ongoing policy.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
2.2.5	The primary purpose of areas designated **Residential 2** is to provide for suburban lifestyles on residential lots larger than commonly available in suburban subdivisions and to provide a rural atmosphere. The maximum allowable density shall be 2.0 dwelling units per acre.	Section 9.03.040 "Residential Site Development Standards" of the Municipal Code establishes standards for Residential 2 development consistent with the goals, objectives and policies of the General Plan. Development shall not exceed 2 dwelling units per acre. This is an ongoing policy.	Planning
2.2.6	The primary purpose of areas designated **Residential 3** is to provide a transition between rural and urban density development areas, and to provide for a suburban lifestyle on residential lots larger than those commonly found in suburban subdivisions. The maximum allowable density shall be 3.0 dwelling units per acre.	Section 9.03.040 "Residential Site Development Standards" of the Municipal Code establishes standards for Residential 3 development consistent with the goals, objectives and policies of the General Plan. Development shall not exceed 3 dwelling units per acre. This is an ongoing policy.	Planning
2.2.7	The primary purpose of areas designated Residential 5 is to provide for single-family detached housing on standard sized suburban lots. The maximum allowable density shall be 5.0 dwelling units per acre.	Section 9.03.040 "Residential Site Development Standards" of the Municipal Code establishes standards for Residential 5 development consistent with the goals, objectives and policies of the General Plan. Development shall not exceed 5 dwelling unit per acre. This is an ongoing policy.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
2.2.8	The primary purpose of areas designated **Residential 10** is to provide for a variety of residential products and to encourage innovation in housing types. Developments within Residential 10 areas are typically expected to provide amenities not generally found in suburban subdivisions, such as common open space and recreational areas. The maximum allowable density shall be 10.0 dwelling units per acre.	Section 9.03.040 "Residential Site Development Standards" of the Municipal Code establishes standards for Residential 10 development consistent with the goals, objectives and policies of the General Plan. Development shall not exceed 10 dwelling units per acre. This is an ongoing policy.	Planning
2.2.9	The primary purpose of areas designated **Residential 15** is to provide a range of multi-family housing types for those not desiring dwellings on individual lots that include amenities such as common open space and recreational facilities. The maximum allowable density shall be 15.0 dwelling units per acre.	Section 9.03.040 "Residential Site Development Standards" of the Municipal Code establishes standards for multiple-family Residential 15 development consistent with the goals, objectives and policies of the General Plan. Development shall not exceed 15 dwelling unit per acre. This is an ongoing policy.	Planning
2.2.10	The primary purpose of areas designated **Residential 2**0 is to provide a range of high density multi-family housing types. Developments within Residential 20 areas shall also provide amenities, such as common open spaces and recreational facilities. The maximum density shall be 20 dwelling units per acre.	Section 9.03.040 "Residential Site Development Standards" of the Municipal Code establishes standards for high density residential 20 development consistent with the goals, objectives and policies of the General Plan. Development shall not exceed 20 dwelling units per acre. This is an ongoing policy.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
2.2.11	The primary purpose of areas designated **Residential 3**0 is to provide a range of high density multi-family housing types in an urban setting. Developments within Residential 30 areas shall also provide amenities, such as common open spaces and recreational facilities. The maximum density shall be 30 dwelling units per acre.	Section 9.03.040 "Residential Site Development Standards" of the Municipal Code establishes standards for high density Residential 30 development consistent with the goals, objectives and policies of the General Plan. Development shall not exceed 30 dwelling unit per acre. This is an ongoing policy.	Planning
2.2.12	Densities in excess of the maximum allowable density for residential projects may be permitted pursuant to California density bonus law.	The City encourages the use of density bonus for affordable housing and senior housing opportunities. Development Code Section 9.03.050 "Density Bonus Program for Affordable Housing" provides provisions for density bonus and greater on-site project densities. This is an ongoing policy.	Planning
2.2.13	Planned Unit Developments (PUD) shall be encouraged for residential construction in order to provide housing that is varied by type, design, form of ownership, and size. PUD's shall also provide opportunities to cluster units to protect significant environmental features and/or provide unique recreational facilities.	PUD's are encouraged to allow for more diverse designs, recreational opportunities and walkable residential communities. Section 9.03.060 "Planned Unit Developments of the Development Code provides for PUD's and clustering opportunities to avoid existing environmental constraints. This is an ongoing policy.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
2.2.14	Discourage costly "leap-frog" development patterns by encouraging in-fill development wherever feasible, thereby reducing overall housing costs. Development within an area designated as SP 212-1 (Moreno Highlands) is not considered to be leapfrog development.	Developing on infill properties is always encouraged by the City. This is an ongoing policy.	Planning
2.2.15	Encourage a diversity of housing types, including conventional, factory built, mobile home, and multiple family dwelling units.	The City encourages a diverse housing mix for all residentially zoned property. This is an ongoing policy.	Planning
2.2.16	Encourage the use of innovative and cost effective building materials, site design practices and energy and water conservation measures to conserve resources and reduce the cost of residential development.	The use of cost effective building materials, site design practices and energy/water conservation measures is encouraged through the Development and Building Codes. For example. The Landscape ordinance requires drought tolerant plant materials and waterwise irrigation practices . The Green Building Code requires conservations measures such as building material design and other energy requirements. This is an ongoing policy.	Planning
2.2.17	Affordable housing developments should be compatible in visual design with surrounding development.	All newly constructed affordable housing developments are compatible with both exterior design and surrounding development. This is an ongoing policy.	Planning

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2.2.18	Discourage nonresidential uses on local residential streets that generate traffic, noise or other characteristics that would adversely affect nearby residents.	Current zoning practices discourages and in many cases does not allow for impactful non-residential development to occur. The Municipal Code (Section 9.02.020 "Permitted Uses"), restricts non residential uses in residential zones that are contained to local residential streets. This is an ongoing policy.	Planning
Objective 2.3	Promote a sense of community and pride within residential areas through increased neighborhood interaction and enhanced project design.	A sense of community and pride is instilled in newly approved projects through good design and walkable communities. Increased neighborhood interaction is also encourage through such things as neighborhood watch and Pop teams established for multiple family residential development. This is an ongoing policy.	Planning

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Policies:			
2.3.1	Within individual residential projects, a variety of floor plans and elevations should be offered.	Pursuant to Section 9.16.130 (Table 9.16.130B) of the Code, all residential projects shall provide a variety of floor plans and elevations. This is an ongoing policy.	Planning
2.3.2	Encourage building placement variations, roofline variations, architectural projections, and other embellishments to enhance the visual interest along residential streets.	Chapter 16 of the Municipal Code requires roofline variations, architectural projections and other embellishments such as four sided architecture. This is an ongoing policy.	Planning
2.3.3	Discourage the development of single-family residences with a bulk (building mass) that is out of scale with the size of the parcels on which they are located.	The City understands that building massing is a very important issue to consider in residential elevations and when developing single-family residential communities. The design guidelines contained in Section 9.16.010 of the Municipal Code discourages building massing that is out of context with the existing neighborhood. This is an ongoing policy.	Planning
2.3.4	Design large-scale small lot single family and multiple family residential projects to group dwellings around individual open space and/or recreational features.	Section 9.03.060 "Planned Unit Developments" of the Municipal Code encourages PUD's for greater innovation in housing development and conservation of natural resources and open space. Recreational facilities such as picnic areas, pocket parks, walking paths and gyms are commonplace among PUD developments. This is an ongoing policy.	Planning

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2.3.5	Ensure that all multiple family housing is well-designed, attractive and livable by: a. Ensuring all structures are architecturally compatible and include decorative architectural features and articulation in walls and roofs; b. Providing adequate parking, walkways, lighting, landscaping, amenities and open space areas; c. Providing private open space areas such as patios and balconies.	Pursuant to Chapter 16, Section 9.16.130 "Design Guidelines" of the Municipal Code, multiple-family residential projects shall be architecturally compatible with the existing neighborhood, provide parking, walkways and common open space areas such as picnic areas, pools, tot lots etc. This is an ongoing policy.	Planning
Objective 2.4	Provide commercial areas within the City that are conveniently located, efficient, attractive, and have safe and easy pedestrian and vehicular circulation in order to serve the retail and service commercial needs of Moreno Valley residents and businesses.	The City strives for commercial areas that provide functional vehicular circulation and safe pedestrian areas that are walkable internally between uses and externally to surrounding neighborhoods. This is an ongoing objective.	Planning
Policies:			

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2.4.1	The primary purpose of areas designated **Commercial** is to provide property for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services. The zoning regulations shall identify the particular uses permitted on each parcel of land, which could include compatible noncommercial uses. Commercial development intensity should not exceed a Floor Area Ratio of 1.00 and the average floor area ratio should be significantly less.	Zoning regulations for commercial uses are consistent with established General Plan land use. For example, the City's zoning map establishes Commercial zoning designations and the Municipal Code Permitted Uses Table (Section 9.02.020-1) provides for permitted uses allowed for each commercial zoning category. This is an ongoing policy.	Planning
2.4.2	The commercial area located at the intersection of **Alessandro Boulevard and Redlands Boulevard** shall provide for commercial land uses that are compatible with the historical, small town nature of the original Moreno town site. The zoning regulations shall identify the particular uses permitted on each parcel of land, which could include compatible noncommercial uses.	The General Plan Land Use Map shows the site zoned as VC or Village Commercial, which is a unique zoning classification allowing for unique uses. Any development at this intersection has been and would need to be compatible with the historical, small town nature of the original site.	Planning

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2.4.3	The commercial area located on the **north side of State Route 60 at the intersection of Moreno Beach Drive** shall provide for the establishment of commercial land uses that serve the daily needs of the surrounding residential neighborhood and the traveling public. It is not intended to serve the needs of the region for goods, services, entertainment or recreation. The zoning regulations shall identify the particular uses and type of development permitted on each parcel, which could include office uses and compatible noncommercial uses.	Properties located north of State Route 60 at the intersection of Moreno Beach Drive are zoned CC or Community Commercial. The zoning established in the City's Land Use Map and Municipal Code identifies permitted uses allows for commercial/retail uses that both serve the needs of the surrounding residential neighborhood and the traveling public. The preferred alternative in the Highway 60 Corridor study suggested a town center concept which includes potential entertainment retail uses such as hotels and sit down restaurant. **This item shall be reviewed further during the next General Plan update.**	Planning
2.4.4	An overlay district limiting land uses to those that are supportive and compatible with medical uses shall be established around the **Riverside County Regional Medical Center and the Moreno Valley Community Hospital.** The zoning regulations shall identify the particular uses and type of development permitted on each parcel.	Municipal Code standards under Section 9.07-040 "Medical Use Overlay District (MUO)", provides the foundation to create and maintain diverse and supportive medical uses in the vicinity of the Riverside County Regional Medical Center (Riverside University Health Systems) and the Moreno Valley Community Hospital. This is an ongoing policy.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
2.4.5	The primary purpose of locations designated **Mixed-Use** on the Moreno Valley General Plan Land Use map is to provide for the establishment of commercial and office uses and/or residential developments of up to 20 dwelling units per acre. The zoning regulations shall identify the particular uses and type of development permitted on each parcel. Overall development intensity should not exceed a floor area ratio of 1.00.	The Mixed Use land use zone established in the General Plan provides for both commercial/office and higher density residential development opportunities. The permitted uses table (Municipal Code(Section 9.02.020-1) identifies types of uses and Residential Site Development Standards (Municipal Code Section 9.03.040-6) establishes floor area ratios. **The revised Mixed Use Overlay has established standards for denser residential development and allows density to rise from a maximum of 20 dwelling units per acre to a maximum of 40 dwelling units per acre. This item shall be further reviewed and adjusted accordingly with the next General Plan update.**	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
2.4.6	The primary purpose of areas designated **Residential/Office** on the Moreno Valley General Plan Land Use map is to provide areas for the establishment of office-based working environments or residential developments of up to 15 dwelling units per acre. The zoning regulations shall identify the particular uses and type of residential development permitted on each parcel of land. Overall development intensity should not exceed a Floor Area Ratio of 1.00.	As established in Chapter 9,02, Section 9.02.020 of the Municipal Code, areas zoned Residential/Office provide office based working environments and allow for higher density multiple-family residential development. Zoning regulations identify particular uses, types of residential development and floor area ratio requirements. This is an ongoing policy.	Planning
2.4.7	The primary purpose of areas designated **Office** is to provide for office uses, including, administrative, professional, legal, medical and financial offices. The zoning regulations shall identify the particular uses permitted on each parcel of land, which could include limited non-office uses that support and are compatible with office uses. Development intensity should not exceed a Floor Area Ratio of 2.00 and the average intensity should be significantly less.	The Municipal Code (Sections 9.02.020 and 9.04.010) establishes permitted uses and defines areas designated for office type uses. Current zoning regulations identifies development intensity. This is an ongoing policy.	Planning

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2.4.8	Orient commercial development toward pedestrian use. Buildings should be designed and sited so as to present a human-scale environment, including convenient and comfortable pedestrian access, seating areas, courtyards, landscaping and convenient pedestrian access to the public sidewalk.	Section 9.04.010 encourages concentration of commercial use for the convenience of the public and to secure a mutually beneficial relationship between commercial uses and the and public. Section 9.16.150 "Commercial Design Guidelines requires pedestrian pathways in parking areas and further incorporates pedestrian ways and plazas to provide visual interest and functionality. This is an ongoing policy.	Planning
2.4.9	Require reciprocal parking and access agreements between individual parcels where practical.	Section 9.16.150 "Commercial Design Guidelines requires interspace access be provided between commercial centers reducing the number of drive approaches from the street and to encourage commercial/retail crossover. This is an ongoing policy.	Planning
2.4.10	Design internal roadways so that direct access is available to all structures visible from a particular parking area entrance in order to eliminate unnecessary vehicle travel, and to improve emergency response.	Internal roadways provide direct access to all structures visible from a parking area entrance. This would also be the norm for Specific Plans under Chapter 9.13. This is an ongoing policy.	Planning

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2.4.11	The commercial area located in the vicinity of the intersection of Gilman Springs Road and Jack Rabbit Trail shall provide those commercial support activities necessary and/or incidental to adjacent recreational uses and emphasize tourist-oriented activities and retail services. Recreation-oriented residential land use types may be appropriate to the extent that they are incidental to and complement the recreational character of the area. At such time as the area is annexed to the City, the zoning regulations shall identify the particular uses permitted on each parcel of land.	The General Plan Land Use Map provides a commercial land use designation for this area located in the City's Sphere of Influence. Based on the policy, land uses should be limited away from general commercial use, with an emphasis on more recreation or tourist oriented land uses. **This item shall be further reviewed and evaluated in the next comprehensive General Plan update.**	Planning
Objective 2.5	Promote a mix of industrial uses which provide a sound and diversified economic base and ample employment opportunities for the citizens of Moreno Valley with the establishment of industrial activities that have good access to the regional transportation system, accommodate the personal needs of workers and business visitors; and which meets the service needs of local businesses.	The Municipal Code provides for a mixture of industrial uses that provide a diverse economic base and opportunities for employment with access to regional transportation systems.	Planning
Policies:			

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
2.5.1	The primary purpose of areas designated **Business Park/Industrial** is to provide for manufacturing, research and development, warehousing and distribution, as well as office and support commercial activities. The zoning regulations shall identify the particular uses permitted on each parcel of land. Development intensity should not exceed a Floor Area Ratio of 1.00 and the average floor area ratio should be significantly less.	The Business park/Industrial land use category provides for a wide variety of industrial uses from warehousing, manufacturing and office/support uses. The Municipal Code Permitted Uses Table (Section 9.02.020-1) establishes permitted uses allowed for this land use category. This is an ongoing policy.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
2.5.2	Locate manufacturing and industrial uses to avoid adverse impacts on surrounding land uses.	Industrial design guidelines provided in the Municipal Code Chapter 9.16 requires truck traffic to be channeled directly to truck routes and prohibits access to neighborhood streets. Manufacturing/industrial uses shall be screened and buffered from surrounding land uses. This is an ongoing policy.	Planning
2.5.3	Screen manufacturing and industrial uses where necessary to reduce glare, noise, dust, vibrations and unsightly views.	Municipal Code Sections 9.16.160 "Business Park/industrial" and 9.05.050 'Good Neighbor Guidelines for Warehouse Distribution Facilities" require screening for manufacturing and industrial uses in view of rights of way. This is an ongoing policy.	Planning

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2.5.4	Design industrial developments to discourage access through residential areas.	Industrial development is designed to discourage access through residential zones. Industrial design guidelines provided in the Municipal Code Chapter 9.16 requires truck traffic to be channeled directly to truck routes and prohibits access to neighborhood streets. In addition, Section 9.05.050 "Good Neighbor Guidelines for Warehouse Distribution Facilities" eliminates diesel trucks from unnecessarily traversing through residential neighborhoods based on establish truck routes, parking restrictions and proper signage .This is an ongoing policy.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Objective 2.6	Maintain an adequate inventory of lands for the conduct of public, quasi-public, and institutional activities, including protection of areas needed for future public, quasi-public, and institutional facilities.	This is an on-going policy. Seniors and other users are encouraged to use para transit services provided by the Riverside Transit Agency. This is consistent with Chapter 9.11.080 of the Municipal Code.	Land Dev./Administrative Services/Police/Fire/Planning
Policies:			
2.6.1	The primary purpose of areas designated Public/Quasi-Public is to provide property for civic, cultural and public utility uses, including, but not limited to schools, libraries, fire stations, museums, and government offices. The zoning regulations shall identify the particular uses permitted on each parcel of land. Development intensity should not exceed a Floor Area Ratio of 1.00 and the average Floor Area Ratio should be significantly less.	The Municipal Code (Sections 9.02.020 and 9.04.010) establishes permitted uses and defines areas designated for "Public" uses. The description in this policy is consistent with zoning requirements in the above sections. This is an ongoing policy	Land Dev./Administrative Services/Police/Fire/Planning
Objective 2.7	Encourage open space preservation through appropriate land use policies that recognize the valuable natural resources and areas required for protection of public safety that exist in the City.	Municipal Code Chapter 9.06, Section 9.06.010 establishes standards for open space districts. The intent is to require specific regulations to preserve certain life styles, significant geological or other unique features, and protect the public health safety and welfare. Municipal Code Section 9.02.020 establishes permitted uses for properties located in the district. This is an ongoing objective.	Planning

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Policies:			
2.7.1	The primary purpose of areas designated **Open Space**, is to provide areas that are substantially unimproved, including, but not limited to areas for outdoor recreation, the preservation of natural resources, the grazing of livestock and the production of crops. Development intensity should not exceed a Floor Area Ratio of 0.10 and the average Floor Area Ratio should be significantly less.	The purpose of Open Space Districts is to provide primarily unimproved areas, while preserving natural and environmentally sensitive areas. Municipal Code Chapter 9.06, Section 9.06.010 establishes standards for open space districts. Municipal Code Section 9.02.020 establishes permitted uses for properties located in the district. This is an ongoing policy.	Planning
2.7.2	The primary purpose of areas designated **Floodplain** is to designate floodplain areas where permanent structures for human occupancy are prohibited to protect of the public health and safety. Development intensity should not exceed a Floor Area Ratio of 0.05.	Accomplished through site design consistent with Municipal Code Chapter 8.12.	Land Development/Planning
Objective 2.8	The major purpose of specific plans is to encourage and promote the development of larger-scaled mixed-use developments for the purpose of providing adequate flexibility and innovation in residential building types, land use mixes, site design, and development concepts.	Some of the objectives of a specific plan are s to encourage and promote the development of larger scaled mixed use developments for purposes of providing flexibility and innovation in residential building types, land use mixes, site design and development concepts for areas at or exceeding 15 acres. Municipal Code Chapter 9.13, Sections 9.13.010 through 9.13.050 provide purpose and intent, applicability and specific plan requirements. This is an ongoing objective.	Planning

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Policies:			
2.8.1	In order to provide superior design solutions, reduce adverse environmental impacts, preserve scenic values, and enhance the provision of open space and other amenities, transfers of residential densities permitted under the General Plan may be accomplished in accordance with the following: a. The transfer of residential densities may be accomplished only pursuant to approval of a planned unit development or hillside development. b. Up to one hundred percent (100%) of the density indicated on the General Plan Land Use map may be transferred within a single hillside development or planned unit development project. Densities may not be transferred from one project to another. c. The proposed transfer of densities shall be accomplished such that the project results in a superior use of land, increased sensitivity to the environment, and/or enhanced project amenities without an increased burden on public facilities and services.	Municipal Code chapter 9.03, Section 9.03.050 provides standards for density bonus and affordable housing opportunities. In addition, Chapter 9.03.060 "Planned Unit Developments", provide transfer of densities to preserve scenic areas, rock outcroppings and conservation of cultural or biological resources. Project amenities are enhanced by providing walkable communities that provide ample open space areas such as trails and parks. This is an ongoing policy.	Planning

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2.8.2	To the extent that development policies, land use standards, design guidelines, and other provisions of the adopted specific plans are, by their content, intended to address issues contained in the objectives, policies, and implementation programs of the Moreno Valley General Plan, and are inconsistent with the provisions of the General Plan, then the provisions of those specific plans shall be controlling; otherwise, all other provisions of the Moreno Valley General Plan shall remain in effect.	Specific Plans have been developed to be consistent with and to address issues contained in the Moreno Valley General Plan. All items not addressed in specific plans are directed to provisions in the Municipal Code (which is consistent with General Plan provisions). This is an ongoing policy.	Planning
Objective 2.9	Maintain City boundaries that are logical in terms of City service capabilities, economic development needs, social and economic interdependencies, citizen desires, and City costs and revenues.	Logical City boundaries have been maintained throughout the years with areas designated as spheres of influence for future expansion opportunities of the City. This is an ongoing objective.	Planning
Policies:			
2.9.1	Support and encourage the annexation of unincorporated areas within the General Plan study area for which: a. Long-term benefits will be derived by the City; b. Adequate infrastructure and services have been or can be economically provided in accordance with current City standards; c. The proposed annexation will generate sufficient revenues to adequately pay for the provision of City services within a reasonable period of time.	Logical City areas of future annexation of unincorporated areas (northern and eastern portions) have been encouraged to produce long term benefits only if the necessary infrastructure is in place or is attainable, and if the annexation can generate sufficient revenues to pay for City services. These areas have been designated as spheres of influence. This is an ongoing policy.	Planning

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Objective 2.10	Ensure that all development within the City of Moreno Valley is of high quality, yields a pleasant living and working environment for existing and future residents, and attracts business as the result of consistent exemplary design.	It is an objective of the City of Moreno Valley to make sure that development is of the highest quality, provides a pleasant living and working environment for residents and from an economic development standpoint, attracts business based on high quality design. This is an ongoing objective.	Planning
Policies:			
2.10.1	Encourage a design theme for each new development that is compatible with surrounding existing and planned developments.	Chapter 16, Section 9.16.130 "Design Guidelines" of the Municipal Code establishes design for different types of development. Consistent with this Chapter, design themes are encouraged for new development. The theme shall be compatible with surrounding development. This is an ongoing policy.	Planning
2.10.2	Screen trash storage and loading areas, ground and roof mounted mechanical equipment and outdoor storage areas from public view as appropriate.	Chapter 16, Section 9.16.130 "Design Guidelines" of the Municipal Code establishes design for screening of trash/ storage areas, loading areas, roof mounted mechanical equipment and outdoor storage areas from public view. This is an ongoing policy.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
2.10.3	Require exterior elevations of buildings to have architectural treatments that enhance their appearance. a. A design theme, with compatible materials and styles should be evident within a development project; b. Secondary accent materials, colors and lighting should be used to highlight building features; c. Variations in roofline and setbacks (projections and recesses) should be used to break up the building mass. d. Industrial buildings shall include architectural treatments on visible facades that are aesthetically pleasing.	Chapter 16, Section 9.16.130 "Design Guidelines" of the Municipal Code establishes design for exterior building facades and architectural treatments for all development types to include such items as overall design materials, accent materials, rooflines and architectural treatments for industrial buildings. This is an ongoing policy.	Planning
2.10.4	Landscaping and open spaces should be provided as an integral part of project design to enhance building design, public views, and interior spaces; provide buffers and transitions as needed; and facilitate energy and resource conservation.	Chapter 16, Section 9.16.130 "Design Guidelines" of the Municipal Code requires landscape buffers and open spaces to enhance public design, public views and interior spaces. Landscape in buffers and opens space also facilitates energy conservation. This is an ongoing policy.	Planning
2.10.5	Development projects adjacent to freeways shall provide landscaped buffer strips along the ultimate freeway right-of-way.	Chapter 16, Section 9.16.130 "Design Guidelines" of the Municipal Code requires freeway adjacent developments to provide landscape buffers along freeway rights of ways. This is an ongoing policy.	Planning

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2.10.6	Buildings should be designed with a plan for adequate signage. Signs should be highly compatible with the building and site design relative to size, color, material, and placement.	Chapter 9.12"Sign Regulations" of the Municipal Code establishes requirements for sign placement and design. For visibility and economic viability of the business, adequate signage is required for building and site design. This is an ongoing policy.	Planning
2.10.7	On-site lighting should not cause nuisance levels of light or glare on adjacent properties.	Chapter 9.08 "General Development Standards" Section 9.08.100 "Lighting" of the Municipal Code provides standards for lighting and limitations for light and glare. Recent modifications to the Code have provided for dark sky provisions with further limitations of light spillage onto adjacent properties. This is an ongoing policy.	Planning
2.10.8	Lighting should improve the visual identification of structures. Within commercial areas, lighting should also help create a festive atmosphere by outlining buildings and encouraging nighttime use of areas by pedestrians.	Chapter 9.08, Section 9.08.100 "Lighting" of the Municipal Code provides lighting standards for visual identification. Lighting accents to the building through up lighting opportunities outline buildings and encourage use by pedestrians at night. This is an ongoing policy.	Planning

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2.10.9	Fences and walls should incorporate landscape elements and changes in materials or texture to deter graffiti and add visual interest.	Both Chapters 9.08 Section 9.08.070 "Fences and Walls" and Chapter 9.16 "Design Guidelines" both require landscape elements, material changes and texture to deter graffiti to fences and walls This is an ongoing policy.	Planning
2.10.10	Minimize the use and visibility of reverse frontage walls along streets and freeways by such treatments as landscaping, berming, and "side-on" cul-de-sacs.	Due to the cost of establishing "Special Districts" to maintain reverse frontage landscape and irrigation, reverse frontage development has been discouraged. Therefore, the use of reverse frontage walls is minimal. Any necessary reverse frontage wall shall be decorative in nature and would include landscape and possible berming to break up the elevations. This is an ongoing policy.	Planning
2.10.11	Screen and buffer nonresidential projects from adjacent residential property and other sensitive land uses when necessary to mitigate noise, glare and other adverse effects on adjacent uses.	Chapter 9.16 "Design Guidelines", Sections 9.16.150 and 9.16.160 and Chapter 9.08, Section 9.08.150 of the Municipal Code provides general screening and buffer requirements for non-residential properties to other sensitive properties. This would include such items as trash areas, loading areas, ground-mounted equipment, roof mounted equipment etc. This is an ongoing policy.	Planning

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2.10.12	Screen parking areas from streets to the extent consistent with surveillance needs (e.g. mounding, landscaping, low profile walls, and/or grade separations).	Both Landscape Guidelines (Parking Lots) approved by resolution in 2009 and Chapter 9.16 "Design Guidelines" for residential, commercial, industrial and office land uses include guidelines for screening of materials and equipment from streetscapes. This is an ongoing policy.	Planning
2.10.13	Provide landscaping in automobile parking areas to reduce solar heat and glare.	Landscape Guidelines (Parking Lots) approved by resolution in 2009 specifically requires landscaping in automobile parking areas. This is an ongoing policy.	Planning
2.10.14	Preserve or relocate existing mature trees and vegetation where practical. Mature trees shall be replaced when they cannot be preserved or relocated.	Landscape Guidelines approved by resolution in 2009 specifically requires preservation of landscape and specifically trees. Mature trees not able to be preserved shall be replaced at a 3 to 1 ratio. This is an ongoing policy (MC 9.17.030.E.8)	Planning
2.10.15	Emphasize the "gateway status" of lands in the vicinity of the intersection of I-215 and State Route 60, at the intersection of Alessandro Boulevard and I-215, at the intersection of Perris Boulevard and State Route 60, and at State Route 60 and Gilman Springs Road. In the vicinity of those areas designated as having "gateway status", the City shall encourage community identification signing.	Although gateway status has been emphasized with a recent upgrade of community identification status, the City has not designated any specific areas along the I-215 or State Route 60 gateway status **As there are no specific policies or Code requirements on this subject, it is recommended that the item be further reviewed during the comprehensive update of the General Plan.**	Planning

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Objective 2.11	Maintain a water system that is capable of meeting the daily and peak demands of Moreno Valley residents and businesses, including the provision of adequate fire flows.	This item is accomplished through will serve letters, environmental documentation, and fire flow letters.	Land Development/Planning/Fire
Policies:			
2.11.1	Permit new development only where and when adequate water services can be provided.	This item is accomplished through will serve letters and environmental documentation.	Land Development/Planning
Objective 2.12	Maintain a wastewater collection, treatment, and disposal system that is capable of meeting the daily and peak demands of Moreno Valley residents and businesses.	Wastewater collection and treatment is provided by Eastern Municipal Water District (EMWD) Western Municipal Water District (WMWD), and Edgemont Community Services District (ECSD)	Land Development
Policies:			
2.12.1	Prior to the approval of any new development application ensure that adequate septic or sewer service capacity exists or will be available in a timely manner.	Requirement for sewer unless septic allowed by Riverside County Department of Environmental Health. This is consistent with Municipal Code Chapter 9.14.	Land Development
Objective 2.13	Coordinate development activity with the provision of public infrastructure and services to eliminate possible gaps in service provision.	Accomplished through design/construction consistent with Municipal Code Chapter 9.14.	Land Development
Policies:			
2.13.1	Limit the amount of development to that which can be adequately served by public services and facilities, based upon current information concerning the capability of public services and facilities.	Adequate public services are reviewed for each development proposal through California Environmental Quality Act guidelines.	Land Development/ Planning
2.13.2	Unless otherwise approved by the City, public water, sewer, drainage and other backbone facilities needed for a project phase shall be constructed prior to or concurrent with initial development within that phase.	Accomplished through design/construction consistent with Municipal Code Chapter 9.14.	Land Development

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2.13.3	It shall be the ultimate responsibility of the sponsor of a development project to assure that all necessary infrastructure improvements (including system wide improvements) needed to support project development are available at the time that they are needed.	Accomplished through design/construction consistent with Municipal Code Chapters 9.8 and 9.14.	Land Development
2.13.4	Encourage installation of advanced technology infrastructure, including, but not limited to, infrastructure for high speed internet access and solar energy.	Land Development is not providing guidance on high speed internet access or involved with solar energy. Any involvement would be through the plan check process completed for utilities.	Land Development
Objective 2.14	Establish and implement comprehensive solutions to the financing of public facilities that adequately distribute costs based on the level of benefit received and the timing of development.	This item is accomplished through implementation of DIF and TUMF programs consistent with Municipal Code Title 3.	Finance / Facilities / Land Development/SD/Capital Projects

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Policies:			
2.14.1	Conduct periodic review of public facilities impact mitigation fees in accordance with state statutes to ensure that the charges are consistent with the costs of improvements. Utilize the service and mitigation standards contained in the Moreno Valley General Plan as the basis for determining improvement costs.	DIF program is periodically updated and the program is implemented consistent with Municipal Code Title 3.	Finance / Facilities / Land Development/Capital Projects
2.14.2	Promote the establishment of benefit assessment districts, Mello-Roos Community Facilities Districts, tax increment financing, and other financing mechanisms in combination with programmed capital improvements to eliminate existing public service and facility gaps, and to provide necessary facilities in advance of the impacts created by development.	CFD No. 2014-01 (Maintenance Services) was established on March 25, 2014. The District was formed to provide an alternative financing tool for the development community. It provides a mechanism to fund the operation and maintenance of street lighting services and maintenance of public landscaping. With next comprehensive General Plan update, it is recommend to change, "Promote the establishment of benefit assessment district, Mello-Roos Community Facilities Districts, tax increment financing, and other financing mechanisms in combination. . ." with "Promote the establishment of various special financing districts based on qualifications of project in combination. . ."	Special Districts

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2.14.3	Review development projects for their impacts on public services and facilities including, but not necessarily limited to, roadways, water, sewer, fire, police, parks, and libraries and require public services or facilities to be provided at the standards outlined in the Moreno Valley General Plan and the standards of applicable service agencies.	Water and sewer impacts/service is determined during entitlement and will serve letters from purveyor.	Public Works / Public Safety/Facilities/Parks
Objective 2.15	Ensure that all Moreno Valley residents have access to high-quality educational facilities, regardless of their socioeconomic status or location within the City.	This objective is being met with continual cooperation and dialog with the Moreno Valley Unified School District and the Van Verde Unified School District.	Administrative Services/Planning

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Policies:			
2.15.1	Encourage an ongoing open liaison with all school districts regarding proposed school design and siting to maximize access and minimize impacts to adjacent uses.	This will ensure that City Standards are conveyed, joint-use facilities are considered, safe routes to school are established, opportunity for parks are incorporated on adjacent property, and amenities are designed to minimize impacts to adjacent uses.	Parks/Planning
Objective 2.16	Maintain local library facilities and reserves in accordance with the following minimum standards: 0.5 square feet of library space and 1.2 volumes per capita.	Libraries fall under Admin Services. While the space and volume goals are well within national standards (and even below) they are well beyond what we can hope to achieve with the funds that we have to dedicate to library services. the .5 sq. ft. standard would required over 100,000 sq. ft. of space for library services. We are currently at 14,000 sq. ft. of space, .06 sq. ft. of space per resident, and even with adding a satellite of 4,000 sq. ft. we would be at 18.000 sq. ft. total or .08 sq. ft. per resident. Additionally, our current collections is just over 82,000 volumes, the 1.2 standard would require 246,000 volumes.	Administrative Services/Parks
Policies:			

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2.16.1	Encourage inter-library loan agreements with the County library system and those of surrounding cities to provide the widest possible variety of materials to library patrons.	Inter-library loan agreements are encouraged with the County library system to provide the widest range and variety of materials possible to residents.	Administrative Services/Parks
2.16.2	Provide for the expansion of library facilities as needed to keep pace with the growing population of Moreno Valley.	Due to budgetary issues, the expansion of library facilities has not kept up with the pace of the growing population of Moreno Valley. **This item can be revisited with the comprehensive update of the General Plan.**	Administrative Service/Parks

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Objective 2.17	Provide cultural facilities, including history (natural, cultural and children's) and art museums and performing arts facilities.	The City collaborates with a number of cultural facilities including the Vanguard Galley (Moreno Valley Cultural Arts Foundation) to provide residents with art expos; clothing, toy, and food drives; charity art auctions; poetry readings; live music and theater events. The Conference & Recreation Center is home to the Moreno Valley Master Chorale and the Moreno Valley Community Band. Both offer performances quarterly at no cost to the community. The March Field Park Community Center is home to day camp and pre-school programs year round and is soon to be re-painted. The City's Arts commission is planning a Community Mural that will utilize volunteers to design and paint a mural on the exterior of the building depicting youth and recreation activities. On-going	Parks/Administrative Services
Policies:			
2.17.1	Promote the development and construction of a civic/cultural center and museums.	Moreno Valley has constructed the Conference and Recreation Center, Cottonwood Banquet Room, and Towngate Community Center for use as civic/cultural centers. A museum is planned at March Field Park in the future. Events at these facilities are ongoing	Parks / Administrative Services

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Objective 2.18	Promote social services programs that meet the special needs for childcare, the elderly, and the disabled.	The City offers child care, elderly, and disabled programs to the community through Community Service District funding and grants. Many of these programs are held at City buildings and schools. On-going	Parks / Administrative Services

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Policies:			
2.18.1	Ensure that a full range of human service programs are available to meet the lifetime development needs of residents of all ages, including the special needs of seniors, families, children, disabled persons, and youth groups.	The City provides a range of activities to service residents of all ages. **Youth:** Sports – Flag Football, Pee-Wee and Jr Soccer and Baseball, Multi-Sport Clinics, Skateboarding, Golf and Foot golf, hiking Adult: Sports – Softball, Kickball, Arena Soccer, Soccer, Basketball, Skateboarding, Golf and Foot Golf, hiking, volleyball Life Enrichment Classes and Activities – acting, modeling, photography, writing, drawing, painting, dance, cheer, hula, martial arts, dog obedience, piano, guitar, CPR, Job Readiness Workshops, second languages, and aerobics **Special Needs:** Sunshine Social Club (physically challenged adults, professional development seminars, special transit (MoVan) **Seniors**: special transit (MoVan) , driving courses, free lunch, arts and crafts courses, fitness, bunco, billiards, guitar, special events, nutrition. All are ongoing programs.	Parks/Administrative Services
2.18.2	Encourage day care through zoning regulations by permitting such facilities in all compatible zoning classifications.	The City's Parks and Community Services Department locates their facilities within it's own facilities, which are properly zoned for such use.	Parks/Administrative Services / Community Development

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
2.18.3	Work closely with local schools, private companies, churches, non-profit agencies, government social service agencies, and community groups to facilitate the provision of community services.	The City works with various groups to jointly provide a multitude of services to the community. Examples of these groups include: Moreno Valley and Val Verde Unified School Districts, Salvation Army, Family Services Association, Master Chorale, Cultural Arts Foundation, Riverside University Health Systems, UC Riverside, Cal Baptist College, Friends of the Senior Center. Ongoing	Parks/Administrative Services
2.18.4	Encourage the development of senior citizens independent living and congregate care facilities in locations with convenient access to social, commercial, and medical services.	Development of senior citizen independent living and congregate care facilities are encouraged in locations convenient to social, commercial and medical services.	Administrative Services / *Community Development*
2.18.5	Promote volunteer involvement in all public programs and within the community as a whole.	The City promotes volunteer involvement through several departments and programs within the City.	Parks/Administrative Services

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
9.2 Community Development Element Goals, Objectives Policies and Programs			
9.2.3 Community Development Element Programs			
2-1	Develop a community signing scheme for street corridors, public buildings and selected entrances to the community and its sub-communities.	This is completed in concert with the bi-annual City Capital Improvement Plan effort. It is implemented in conformance with existing policies and procedures for signing throughout the City, and when needed, new policies may be developed. Wayfinding signs have been installed at selected locations. Future Wayfinding signs will be installed as need arises. "Welcome to Moreno Valley" signs have been installed at selected entrance points to the City, with remaining signs to be installed as priorities and funds allow.	Planning/Public Works/Capital Projects
2-2	Review and revise the Municipal Code to implement the goals, objectives and policies stated in the General Plan.	Periodically, the Municipal Code is revised and updated to reflect General Plan goals, objectives and policies. A General Plan annual report to review current General Plan standards is also completed and submitted to the Office of Planning and Research (OPR) each year. This is a policy that is reviewed annually with periodic updates throughout the year. This is an ongoing policy.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
2-3	Conduct a detailed capital improvement program using the revised population projections and proposed land use characteristics of the General Plan.	A detailed capital improvement program is conducted annually by the Capital Projects Division of Public Works. This is an ongoing policy.	Public Works/Planning/Capital Projects
2-4	Periodically study the feasibility of extending the sphere of influence north of the city limits and annexing unincorporated areas along the city boundary.	Designated spheres of influence have been established east and north of the city limits. The City periodically studies the extension of the existing spheres of influence to the north, with the latest attempt at expansion studied with the City Council in 2016. This is an ongoing policy.	Planning
2-5	Disseminate local childcare resource information and provide referral service to residents and businesses.	Childcare resource information is provided to residents and businesses in the City. Ongoing	Planning/Administrative Services
2-6	Encourage demand-response public transportation facilities, such as the mini-bus or dial-a-ride systems in order facilitate the transportation needs of the elderly and the disabled.	This is an on-going policy. Seniors and other users are encouraged to use para transit services provided by the Riverside Transit Agency. This is consistent with Chapter 9.11.080 of the Municipal Code.	Transportation/Planning
2-7	Provide City information identifying available social services and facilities in a broad range of formats.	**Housing:** Following the dissolution of RDA, there are no currently active programs due to limited or no funding available. Any projects funded with HOME or Housing Authority funding is provided on the City's website.	Housing/Administrative Services/Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
2-8	Evaluate existing social programs under the City's purview, and determine if they adequately address the needs of the aged, the disabled, low-income families and persons in crisis situations.	**Housing:** Following the dissolution of RDA, there are no currently active programs due to limited or no funding available. Any projects funded with HOME or Housing Authority funding is provided at City's website.	Housing/Administrative Services/Planning
2-9	Work with other jurisdictions to seek changes in state law to allow reasonable controls on the location of community care facilities, foster homes and sober living facilities.	The City strives to work with surrounding jurisdictions and jurisdictions in California regarding state law and controls on location of community care facilities, foster homes and sober living.	Planning/Administrative Services
The City Structure Economic Development Goals and Policies			
9.3 9.3 Economic Development Element Goals, Objectives, Policies and Programs			
9.3.1 Economic Development Element Goals			
	To be inserted after development of Economic Development Strategy.	**This item will be completed with the next comprehensive update to the General Plan.**	Economic Development
9.3.2 Economic Development Element Policies			
	To be inserted after development of Economic Development Strategy.	**This item will be completed with the next comprehensive update to the General Plan.**	Economic Development
9.3.3 Economic Development Element Programs			
	To be inserted after development of Economic Development Strategy.	**This item will be completed with the next comprehensive update to the General Plan.**	Economic Development
The City Structure Parks, Recreation and Open Space Element Goals and Policies			
9.4 Parks, Recreation and Open Space Element Goals, Objectives, Policies and Programs			
9.4.1 Parks, Recreation and Open Space Element Goals			

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Goal 4.1	To enhance Moreno Valley as a desirable place in which to live, work, shop, and do business.	The City provides numerous amenities for residents including parks, sports facilities, cultural/community centers, restaurants, stores, entertainment, and medical facilities, to promote the desirability of the City. Ongoing.	Parks / Community Services / *Economic Development*
Goal 4.2	To retain an open space system that will conserve natural resources, preserve scenic beauty, promote a healthful atmosphere, provide space for outdoor recreation, and protect the public safety.	The City promotes the preservation of it's natural resources and scenic beauty of open space, creating a healthy atmosphere for outdoor recreation and public safety, per MVMC Title 7. On-going.	Parks / Community Services / *Planning*
9.4.2 Parks, Recreation and Open Space Element Objectives and Policies			
Objective 4.1	Retain agricultural open space as long as agricultural activities can be economically conducted, and are desired by agricultural interests, and provide for an orderly transition of agricultural lands to other urban and rural uses.	The City encourages agricultural open space land as long as the activities can be economically conducted and it is an objective to provide for orderly transition of agricultural uses to other urban/rural lands. Permitted uses Table 9.02.020 in the Municipal Code allows for agricultural and crop production in all land use zones Ongoing.	Planning
Policies:			
4.1.1	Encourage grazing and crop production as a compatible part of a rural residential atmosphere.	Permitted uses Table 9.02.020 allows for agricultural and crop production in all land use zones. Ongoing.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Objective 4.2	Provide safe, affordable and accessible recreation facilities and programs to meet the current and future needs of Moreno Valley's various age and interest groups and promote the provision of private recreational facilities.	The City provides numerous safe, affordable, and accessible recreation facilities to meet the various needs or multiple age and interest groups. There are currently 4 community centers and 28 public parks that have recreation amenities. Ongoing.	Parks / Community Services
Policies:			
4.2.1	Neighborhood parks shall serve as the day-to-day recreational areas of the City, Neighborhood parks should be within a reasonable walking distance of the population served. Community parks may also serve day-to-day recreation needs. That portion of the community and/or regional facilities that provide similar amenities to those found in neighborhood parks shall also be considered as meeting this objective.	Neighborhood parks are designed and constructed to be located within a reasonable distance of the population they are intended to serve. Community parks are designed and constructed to include similar amenities as neighborhood parks to meet the objective of a neighborhood park. On-going.	Parks / Community Services
4.2.2	Community parks shall provide opportunities for participation in sports and related athletic activities, water-oriented recreation and other special interest activities (e.g. golf, tennis, equestrian, etc.).	Community parks provide opportunities for a variety of athletic activities. Examples of these include: Cottonwood Golf Center, Moreno Valley Equestrian Center, March Field Skate Park, tennis courts at three sites, basketball courts at several sites, and splash pads in two parks. Ongoing.	Parks / Community Services

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
4.2.3	Employ a multifaceted approach in the financing and acquisition, development and maintenance of parkland, including the financing of parklands through development fees, state and federal grant-in-aid programs, gifts and donations, and other sources.	Moreno Valley utilizes development impact fees, Quimby in lieu fees, Community Facilities and Services Districts, and various grants, to finance acquisition, development, and maintenance of parks and parkland. "Zone A was formed at City incorporation to provide a funding mechanism for parks and community services. Every parcel in the City contributes to Zone A. CFD No. 1 (Park Maintenance) was established on July 8, 2003. The District was formed to provide financing tool for the residential development community. It provides a mechanism to fund the operation and maintenance of parks constructed after district formation. All new residential development is conditioned to contribute to the District. Willdan Financial has been engaged to evaluate possible amendment to CFD No. 1 or creation of a new CFD to provide for a tax rate layer for non-residential development "	Parks / Community Services

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4.2.4	Encourage special events (tournaments, festivals, celebrations) that reflect the uniqueness of Moreno Valley and contribute to community identity, cohesiveness and stability.	Moreno Valley encourages and hosts several special events, which some are unique to the City. In order to bring together it's residents. Examples are: 4th of July Independence Parade and Family Fun Fest, Youth Fest, Springtastic Festival and Egg Hunt, Recreation Expo, Concerts/Movies in the Parks, Snow Day and Holiday Tree Lighting. Ongoing.	Parks / Community Services
4.2.5	Work in conjunction with private and public school districts and other public agencies to facilitate the public use of school grounds and facilities for recreational activities. The City shall also encourage the development of park sites adjacent to school facilities to maximize recreational opportunities in Moreno Valley.	The City has joint-use agreements with the school districts for use of recreation facilities. The City encourages new developments to construct parks next to schools to maximize recreational opportunities in the City. Ongoing.	Parks / Community Services
4.2.6	The City shall use cost effectiveness, demand and need for service and potential return on investment as criteria for the development and operation of future recreational facilities and programs.	The City Council sets activities/program fees. Typically, senior programs are no-cost and youth and adult fees are cost recovery. Sponsorships are utilized to off-set costs. Ongoing.	Parks / Community Services

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4.2.7	The City level of service standard is 3 acres of developed parkland for every 1,000 new residents. Exceptions from this ratio may be made in exchange for extraordinary amenities of comparable economic value. Land not suitable for active recreation purposes may not be counted toward fulfilling parkland dedication requirements.	The City's standard for developed parkland is 3 acres per 1,000 new residents. In some areas, this ratio has been reduced due to the City receiving added amenities that are equal to or exceed the value of property. The City does not take on new property not suitable for active recreation purposes as fulfillment for parkland dedication requirements. MVMC Chapter 3.4. (Ongoing).	Parks / Community Services
4.2.8	Encourage the development of recreational facilities within private developments, with appropriate mechanisms to ensure that such facilities are properly maintained and that they remain available to residents in perpetuity.	The Planning Division encourages development of recreational facilities within private developments, with facility maintenance provided through required Covenants, Conditions and Restrictions (CC&R's) and through a Homeowners Association.	Planning
4.2.9	In conjunction with the school districts, civic organizations, and other private, civic-minded entities, encourage and participate in the provision of organized recreational activities for Moreno Valley residents of all ages.	The City has many programs that incorporate organized recreation activities for schools, civic organizations, and private civic-minded entities. These are designed to encourage participation in organized recreational activities for resident of all ages.	Parks / Community Services

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4.2.10	Involve individuals and citizen groups reflecting a cross section of Moreno Valley citizens (including youth and adults) in the planning, design and maintenance of parks, recreation facilities and recreation programs.	The City has established a Park and Trail adoption system for individuals and groups to assist with the maintenance of parks and trails. City has several boards and commissions that assist with the planning and design of recreation facilities, parks, and trails. Ongoing	Parks / Community Services
4.2.11	Emphasize joint planning and cooperation with all public agencies as the preferred approach to meeting the parks and program needs of Moreno Valley citizens.	Moreno Valley jointly plans and cooperates with the local fire department, police department, and water district, in its approach to meet the needs of citizens. On-going	Parks / Community Services
4.2.12	Include multi-functional spaces and facilities in parks to facilitate cultural events.	Moreno Valley utilizes parks and the Conference and Recreation Center to facilitate cultural events such as: movies and concerts in the park; Artoberfest (art displays and performances); and various heritage related events.	Parks / Community Services
4.2.13	Provide recreation programs and access to facilities at reasonable costs.	The City provides many recreation programs and access to facility access at a reasonable cost. A few examples are: the Cottonwood Golf Center, Conference and Recreation Center gym, and Tee-ball. Ongoing	Parks / Community Services
4.2.14	Establish linear parks in agreement with public and private utilities, including the State of California along the California Aqueduct, for the use and maintenance of utility corridors and rights-of-way for recreational purposes.	The City currently has agreements with the State Department of Water Resources for use of land over the California Aqueduct pipeline and Edison for the Sunnymead Ranch Linear Park. Ongoing	Parks / Community Services

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4.2.15	Work closely with Riverside County Parks Department in its open space program to ensure that trail systems within Moreno Valley effectively link open space components.	The City requires developers that are located on Riverside County boundaries to coordinate their trail plans with the County Parks. (On-going) "Zone A was formed at City incorporation to provide a funding mechanism for parks and community services. Every parcel in the City contributes to Zone A. CFD No. 1 (Park Maintenance) was established on July 8, 2003. The District was formed to provide financing tool for the residential development community. It provides a mechanism to fund the operation and maintenance of parks constructed after district formation. All new residential development is conditioned to contribute to the District.	Parks / Community Services
4.2.16	Acquire land jointly with the local school districts for future school/park sites.	The City makes every effort to coordinate placing parks next to schools. An example of an undeveloped park next to a school is adjacent to March Middle School. Through a joint-use agreement the City had two lighted ball fields constructed on the school and will have a developer dedicated and construct a park adjacent to the school. On-going	Parks / Community Services

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4.2.17	Require new development to contribute to the park needs of the City.	New development is required to provide fully functioning parks or a in-lieu fee for future construction of parks.	Parks / Community Services
4.2.18	Provide lighted sports fields to increase availability and utilization of courts and playing field facilities.	Where funding allows, the City has added or revamped lighting of sport facilities. Added/revamped facilities include Lassalle Sports Park and Morrison Park. Ongoing	Parks / Community Services
Objective 4.3	Develop a hierarchical system of trails which contribute to environmental quality and energy conservation by providing alternatives to motorized vehicular travel and opportunities for recreational equestrian riding, bicycle riding, and hiking, and that connects with major regional trail systems.	The City has a master plan of multi-use trails and non-motorized bike trails throughout the City. They are designed to connect to trails and adjacent agencies. The trail plan is reviewed with each development annexing the City, each development building in the City, and on a yearly basis. Ongoing	Parks / Community Services

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Policies:			
4.3.1	The City's network of multiuse trails, including regional trails, community trails, and local feeder trails, shall (1) be integrated with recreational, residential and commercial areas, schools and equestrian centers; (2) provide access to community resources and facilities, and (3) connect urban populations with passage to hillsides, ridgelines, and other scenic areas.	Per the Master Plan of Trails and the General Plan, trails are incorporated into parks, residential, commercial, and industrial developments. In many instances, trails provide access to facilities and other community resources. Trails are designed to connect to scenic areas. Ongoing	Parks / Community Services
4.3.2	The City shall establish an agreement with public and private utilities for the use and maintenance of utility corridors and rights-of-way for trail purposes.	The City has several agreements with both public and private utilities for the design, construction, and maintenance of trails. Examples of these include the California Department of Water Resources, The Gas Company, and Southern California Edison. Ongoing	Parks / Community Services
4.3.3	All new development approvals shall be contingent on trail right-of-way dedication and improvement in accordance with the Master Plan of Trails (Figure 4-5).	In adherence to the Master Plan of Trails, the City may require fee or easement dedication for trails. New developments that annex to the City may be required to provide similar amenities. On-going	Parks / Community Services
4.3.4	In conjunction with all development review, the City shall consider multiuse trail access and traditional travel routes through the property.	Per the Master Plan of Trails and the General Plan, trails are incorporated into many developments adjacent to traditional travel routes (streets and sidewalks). On-going	Parks / Community Services
4.3.5	In conjunction with the review and approval of nonresidential developments, the City should consider the use of multiuse trail amenities such as hitching posts, benches, rest areas, and drinking facilities.	In adherence to the Master Plan of Trails, the City may require trails and related amenities within nonresidential development.	Parks / Community Services

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4.3.6	Wherever possible, development of residential areas conditioned for animal keeping on lots of ½ acre or larger, shall include a decomposed granite trail on one side of the street and traditional concrete sidewalk on the other.	Where applicable, feeder trails are conditioned for residential developments that allow animal keeping. The standard is to have a trail on one side of the street and a traditional sidewalk on the other. On-going	Parks / Community Services
4.3.7	Trail design and construction should take into consideration the safety and convenience of all trail users as the primary concern.	User safety and convenience are the upmost concern in the planning and construction of multi-use trails. On-going	Parks / Community Services
4.3.8	The City should facilitate the development of a multiuse regional trail system.	The City has been working with the County of Riverside and Lake Perris State Park to coordinate trail systems. On-going	Parks / Community Services
4.3.9	Unless otherwise specified due to fire department requirements, access or as established by a specific plan, city trails along roadways shall be ten (10) feet wide and shall be constructed with decomposed granite or equal material and shall provide appropriate fencing or other devices where needed to delineate trails from vehicular rights-of-way.	Multi-use trails where located adjacent or near roadways are designed to have a minimum flat surface of ten (10) foot in width, with a 2% cross-slope. Trails are delineated from vehicular traffic by means of fencing and or shrubbery. Trail surfaces are stabilized granite with a minimum thickness of four (4) inches.	Parks / Community Services
4.3.10	Where firefighting access is required, trails shall be 20' wide to meet the needs of the Fire Department and its equipment. Fire Department requirements shall be met in all conditions where access is required.	Where fire access and a trail is required, the minimum width of the trail shall be 20', to accommodate fire equipment and staging. On-going	Parks / Community Services

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4.3.11	In unusual situations where legal or topographical barriers exist (e.g., excessive slope, the configuration of right-of-way, existing vegetation, etc.), the City shall have the discretion to amend the trail requirement as needed to accomplish the goals of this General Plan.	The City makes amendments to specific trail locations, based on various topographical barriers. This is done to create a trail system that can be utilized by the majority of citizens, without inconvenience to residents. On-going	Parks / Community Services
4.3.12	Local feeder trails shall connect residential lots in property zoned for horse keeping to the community trail system.	Where appropriate zoning exists, the City requires developers to install Feeder Trails that connect residential lots to the City's Trail System. On-going	Parks / Community Services
4.3.13	The City will encourage volunteer programs for the improvement of existing trails for the purpose of providing an integrated trail network that is safe, functional and readily accessible.	The City encourages volunteers for it's Adopt a Trail Program, to maintain safe, functional, and accessible trails. To date, individuals to civic organizations have become volunteers. This is an on-going program.	Parks / Community Services
4.3.14	Where feasible, use drainage courses, utility rights-of-way and other such opportunities to incorporate trail and open space elements in the design of major development projects.	The City evaluates developer projects to maximize the undeveloped space for use with trails, passive parks, and open space. Ongoing	Parks / Community Services
4.3.15	Utilize the Citizen's Advisory Board on Recreational Trails in making recommendations to City Council for the distribution of funds for the construction of new trails.	When funds are available, the Recreation Trails Board would be recommending body to City Council for distribution of funds to construct new trails. Ongoing	Parks / Community Services
9.4.3 Parks, Recreation and Open Space Element Programs			
Programs:			

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
4-1	Develop a parks and recreation facilities master plan to implement the Parks and Recreation Element.	In 2012 the City developed a Parks Master Plan, to outline the current recreational facilities, as well to identify the deficiencies. The master plan is a living document, to be updated periodically.	Parks / Community Services
4-2	Develop policies and criteria for the establishment of trails and rest/picnic areas in natural open space areas.	The City has developed policies and criteria for the establishment of trails and rest stops in open space areas. Ongoing	Parks / Community Services
4-3	Set policies and criteria for the establishment of greenbelt standards and design guidelines to allow flexibility in design of greenbelt/parks/open spaces areas within new development as long as non-auto circulation corridors (for equestrians, bicycles, pedestrians, etc.) are provided and the overall dedication requirement for greenbelt and park facilities is met.	The City has set policies and criteria for the design and construction of greenbelts, parks, and open space. Several provide for the use of equestrians, bicycles, and pedestrians. These uses have become dedication requirements. Reviews of standards and design are under review every one to two years.	Parks / Community Services
4-4	Explore the feasibility of requiring new development to provide a percentage of the development in greenbelt area.	New developments are examined for possible greenbelts. Many of these developments are required to construct these greenbelts for the resident's use.	Parks / Community Services

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
4-5	Provide on-going opportunities for public involvement and input into the park planning process.	The public is involved in assessing the current and future needs of park amenities. Some of this is done through committees/boards/commissions and some it through community meetings. On-going	Parks / Community Services
4-6	Maintain advisory committees, such as the Parks and Recreation Advisory Committee, created by City Council in 1988, to serve in an advisory capacity on parks and recreation issues.	The City Parks and Community Services Departments maintains commissions/boards such as the Parks and Recreation Commission, Senior Advisory Board, Recreational Trails Board, various sports groups, and the Arts Commission.	Parks / Community Services
4-7	Work with coalitions of sports organizations to define mutually compatible facility needs and mechanisms for the development, construction, operation and maintenance of these facilities.	The City consistently meets with various sports groups to discuss facilities and their needs. The City utilizes this information to design and construct new facilities as well as modify existing facilities. Ongoing.	Parks / Community Services
4-8	Investigate the feasibility of establishing a non-profit foundation to seek and receive donations from private sources for the support of Parks and Recreation programs and facilities.	The City's Library currently has a foundation for capital improvements. This foundation can be expanded upon to include various parks commissions/boards for specific programs. However, this must be approved by the IRS, so it does not jeopardize the City's tax exempt status. This program needs more investigation for additional uses. Ongoing.	Parks / Community Services

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4-9	Acquire land and develop neighborhood and community parks in the "Recommended Future Parkland Acquisition Areas" shown in Figure 4-4.	**Figure 4-4 was not provided in the 2006 General Plan. This item will need to be removed or updated with the next comprehensive General Plan update.**	Parks / Community Services
4-10	Prepare a comprehensive plan of trails that clearly defines the routing of city trails and is part of the General Plan.	During the last General Plan update a comprehensive master plan of trails was adopted, which defines locations for city trails.	Parks / Community Services
4-11	Develop policies and criteria for the establishment of multiuse trails and rest/picnic areas in natural open space areas.	The City has developed policies and criteria for the establishment of trails and rest stops in open space areas. On-going. **This is a duplicate of Policy 4.2, and shall be removed during the next comprehensive General Plan Update.**	Parks / Community Services
4-12	Periodically review the Master Plan of Trails to show existing and planned trails.	The Master Plan of Trails is periodically reviewed, adding newly constructed trails to the plan. Ongoing with yearly reviews.	Parks / Community Services
4-13	Enact ordinances requiring developers to incorporate trail corridors into their development plans in accordance with the Master Plan of Trails.	Ordinance 359 (1992) provides for recreational facilities for trails per the Master Plan of Trails.	Parks / Community Services
4-14	Develop standards for residential feeder trails to guide developers in locating and constructing trails and for the arrangement of on-going maintenance requirements of the trails.	The City has developed construction standards for residential feeder trails to guide developers in locating feeder trails, as well as requirement for the development to establish a funding mechanism to maintain these trails. On-going program	Parks / Community Services

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4-15	Establish a fee system for the equitable distribution of the cost of developing and maintaining trails citywide.	The City has established a Community Facilities District to pay for the cost of developing and maintaining trails. (On-going program.) Zone A was formed at City incorporation to provide a funding mechanism for parks and community services. Every parcel in the City contributes to Zone A. CFD No. 1 (Park Maintenance) was established on July 8, 2003. The District was formed to provide financing tool for the residential development community. It provides a mechanism to fund the operation and maintenance of parks constructed after district formation. All new residential development is conditioned to contribute to the District. Willdan Financial has been engaged to evaluate possible amendment to CFD No. 1 or creation of a new CFD to provide for a tax rate layer for non-residential development	Parks / Community Services
4-16	Investigate the feasibility of creating a special district(s) for the purpose of acquiring and managing open space and trails.	Currently, the City has a special district to manage trails. However, it has been the responsibility of developer associations to acquire and maintain open space.	Parks / Community Services

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4-17	Seek out and apply for grants sponsored by state and federal agencies, such as the Recreational Trails Program administered by the Federal Highways Administration and the State Department of Parks and Recreation.	The City applies for several grants for trails, if the qualifications are met. On-going program	Parks / Community Services
The City Structure Circulation Element Goals, Objectives, Policies, and Programs			
9.5 Circulation Element Goals, Objectives, Policies, and Programs			
9.5.1 Circulation Element Goals			
Goal 5.1	Develop a safe, efficient, environmentally and financially sound, integrated vehicular circulation system consistent with the City General Plan Circulation Element Map, Figure 9-1, which provides access to development and supports mobility requirements of the system's users.	This is an on-going goal. It is accomplished through provisions of Titles 9 and 12 of the Municipal Code.	Transportation
Goal 5.2	Maintain safe and adequate pedestrian, bicycle, and public transportation systems to provide alternatives to single occupant vehicular travel and to support planned land uses.	This is an on-going goal. It is accomplished through provisions of Titles 9 and 12 of the Municipal Code.	Transportation
9.5.2 Circulation Element Objectives and Goals			
Objective 5.1	Create a safe, efficient and neighborhood- friendly street system.	This is an on-going objective. It is accomplished in accordance with Titles 9 and 12 of the Municipal Code.	Transportation
Policies:			
5.1.1	Plan access and circulation of each development project to accommodate vehicles (including emergency vehicles and trash trucks), pedestrians, and bicycles.	This is an on-going policy. It is implemented in accordance with Title 9 of the Municipal Code.	Transportation
5.1.2	Plan the circulation system to reduce conflicts between vehicular, pedestrian and bicycle traffic.	This is an on-going policy. It is implemented in accordance with Titles 9 and 12 of the Municipal Code.	Transportation
5.1.3	Require adequate off-street parking for all developments.	This is an on-going policy. It is implemented in accordance with Chapter 9.11 of the Municipal Code.	Transportation

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5.1.4	Driveway placement shall be designed for safety and to enhance circulation wherever possible.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5.1.5	Incorporate American Disability Act (ADA) and Title 24 requirements in roadway improvements as appropriate.	This is an on-going policy. It is implemented in accordance with Chapter 9 of the Municipal Code.	Transportation
5.1.6	Design new developments to provide opportunity for access and circulation to future adjacent developments.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
Objective 5.2	Implement access management policies.	This is an on-going objective. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
Policies:			
5.2.1	Locate residential units with access from local streets. Minimize direct residential access from collectors. Prohibit direct single-family driveway access on arterials and higher classification roadways.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5.2.2	Feed short local streets into collectors.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5.2.3	Encourage the incorporation of traffic calming design into local and collector streets to promote safe vehicle speeds.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 and Title 12 of the Municipal Code.	Transportation

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5.2.4	Design new subdivisions to minimize the disruptive impact of motor vehicles on local streets. Long, broad and linear streets should be avoided. Residential streets should be no wider than 40 feet, and should have an uninterrupted length of less than one half mile. Curvilinear streets and cul-de-sacs are preferred. Streets within the subdivision should be designed to facilitate access to residences and to discourage through traffic.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
Objective 5.3	Maintain Level of Service (LOS) "C" on roadway links, wherever possible, and LOS "D" in the vicinity of SR 60 and high employment centers. Figure 9-2 depicts the LOS standards that are applicable to all segments of the General Plan Circulation Element Map.	This is an on-going objective. It is implemented in accordance with Title 9 of the Municipal Code. **A complete review of the Circulation Element will be accomplished with the next General Plan update.**	Transportation
Policies:			
5.3.1	Obtain right-of-way and construct roadways in accordance with the designations shown on the General Plan Circulation Element Map and the City street improvement standards.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5.3.2	Wherever feasible, promote the development of roadways in accordance with the City standard roadway cross-sections, as shown in Figure 9-3. Cross-sections range from two-lane undivided roadways to 8-lane divided facilities.	This is an on-going policy. It is implemented in accordance with Chapters 9.14.100 of the Municipal Code.	Transportation

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5.3.3	Create new roadway classifications to accommodate future traffic demand, including; Divided Major Arterial - Reduced Cross-Section, and Divided Arterial - 6-lane. These cross-sections are shown on Figure 9-3.	This is an on-going policy. It is implemented in accordance with Chapter 9.14.100 of the Municipal Code.	Transportation
5.3.4	For planning purposes, utilize LOS standards shown on Table 5 -1 to determine recommended roadway widths.	This is an on-going policy. It is implemented in accordance with Title 9 of the Municipal Code. **A complete review of the Circulation Element will be accomplished with the next General Plan update.**	Transportation
5.3.5	Ensure that new development pays a fair share of costs to provide local and regional transportation improvements and to mitigate cumulative traffic impacts. For this purpose, require new developments to participate in Transportation Uniform Mitigation Fee Program (TUMF), the Development Impact Fee Program (DIF) and any other applicable transportation fee programs and benefit assessment districts.	This is an on-going policy. It is implemented in accordance with Title 3 of the Municipal Code.	Transportation
5.3.6	Where new developments would increase traffic flows beyond the LOS C (or LOS D, where applicable), require appropriate and feasible mitigation measures as a condition of approval. Such measures may include extra right-of-way and improvements to accommodate left-turn and right-turn lanes at intersections, or other improvements.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation

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5.3.7	Provide consideration to projects that have overriding regional or local benefits that would be desirable even though the LOS standards cannot be met. These projects would be required to analyze traffic impacts and mitigate such impacts to the extent that it is deemed feasible.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5.3.8	Pursue arterial improvements that link and/or cross the State route 60 (SR-60) Freeway, including an additional over-crossing at Graham Street.	This is an on-going policy. An additional over-crossing at Graham Street is shown as Initiative 4.6.4 of the City's Strategic Plan.	Transportation
5.3.9	Address additional widenings at arterials providing access to SR-60 at Day Street, Frederick Street/Pigeon Pass road and Perris Boulevard.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code. **A complete review of the Circulation Element will be accomplished with the next General Plan update.**	Transportation
Objective 5.4	Maximize efficiency of the regional circulation system through close coordination with state and regional agencies and implementation of regional transportation policies.	This is an on-going objective. The City works closely with all state and regional agencies to enhance the efficiency of the regional circulation system.	Transportation

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Policies:			
5.4.1	Coordinate with Caltrans and the Riverside County Transportation Commission (RCTC) to identify and protect ultimate rights-of-way, including those for freeways, regional arterial projects, transit, bikeways and interchange expansion.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code. **A complete review of the Circulation Element will be accomplished with the next General Plan update.**	Transportation
5.4.2	Coordinate with Caltrans and RCTC regarding the integration of Intelligent Transportation Systems (ITS) consistent with the principles and recommendations of the Inland Empire Regional ITS Architecture Project.	This is an on-going policy. It is implemented in accordance with the City's ITS Master Plan.	Transportation
5.4.3	Work with property owners, in cooperation with RCTC, to reserve rights-of-way for potential Community and Environmental Transportation Acceptability Process (CETAP) corridors through site design, dedication, and land acquisition, as appropriate.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code. **A complete review of the Circulation Element will be accomplished with the next General Plan update.**	Transportation
5.4.4	The City Council will commit to establishing ongoing relationships with all agencies that play a role in the development of the City's transportation system. Council members who are appointed to these agencies as City representatives shall seek out leadership roles to maximize their effectiveness on behalf of the City. Council will strive to maintain continuity in their appointments of representatives to promote effective representation.	This is an on-going policy. The Administrative Codes for various regional agencies define the requirements for elected officials to be represented on their Executive Boards.	Transportation

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5.4.5	Work with RCTC, WRCOG, and the TUMF Central Zone Committee to facilitate the expeditious construction of TUMF Network projects, especially projects that directly benefit Moreno Valley.	This is an on-going policy. The City has designated certain Public Works staff to represent Moreno Valley interests at various Technical Advisory meetings.	Transportation
5.4.6	Cooperatively participate with SCAG, RCTC, and WRCOG in the planning for a transportation system that anticipates regional needs for the safe and efficient movement of goods and people.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code. A complete review of the Circulation Element will be accomplished with the next General Plan update.	Transportation
5.4.7	Utilizing a combination of regional, state and federal funds, development impact fees, and other locally generated funds, provide needed improvements along SR 60 and the associated interchanges, including interchange and grade separation improvements.	This is an on-going policy. It is implemented in accordance with Chapters 3.44 and 9.11.080 of the Municipal Code.	Transportation
5.4.8	Reserve rights-of-way to accomplish future improvements as specified in the Caltrans District 8 Route Concept Fact Sheet for SR-60. Specifically, SR-60 shall be built to six general purpose lanes and two High Occupancy Vehicle (HOV) lanes through Moreno Valley. Additional auxiliary lanes may be required between interchanges. The need for auxiliary lanes will be determined from future studies.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code. **A complete review of the Circulation Element will be accomplished with the next General Plan update.**	Transportation
5.4.9	Lobby the State Legislature to keep triple trailer trucks off highways in developed areas of California.	This policy is out of date. Staff does not actively lobby against triple trailer trucks off highways.	Transportation

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Objective 5.5	Maximize efficiency of the local circulation system by using appropriate policies and standards to design, locate and size roadways.	This is an on-going objective primarily accomplished through provisions in Chapter 9.11.080 of the Municipal Code.	Transportation
Policies:			
5.5.1	Space Collectors between higher classification roadways within development areas at appropriate one-quarter mile intervals.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5.5.2	Provide dedicated left-turn lanes at all major intersections on minor arterials and higher classification roadways.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5.5.3	Prohibit points of access from conflicting with other existing or planned access points. Require points of access to roadways to be separated sufficiently to maintain capacity, efficiency, and safety of the traffic flow.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5.5.4	Wherever possible, minimize the frequency of access points along streets by the consolidation of access points between adjacent properties on all circulation element streets, excluding collectors.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5.5.5	Design streets and intersections in accordance with the Moreno Valley Municipal Code.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5.5.6	Consider the overall safety, efficiency and capacity of street designs as more important than the location of on-street parking.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation

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5.5.7	For developments fronting both sides of a street, require that streets be constructed to full width. Where new developments front only one side of a street, require that streets be constructed to half width plus an additional 12-foot lane for opposing traffic, whenever possible. Additional width may be needed for medians or left and/or right turn lanes.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5.5.8	Whenever possible, require private and public land developments to provide on-site and off-site improvements necessary to mitigate any development-generated circulation impacts. A review of each proposed land development project shall be undertaken to identify project impacts to the circulation system. The City may require developers to provide traffic impact studies prepared by qualified professionals to identify the impacts of a development.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5.5.9	Design curves and grades to permit safe movement of vehicular traffic per applicable Caltrans and Moreno Valley standards.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5.5.10	Provide adequate sight distances for safe vehicular movement at all intersections and driveways.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5.5.11	Implement National Pollutant Discharge Elimination System Best Management Practices relating to construction of roadways to control runoff contamination from affecting water resources.	The National Pollutant Discharge Elimination System Best Management Practices are required for projects relating to the construction of roadways, to control runoff contamination from impacting water resources (ongoing).	Transportation

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Objective 5.6	Support development of a ground access system to March Inland Port in accordance with its development plan as a major cargo airport.	This is an on-going objective. The City works closely with the March Joint Powers Authority in implementing strategies / development in support of a major cargo airport.	Transportation
Policies:			
5.6.1	Ensure that City arterials that provide access to and from March Inland Port are properly designed to accommodate projected traffic volumes, including truck traffic.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5.6.2	Ensure that traffic routes to March Inland Port are planned to minimize impacts to City residential communities.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
Objective 5.7	Design roads to meet the needs of the residents of the community without detracting from the "rural" atmosphere in designated portions of Moreno Valley. (Designated "rural" areas include those encompassed by the Residential Agriculture 2, Residential 1, Rural Residential and Hillside Residential zoning districts. "Urban" areas encompass all other zoning districts.)	This is an on-going objective. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
Policies:			
5.7.1	Pursue development of modified sidewalk standards for local and collector roads within low density areas to reflect the rural character of those areas.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5.7.2	Provide sidewalks on arterials in designated low density areas that provide access to schools and bus stops.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
Objective 5.8	Encourage development of an efficient public transportation system for the entire community.	This is an on-going objective. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation

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Policies:			
5.8.1	Support the development of high-speed transit linkages, or express routes, that would benefit the citizens and employers of Moreno Valley.	This is an on-going policy. The City works closely with Riverside Transit Agency (RTA) in the implementation of Bus Rapid Transit routes as developed in the RTA Comprehensive Operational Analysis (COA).	Transportation
5.8.2	Support the efforts of the March Joint Powers Authority in its pursuit of a Transit Center.	This is an on-going policy. The City works closely with Riverside Transit Agency (RTA) in the implementation of recommended improvements developed in the RTA Comprehensive Operational Analysis (COA).	Transportation
5.8.3	Encourage public transportation opportunities that address the particular needs of transit dependent individuals in the City such as senior citizens, the disabled and low -income residents.	This is an on-going policy. The City works closely with Riverside Transit Agency (RTA) in the implementation of recommended improvements developed in the RTA Comprehensive Operational Analysis (COA).	Transportation
5.8.4	Ensure that all new developments make adequate provision for bus stops and turnout areas for both public transit and school bus service.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5.8.5	Continue on-going coordination with transit authorities toward the expansion of transit facilities into newly developed areas.	This is an on-going policy. The City works closely with Riverside Transit Agency (RTA) in the implementation of recommended improvements developed in the RTA Comprehensive Operational Analysis (COA).	Transportation

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Objective 5.9	Support and encourage development of safe, efficient and aesthetic pedestrian facilities.	This is an on-going objective. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
Policies:			
5.9.1	Encourage walking as an alternative to single occupancy vehicle travel, and help ensure the safety of the pedestrian as follows: (a) All new developments shall provide sidewalks in conformance with the City's streets cross-section standards, and applicable policies for designated urban and rural areas. (b) The City shall actively pursue funding for the infill of sidewalks in developed areas. The highest priority shall be to provide sidewalks on designated school routes.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.100 of the Municipal Code.	Transportation
5.9.2	Walkways shall be designed to minimize conflicts between vehicles and pedestrians.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.100 of the Municipal Code.	Transportation
5.9.3	Where appropriate, provide amenities such as, but not limited to, enhanced paving, seating, and landscaping to enhance the pedestrian experience.	This is an on-going policy. New development is reviewed and conditioned to provide pedestrian friendly infrastructure in accordance with 9.11.100 of the Municipal Code.	Transportation
5.9.4	Require the provision of convenient and safe pedestrian access to buildings from the public sidewalk.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.100 of the Municipal Code.	Transportation

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Objective 5.10	Encourage bicycling as an alternative to single occupant vehicle travel for the purpose of reducing fuel consumption, traffic congestion, and air pollution. The Moreno Bikeway Plan is shown in Figure 9-4.	This is an on-going objective. Bicycle Infrastructure is developed in accordance with the adopted Bicycle Master Plan.	Transportation
Policies:			
5.10.1	Bikeways shall link residential neighborhood areas with parks, employment centers, civic and commercial areas, and schools.	This is an on-going policy. Bicycle Infrastructure is developed in accordance with the adopted Bicycle Master Plan.	Transportation
5.10.2	Integrate bikeways, consistent with the Bikeway Plan, with the circulation system and maintain Class II and III bikeways as part of the City's street system.	This is an on-going policy. Bicycle Infrastructure is developed in accordance with the adopted Bicycle Master Plan.	Transportation
5.10.3	Support bicycle safety programs, and active enforcement of laws relating to the safe operation of bicycles on City streets.	This is an on-going policy. Bicycle Infrastructure is developed in accordance with the adopted Bicycle Master Plan.	Transportation
5.10.4	Link local bikeways with existing and planned regional bikeways.	This is an on-going policy. Bicycle Infrastructure is developed in accordance with the adopted Bicycle Master Plan.	Transportation
Objective 5.11	Eliminate obstructions that impede safe movement of vehicles, bicyclists, and pedestrians.	This is an on-going objective. Bicycle Infrastructure is developed in accordance with the adopted Bicycle Master Plan.	Transportation

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Policies:			
5.11.1	Landscaping adjacent to City streets, sidewalks and bikeways shall be designed, installed and maintained so as not to physically or visually impede public use of these facilities. (a) The removal or relocation of mature trees, street trees and landscaping may be necessary to construct safe pedestrian, bicycle and street facilities. (b) New landscaping, especially street trees shall be planted in such a manner to avoid overhang into streets, obstruction of traffic control devices or sight distances, or creation of other safety hazards.	This is an on-going program. Transportation Engineering works closely with Special Districts to ensure existing and proposed landscaping does not interfere with traffic control devices or pose any problems for pedestrians and cyclists.	Transportation
5.11.2	Driveways shall be designed to avoid conflicts with pedestrian and bicycle travel.	This is an on-going policy. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
Objective 5.12	Promote efficient circulation planning for all school sites that will maximize pedestrian safety, and minimize traffic congestion and neighborhood impacts.	This is an on-going objective. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
Policies:			
5.12.1	Coordinate with school districts to identify suggested pedestrian routes within existing and new subdivisions for school children to walk to and from schools and/or bus stops.	This is an on-going policy. The city has a robust Safe Routes to School Program which provides for designated walking routes, and school age pedestrian education / encouragement outreach efforts.	Transportation

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9.5.3 Circulation Element Programs			
Programs:			Transportation
5-1	Periodically review current traffic volumes, traffic collision data, and the pattern of urban development to coordinate, program, and as necessary revise the planning and prioritization of road improvements.	This is an on-going program. It is implemented in accordance with Title 12 of the Municipal Code.	Transportation
5-2	Periodically, reassess the goals, objectives and policies statements of the Circulation Element and propose amendments, as necessary.	This is an on-going program. **A comprehensive review of the Circulation Element will be performed with the next update of the General Plan.**	Transportation
5-3	Develop a comprehensive strategy to ensure full funding of the circulation system. The strategy will include the DIF, TUMF, and other funding sources that may be available to the City. In addition, the creation of benefit assessment districts, and road and bridge fee districts may be considered where appropriate.	This is an on-going policy. It is implemented in accordance with Title 3 of the Municipal Code.	Transportation
5-4	Develop a multi-year transportation infrastructure improvement program that, to the extent feasible, phases the construction of new projects in advance of new development.	This is a bi-annual City Capital Improvement Plan effort. It is implemented in accordance with the City's bi-annual budget process.	Transportation

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5-5	The above referenced program will prioritize circulation improvement projects to be funded from DIF, TUMF and other sources. Prioritization to consider the following factors: (a) Traffic safety; (b) Congestion relief; (c) Access to new development; (d) Equitable benefit.	This is a bi-annual City Capital Improvement Plan effort. It is implemented in accordance with the City's bi-annual budget process.	Transportation

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5-6	Conduct studies of specified arterial segments to determine if any additional improvements will be needed to maintain an acceptable LOS at General Plan build-out. Generally, these segments will be studied as new developments are proposed in their vicinity. Measures will be identified that are consistent with the Circulation Element designation of these roadway segments, such as additional turn lanes at intersections, signal optimization by coordination and enhanced phasing, and travel demand management measures. The study of specified arterial segments will be required to identify measures to maintain an acceptable LOS at General Plan build-out for at least one of the reasons discussed below: (a) Segments will need improvement, but their ultimate volumes slightly exceed design capabilities. (b) Segments will need improvements but require inter-jurisdictional coordination. (c) Segments would require significant encroachment on existing adjacent development if built-out to their Circulation Element designations.	This is an on-going program. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code. The Circulation Element will undergo an extensive analysis with the next update of the General Plan.	Transportation

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
5-7	Establish traffic study guidelines to deal with development projects in a consistent manner. The traffic study guidelines shall include criteria for projects that propose changes it the approved General Plan land uses.	This is an on-going program. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code. T**raffic study guidelines will be modified with the next update of the General Plan to ensure compliance with SB 743.**	Transportation
5-8	Develop access guidelines for arterials with commercial frontage to facilitate access to development and preservation of safe flow of traffic. A component of guidelines shall address shared access.	This is an on-going program. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5-9	Collaborate with all adjacent jurisdictions to implement and integrate right-of-way requirements and improvement standards for General Plan roads that cross-jurisdictional boundary.	This is an on-going program. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation

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5-10	Support regional projects that improve access to Moreno Valley. Examples of specific ongoing projects that should be supported include: (a) CETAP Cajalco alignment and extension to State Route 241 in Orange County; (b) CETAP Moreno Valley to San Bernardino alternative alignments including Reche Canyon Road / Reche Vista Road alignment and the Pigeon Pass Road to Pepper Avenue alignment; (c) TUMF Backbone Network projects to widen Alessandro Boulevard and Van Buren Boulevard; (d) Measure A projects to widen SR-60 through the Badlands, widen Interstate 215 (I-215) from Riverside interchange to Interstate 10, and extension of San Jacinto commuter rail line; (e) Construction of commuter rail stations in Highgrove, and at the intersection of Alessandro at I-215; (f) Construction of HOV ramp connector from westbound SR-60 to south bound I-215; (g) Widen SR-60/I-215 from Moreno Valley interchange to Riverside interchange.	This is an on-going program. The City has designated certain Public Works staff to represent Moreno Valley interests at various Technical Advisory meetings.	Transportation
5-11	Work with RCTC, Caltrans, County of Riverside, adjacent jurisdictions and other affected agencies to plan and develop a multi-modal transportation system.	This is an on-going program. The City works closely with regional partners in the development of a circulation system that supports all modes of transportation.	Transportation

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5-12	Coordinate with Caltrans to redesign and reconstruct the SR-60 interchanges with Day Street, Perris Boulevard, Nason Street, Moreno Beach Drive, Redlands Boulevard, Theodore Street and Gilman Springs Road.	This is completed in concert with the bi-annual City Capital Improvement Plan effort. It is implemented in accordance with the City's bi-annual budget process and Riverside County's bi-annual Federal Transportation Improvement Plan (FTIP) process. Nason Street interchange is complete	Transportation
5-13	Implement Transportation demand management (TDM) strategies that reduce congestion in the peak travel hours. Examples include carpooling, telecommuting, and flexible work hours.	This is an on-going program. It is implemented in accordance with Chapter 9.11.080 of the Municipal Code.	Transportation
5-14	Implement programs in support of the efforts of Riverside Transit Agency toward the expansion of the existing bus system within the City and the provision of future public transportation consistent with the Riverside County Transit Plan.	This is an on-going program. The City works closely with Riverside Transit Agency (RTA) in the implementation of recommended improvements developed in the RTA Comprehensive Operational Analysis (COA).	Transportation
5-15	Work with Riverside County Transportation Commission and Riverside Transit Agency to implement the Transit Oasis system.	This program is out of date. The City worked with RTA when they developed their Comprehensive Operational Analysis which is their long range planning document.	Transportation
5-16	Implement programs that mitigate on-street hazards for bicyclists.	This is an on-going program. Bicycle Infrastructure is developed in accordance with the adopted Bicycle Master Plan.	Transportation
5-17	Pursue regional, state and federal grant opportunities to fund design and construction of the City bikeway system.	This is an on-going program. Bicycle Infrastructure funding opportunities are identified in the adopted Bicycle Master Plan.	Transportation

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5-18	Pursue grant funding that supports traffic safety at and in the vicinity of school facilities.	This is an on-going program. The City aggressively pursues all traffic safety related grant funding.	Transportation

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5-19	Work with school districts and private schools to identify school site locations and designs that will minimize traffic impacts and promote traffic safety.	This is an on-going program. The city has a robust Safe Routes to School Program which provides for designated walking routes, and school age pedestrian education / encouragement outreach efforts.	Transportation
5-20	Work with school districts and private schools to identify suggested school routes and drop-off/pick-up plans for cars and buses.	This is an on-going program. The city has a robust Safe Routes to School Program which provides for designated walking routes, and school age pedestrian education / encouragement outreach efforts.	Transportation
5-21	Work with school districts and private schools to develop and promote traffic safety education programs.	This is an on-going program. The city has a robust Safe Routes to School Program which provides for designated walking routes, and school age pedestrian education / encouragement outreach efforts.	Transportation
The City Structure Safety Element Goals, Objectives, Policies, and Programs			
9.6 Safety Element Goals, Objectives, Policies, and Programs			
9.6.1 Safety Element Goals			

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Goal 6.1	To achieve acceptable levels of protection from natural and man-made hazards to life, health, and property	1. The City of Moreno Valley has a robust, pro-active emergency management program that incorporates all elements of NIMS. 2. The City contracts with Cal-Fire for fire protection and emergency services. 3. the City's fire prevention and building safety divisions adopt and enforce the latest codes pertaining to structural, building construction and fire safety in the built environment.	Fire / Police / Building / Planning
Goal 6.2	To have emergency services which are adequate to meet minor emergency and major catastrophic situations.	1.The City contracts with Cal-Fire for fire protection and emergency services. The city has seven fire stations and access to a full complement of emergency services to respond to fires, medical emergencies, extrications, urban search and rescue, wild land fires, and swift water rescues. 2.Building and Safety Inspectors are trained through Cal OES and certified for the State of California in the Safety Assessment Program, for emergency assessment of all buildings and properties. 3. PD: The police department is almost fully staffed, and fully prepared to provide adequate services to meet emergency and catastrophic incident needs.	Fire / Police / Building

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9.6.2 Safety Element Objectives and Goals			
Objective 6.1			
	Minimize the potential for loss of life and protect residents, workers, and visitors to the City from physical injury and property damage due to seismic ground shaking and secondary effects.	All residential and commercial buildings and structures are built to the current 2016 California Building Codes part 1 &2, volume 1&2 for all seismic events.	Fire / Police / Building / Planning
Policies:			
6.1.1	Reduce fault rupture and liquefaction hazards through the identification and recognition of potentially hazardous conditions and areas as they relate to the San Jacinto fault zone and the high and very high liquefaction hazard zones. During the review of future development projects, the City shall require geologic studies and mitigation for fault rupture hazards in accordance with the Alquist-Priolo Special Study Zones Act. Additionally, future geotechnical studies shall contain calculations for seismic settlement on all alluvial sites identified as having high or very high liquefaction potential. Should the calculations show a potential for liquefaction, appropriate mitigation shall be identified and implemented.	1. All residential and commercial buildings and structures are built to the current 2016 California Building Codes part 1 &2, volume 1&2 for all seismic events . **Fire:** This is really a Building and Land Development thing. Fire should be removed.	Fire / Police / Building / Planning

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6.1.2	Require all new developments, existing critical and essential facilities and structures to comply with the most recent Uniform Building Code seismic design standards.	All residential and commercial buildings and structures are built to the current 2016 California Building Codes part 1 &2, volume 1&2 for all seismic events . **Fire:** The City's building safety division adopts and enforces the latest California Building Code pertaining to structural and seismic safety in the built environment. This is an ongoing goal. See MVMC 8.20.	Fire / Police / Building
Objective 6.2	Minimize the potential for loss of life and protect residents, workers, and visitors to the City from physical injury and property damage, and to minimize nuisances due to flooding.	Currently being done consistent with Municipal Code capture 8.12 as well as Federal Emergency Management Agency (FEMA) requirements.	Land Development

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Policies:			
6.2.1	Permit only that development in 100-year floodplain that represents an acceptable use of the land in relation to the hazards involved and the costs of providing flood control facilities. Locate critical facilities, such as hospitals, fire stations, police stations, public administration buildings, and schools outside of flood hazard areas.	This item is currently applied consistently with Municipal Code Chapter 8.12 as well as Federal Emergency Management Agency (FEMA) requirements.	Land Development
6.2.2	Storm drains and catch basins owned and operated by the City shall be inspected, cleaned and maintained pursuant to an approved clean out schedule.	M&O maintains storm drains compliant with NPDES requirements consistent with Muni Code Chapter 8.10.	Land Development/M&O
6.2.3	Maximize pervious areas in order to reduce increases in downstream runoff resulting from new development.	This is accomplished through the review/implementation of WQMPs and site design features consistent with Municipal Code Chapters 9.16, 9.17, et al.	Land Development /Planning
6.2.4	Design, construct and maintain street and storm drain flood control systems to accommodate 10 year and 100 year storm flows respectively.	Design of Street and storm drain flood control systems are accomplished through design review of improvement plans and studies consistent with Municipal Code Section 9.14.110. **Capital Projects:** This is completed in conjunction with Riverside County Flood Control and Water Conservation District's (RCFC&WCD) cooperation and funding. It is implemented in accordance with RCFC&WCD's annual Zone budget effort.	Land Development/M&O, Capital Projects

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6.2.5	The storm drain system shall conform to Riverside County Flood Control and Water Conservation District master drainage plans and the requirements of the Federal Emergency Management Agency.	This item is accomplished through design review of improvement plans and studies consistent with Muni Code Chapter 8.12. **Capital Projects:** This is completed in conjunction with Riverside County Flood Control and Water Conservation District's (RCFC&WCD) cooperation and funding. It is implemented in accordance with RCFC&WCD's annual Zone budget effort.	Land Development/Capital Projects
Objective 6.3	Provide noise compatible land use relationships by establishing noise standards utilized for design and siting purposes.	Chapter 9.10, Section 9.10.140 "Noise and Sound" of the Municipal Code provides standards for commercial and industrial uses. Additionally, Title 11, Chapter 11.80 "Noise Regulation" provides requirements for construction noise and times construction and grading can occur. This is an ongoing objective for all development.	Planning
Policies:			

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6.3.1	The following uses shall require mitigation to reduce noise exposure where current or future exterior noise levels exceed 20 CNEL above the desired interior noise level: a. Single and multiple family residential buildings shall achieve an interior noise level of 45 CNEL or less. Such buildings shall include sound-insulating windows, walls, roofs and ventilation systems. Sound barriers shall also be installed (e.g. masonry walls or walls with berms) between single-family residences and major roadways. b. New libraries, hospitals and extended medical care facilities, places of worship and office uses shall be insulated to achieve interior noise levels of 50 CNEL or less. c. New schools shall be insulated to achieve interior noise levels of 45 CNEL or less.	Chapter 9.10, Section 9.10.140 "Noise and Sound" of the Municipal Code provides standards for commercial and industrial uses. Additionally, Title 11, Chapter 11.80 "Noise Regulation" provides regulations for construction noise and times construction and grading can occur. If CNEL levels are not met with the uses listed in this policy, mitigation measures for items such as installation shall be provided through the Noise Study and/or environmental document. This is an ongoing	Planning
6.3.2	Discourage residential uses where current or projected exterior noise due to aircraft over flights will exceed 65 CNEL.	Title 11, Chapter 11.80 "Noise Regulation" provides requirements for residential uses noise and Section 9.07.060 of the Municipal Code provides standards consistent with the Air Installation Compatibility Zone (ACUZ) Use Overlay District. Land use and building restrictions are provided when exceeding noise levels or if development/use is not in compliance with ACUZ standards. This is an ongoing policy.	Planning

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6.3.3	Where the future noise environment is likely to exceed 70 CNEL due to overflights from the joint-use airport at March, new buildings containing uses that are not addressed under Policy 6.3.1 shall require insulation to achieve interior noise levels recommended in the March Air Reserve Base Air Installation Compatible Use Zone Report.	Section 9.07.060, referring to the Air Installation Compatibility Zone (ACUZ) Use Overlay District, provides land use and building restrictions when exceeding noise levels or not in compliance with ACUZ standards. This is an ongoing policy.	Planning
6.3.4	Encourage residential development heavily impacted by aircraft over flight noise, to transition to uses that are more noise compatible.	Section 9.07.060 as well as ACUZ and/or standards required by the Airport Land Use Commission encourage non-compatible land uses to transition to more compatible uses.	Planning
6.3.5	Enforce the California Administrative Code, Title 24 noise insulation standards for new multi-family housing developments, motels and hotels.	Title 24 noise insulation standards for both new multi-family housing developments and hotels/motels are continually enforced through the California Administrative Code. This is an ongoing policy.	Planning
6.3.6	Building shall be limited in areas of sensitive receptors.	Section 9.07.060 as well as ACUZ and/or Airport Land Use Commission regulations restricts or limits building within areas of sensitive receptors.	Planning

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Objective 6.4	Review noise issues during the planning process and require noise attenuation measures to minimize acoustic impacts to existing and future surrounding land uses.	Potential Noise issues to surrounding land uses are reviewed through the project design review stage at the Project Review Staff Committee and through the California Environmental Quality Act (CEQA) standards. Mitigation measures for noise shall be provided in environmental documents to limit noise impacts. This is an ongoing City objective.	Planning
Policies:			
6.4.1	Site, landscape and architectural design features shall be encouraged to mitigate noise impacts for new developments, with a preference for noise barriers that avoid freeway sound barrier walls.	Specific design features are incorporated into projects during design review to minimize noise impacts. This could include site design features such as the placement of loading areas away from residential sensitive receptors, dense landscape and decorative walls. This is an ongoing policy.	Planning
Objective 6.5	Minimize noise impacts from significant noise generators such as, but not limited to, motor vehicles, trains, aircraft, commercial, industrial, construction, and other activities.	Chapter 9.10, Section 9.10.120 "Performance Standards" of the Municipal Code requires all mechanical and electrical equipment associated with such items as vehicles, land use or construction etc. to screen and minimize potential noise in a manner that it does not disturb adjacent uses and activities. (Ongoing)	Planning
Policies:			

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
6.5.1	New commercial and industrial activities (including the placement of mechanical equipment) shall be evaluated and designed to mitigate noise impacts on adjacent uses	Chapter 9.16 "Design Guidelines", Sections 9.16.150 and 9.16.160 and Chapter 9.08, Section 9.08.150 of the Municipal Code provides general screening and buffer requirements for non-residential properties to other sensitive properties. This would include such items as trash areas, loading areas, ground-mounted equipment, roof mounted equipment etc. Chapter 9.10, Section 9.10.120 "performance Standards" of the Municipal Code requires all mechanical and electrical equipment associated with such items as vehicles, land use or construction etc. to screen and minimize potential noise in a manner that it does not disturb adjacent uses and activities. This is an ongoing policy.	Planning
6.5.2	Construction activities shall be operated in a manner that limits noise impacts on surrounding uses.	Chapter 9.10, Section 9.10.140 "Noise and Sound" of the Municipal Code provides standards for commercial and industrial uses. Additionally, Title 11, Chapter 11.80 "Noise Regulation" provides regulations for construction noise and times construction and grading can occur. This is an ongoing policy.	Planning

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Objective 6.6	Promote land use patterns that reduce daily automotive trips and reduce trip distance for work, shopping, school, and recreation.	The General Plan Land Use Map and the City's zoning map have provided land uses and patterns that reduce vehicle trips and distances for essential services. The City's Climate Action Plan also has provided strategies to reduce vehicle miles traveled. This is an ongoing objective.	Planning
Policies:			
6.6.1	Provide sites for new neighborhood commercial facilities within close proximity to the residential areas they serve.	The General Plan Land Use Map and the City's zoning map have provided land use designations and patterns that provide opportunities for residential areas to easily access neighborhood commercial areas (Ongoing)	Planning
6.6.2	Provide multi-family residential development sites in close proximity to neighborhood commercial centers in order to encourage pedestrian instead of vehicular travel.	Zoning Maps provided in the Municipal Code are consistent with the General Plan land use maps and have provided multiple-family zoning near or adjacent to where neighborhood commercial zoned property is located. This is an ongoing policy.	Planning

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6.6.3	Locate neighborhood parks in close proximity to the appropriate concentration of residents in order to encourage pedestrian and bicycle travel to local recreation areas.	Moreno Valley strives to locate neighborhood parks in close proximity to the development the park will serve. Examples of these are: Victoriano Park/School, El Potrero Park/School, Morrison Park, Westbluff Park, and Ridgecrest Park. Pedestrian and bicycle travel to the parks are encourage, as well as shopping areas around parks. On-going	Parks
Objective 6.7	Reduce mobile and stationary source air pollutant emissions.	Mobile and stationary source air pollution emissions are reviewed for most projects. For larger industrial projects, it is a primary objective to reduce air pollution sources. Air Quality is reviewed through the California Environmental Quality Act Guidelines and mitigation measures to reduce source are pollution emissions are a frequent occurrence. This is an ongoing City objective	Planning
Policies:			
6.7.1	Cooperate with regional efforts to establish and implement regional air quality strategies and tactics.	The City complies with standards within the California Air Resources Board (CARB) South Coast Air Quality Management District SCAQMD) requirements and rules (i.e. Rule 403) regarding emissions and air quality strategies. Checks and balances are reviewed thoroughly in the appropriate project environmental document. This is an ongoing policy.	Planning

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6.7.2	Encourage the financing and construction of park-and-ride facilities.	This is an on-going policy. The City works closely with Caltrans and RCTC in the development of Park and Ride Facilities.	Transportation
6.7.3	Encourage express transit service from Moreno Valley to the greater metropolitan areas of Riverside, San Bernardino, Orange and Los Angeles Counties.	This is an on-going policy. The City works closely with Riverside Transit Agency (RTA) in the implementation of recommended improvements developed in the RTA Comprehensive Operational Analysis (COA).	Transportation
6.7.4	Locate heavy industrial and extraction facilities away from residential areas and sensitive receptors.	Chapter 9.05 provides Good Neighbor standards for the location of heavy industrial uses away from residential uses. Examples of established buffer areas in large industrial projects are within the Industrial Area Plan (SP 208), which separates industrial uses from residential uses.	Planning
6.7.5	Require grading activities to comply with South Coast Air Quality Management District's Rule 403 regarding the control of fugitive dust.	All grading activities comply with the South Coast Air Quality Management Districts Rule 403. Conditions of approval on projects confirm control of fugitive dust by such measures as continual watering of the site and restriction of grading during higher wind events. This is an ongoing policy.	Planning

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6.7.6	Require building construction to comply with the energy conservation requirements of Title 24 of the California Administrative Code.	All residential and commercial buildings and structures are built to the current 2016 California Energy and Green Codes for all new and remodeled and tenant improvement project.	Building
Objective 6.8	As feasible given budget constraints, strive to maintain a police force with a ratio of one sworn officer for each 1,000 residents.	Fire should be removed from this item PD: The county continues to fill open positions and the new contract allows for two additional sworn officers.	Police / Fire
Policies:			
6.8.1	Explore the most effective and economical means of providing responsive and adequate law enforcement protection in the future.	Fire should be removed from this item PD: Senior leadership continues to work toward improving community policing programs, reducing crime, improving service and reducing costs.	Police / Fire
Objective 6.9	Reduce the risk and fear of crime through physical planning strategies that maximize surveillance opportunities and minimize opportunities for crime found in the present and future built environment, and by creating and maintaining a high level of community awareness and support of crime prevention.	Fire should be removed from this item PD: Senior leadership continues to work toward improving community policing programs, reducing crime, improving service delivery, and improving the perception of safety in the city. New patrol tactics, team deployments, social media platforms, and crime analysis strategies are being used to maximize our efforts.	Police / Fire
Policies:			

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6.9.1	Promote the establishment of neighborhood and business watch programs to encourage community participation in the patrol of neighborhood areas, and increased awareness of any suspicious activity.	Fire should be removed from this item PD: Our Community Services Unit and Problem Oriented Policing Teams continues to work with neighborhood watch programs, businesses, and apartment managers to encourage community participation in the patrol of neighborhood areas, and increased awareness of any suspicious activity. A social media component is in the works to assist with these programs as well.	Police / Fire
6.9.2	Require well-lighted entrances, walkways and parking lots, street lighting in all commercial, industrial areas and multiple-family residential areas to facilitate nighttime surveillance and discourage crime.	Fire should be removed from this item PD: Crime Prevention through Environmental Design (CPTED) Concepts are provided to businesses and homeowners via an inspection process handled by the Department's Community Services Unit.	Police / Fire
6.9.3	Incorporate "defensible space" concepts into the design of dwellings and nonresidential structures, including, but not limited to configuration of lots, buildings, fences, walls and other features that facilitate surveillance and reinforce a sense of territorial control.	Fire should be removed from this item PD: Crime Prevention through Environmental Design (CPTED) Concepts are provided to businesses and homeowners via an inspection process handled by the Department's Community Services Unit.	Police / Fire /Planning

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Objective 6.10	Protect life and property from the potential short-term and long-term deleterious effects of the necessary transportation, use, storage treatment and disposal and hazardous materials and waste within the City of Moreno Valley.	The Fire Prevention Division strives to inspect business occupancies who store, handle, use hazardous materials on an annual basis. The latest California Fire Code regulations pertaining to hazardous materials processes are enforced.	Fire
Policies:			
6.10.1	Require all land use applications and approvals to be consistent with the siting criteria and other applicable provisions of the adopted Hazardous Waste Management Plan, which is also incorporated into and as part of the General Plan.	The Hazardous Waste Management Plan.	Waste Coordinator
6.10.2	Manage the generation, collection, storage, processing, treatment, transport and disposal of hazardous waste in accordance with provisions of the City of Moreno Valley's adopted Hazardous Waste Management Plan, which is also incorporated into and as part of the General Plan.	The Hazardous Waste Management Plan. Host hazardous waste collection events; educate residents how to properly handle and dispose of hazardous waste; support Riverside County's efforts to provide residents and businesses with opportunities to dispose of hazardous waste properly. Work with Federal, State and County agencies to identify and regulate the use and disposal of toxic waste.	Waste Coordinator

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Objective 6.11	Maintain an integrated emergency management program that is properly staffed, trained, and equipped for receiving emergency calls, providing initial response, providing for key support to major incidents.	1. The City of Moreno Valley has a robust, pro-active emergency management program that incorporates all elements of NIMS. 2. The City contracts with Cal-Fire for fire protection and emergency services.	Fire
Policies:			
6.11.1	Respond to any disaster situation in the City to provide necessary initial response and providing for key support to major incidents.	1. The City of Moreno Valley has a robust, pro-active emergency management program that incorporates all elements of NIMS. 2. The City contracts with Cal-Fire for fire protection and emergency services.	Emergency Operations / Fire
6.11.2	Provide emergency first aid treatment when necessary.	1. The City of Moreno Valley has a robust, pro-active emergency management program that incorporates all elements of NIMS. 2. The City contracts with Cal-Fire for fire protection and emergency services.	Emergency Operations / Fire
6.11.3	Support the maintenance of a trauma center within the City.	The City contracts with Cal-Fire for fire protection and emergency services.	Emergency Operations / Fire
6.11.4	Aggressively attack uncontrolled fires and hold losses to a minimum.	The City contracts with Cal-Fire for fire protection and emergency services.	Fire

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6.11.5	Minimize uncontrolled fires through support of weed abatement programs.	The Fire Prevention Division has a pro-active hazard abatement program in which all vacant parcels are inspected on an annual basis to ensure proper maintenance is being conducted by property owners.	Fire
Objective 6.12			
	Coordinate with Federal, State and County agencies and neighboring communities in developing a regional system to respond to emergencies and major catastrophes.	1. The City of Moreno Valley has a robust, pro-active emergency management program that incorporates all elements of NIMS. 2. The City contracts with Cal-Fire for fire protection and emergency services.	Emergency Operations / Fire
Policies:			
6.12.1	Support mutual aid agreements and communication links with the County of Riverside and other local participating jurisdictions.	1. The City of Moreno Valley has a robust, pro-active emergency management program that incorporates all elements of NIMS. 2. The City contracts with Cal-Fire for fire protection and emergency services.	Emergency Operations / Fire
Objective 6.13	Maintain fire prevention, fire-related law enforcement, and public education and information programs to prevent fires.	The Fire Prevention division conducts inspections on multi-family dwellings, schools, hospitals, and business occupancies and provides education to residents and business owners regarding fire code violations and other potential safety problems.	Emergency Operations / Fire
Policies:			

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6.13.1	Provide fire safety education to residents of appropriate age.	The Fire Prevention division conducts inspections on multi-family dwellings, schools, hospitals, and business occupancies and provides education to residents and business owners regarding fire code violations and other potential safety problems. The fire department participates in a number of public events throughout the year providing public education to our residents.	Fire
Objective 6.14	Maintain the capacity to respond rapidly to emergency situations.	1. The City of Moreno Valley has a robust, pro-active emergency management program that incorporates all elements of NIMS. 2. The City contracts with Cal-Fire for fire protection and emergency services.	Fire
Policies:			
6.14.1	Locate fire stations in accordance with the Fire Station Master Plan as shown in Figure 6-1. The exact location of each fire station may be modified based on availability of land and other factors.	Since the general plan was written, Station 58 was added off Moreno Beach and Auto Mall Dr. and Station 99 was added at Morrison and Cottonwood.	Fire
6.14.2	Relate the timing of fire station construction to the rise of service demand in surrounding areas.	1. Demand for service is continually monitored by Cal-Fire and recommendations are brought to the city.	Fire

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Objective 6.15	Ensure that property in or adjacent to wildland areas is reasonably protected from wildland fire hazard, consistent with the maintenance of a viable natural ecology.	1. The Fire Prevention Division has a pro-active hazard abatement program in which all vacant parcels are inspected on an annual basis to ensure proper maintenance is being conducted by property owners. 2. During development, the Fire Prevention division ensures that all Wildland Urban Interface developments meet the construction requirements of the California Fire and Building Codes.	Fire
Policies:			
6.15.1	Encourage programs to minimize the fire hazard, including but not limited to the prevention of fuel build-up where wildland areas are adjacent to urban development.	1. The Fire Prevention Division has a pro-active hazard abatement program in which all vacant parcels are inspected on an annual basis to ensure proper maintenance is being conducted by property owners. 2. During development, the Fire Prevention division ensures that all Wildland Urban Interface developments meet the construction requirements of the California Fire and Building Codes.	Fire

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6.15.2	Tailor fire prevention measures implemented in wildland areas to both the aesthetic and functional needs of the natural environment.	1. The Fire Prevention Division has a pro-active hazard abatement program in which all vacant parcels are inspected on an annual basis to ensure proper maintenance is being conducted by property owners. 2. During development, the Fire Prevention division ensures that all Wildland Urban Interface developments meet the construction requirements of the California Fire and Building Codes.	Fire
Objective 6.16	Ensure that uses within urbanized areas are planned and designed consistent with accepted safety.	1. The Fire Prevention Division has a pro-active hazard abatement program in which all vacant parcels are inspected on an annual basis to ensure proper maintenance is being conducted by property owners. 2. During development, the Fire Prevention division ensures that all Wildland Urban Interface developments meet the construction requirements of the California Fire and Building Codes.	Fire
Policies:			
6.16.1	Ensure that ordinances, resolutions and policies relating to urban development are consistent with the requirements of acceptable fire safety, including requirements for smoke detectors, emergency water supply and automatic fire sprinkler systems.	1. The Fire Prevention division enforces the latest state adopted California Fire Code to ensure appropriate fire protection systems are installed. 2. Annual inspections are conducted as resources permit to ensure fire protection systems are properly maintained.	Fire

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6.16.2	Encourage the systematic mitigation of existing fire hazards related to land urban development or patterns of urban development as they are identified and as resources permit.	The Fire Prevention division conducts annual inspections as resources permit to ensure fire protection systems are properly maintained, egress and ingress are provided for, and that other hazards are mitigated as required.	Fire
6.16.3	Ensure that adequate emergency ingress and egress is provided for each development.	1. The Fire Prevention division reviews all new developments for sufficient ingress, egress, and water supply. 2. The Fire Prevention division conducts annual inspections as resources permit to ensure fire protection systems are properly maintained, egress and ingress are provided for, and that other hazards are mitigated as required.	Fire
6.16.4	Within the safety zones (e.g. Air Crash Hazard Zones and Clear Zones) shown in Figure 6-5, residential uses shall not be permitted, and business uses shall be restricted to low intensity uses as defined in the March Air Reserve Base Air Installation Compatible Use Zone Report, as amended from time to time.	Residential uses are generally not permitted and businesses shall be restricted to low intensity uses within air crash hazard and clear zones. This use is monitored and regulated by March Air Reserve Base Air Installation Compatible Use Zones and the Airport Land Use Commission (ALUC), This is an ongoing policy.	Planning
Objective 6.17	Provide non-emergency public services provided that such demands do not interfere with fire protection and other emergency services.	1. The City of Moreno Valley has a robust, pro-active emergency management program that incorporates all elements of NIMS.	Fire
9.6.3 Safety Element Programs			

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Programs:			
6-1	Request that public utility companies inspect their facilities and distribution networks to determine the potential impact of earthquake damage.	**MVU** routinely inspects all facilities and performs any necessary repairs. Fire: 1. The City of Moreno Valley has a robust, pro-active emergency management program that works closely with local hospitals, utilities and other critical infrastructure.	Fire/MVU
6-2	Evaluate historic buildings relative to the need for mitigation of geologic hazards, while weighing their historical value against the potential hazard of their collapse.	All residential and commercial buildings and structures are built to the current 2016 California Building Codes for all renovations to historic buildings	Building
6-3	Reevaluate designated truck routes in terms of noise impact on existing land uses to determine if those established routes and the hours of their use should be adjusted to minimize exposure to truck noise.	This is an on-going program. It is accomplished through provisions of Title 12 of the Municipal Code. A comprehensive review of the designated truck routes will be performed with the General Plan update.	Transportation
6-4	Review existing ordinances to ensure that building and site design standards specifically address crime prevention utilizing defensible space criteria. Incorporate security standards into the Municipal Code.	No action has been taken in this area; however, the Department's Community Services Unit can begin working on this immediately.	Police/Planning

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6-5	Seek state and federal grants to offset any required additions in law enforcement staffing and/or equipment.	Senior police leadership is constantly on the lookout out for grant opportunities. Similarly, the Riverside County Sheriff's Department assists in this effort by applying for grants on the police department's behalf. All grant awards are sent to the city for approval before acceptance. The police department is currently utilizing serval grants to fund equipment purchases and staff positions.	Police
6-6	Update the Fire Protection Master Plan as conditions warrant.	1. Demand for service is continually monitored by Cal-Fire and recommendations are brought to the city.	Fire
6-7	Establish regulations for development along the urban-wildland interface.	1. The Fire Prevention Division has a pro-active hazard abatement program in which all vacant parcels are inspected on an annual basis to ensure proper maintenance is being conducted by property owners. 2. During development, the Fire Prevention division ensures that all Wildland Urban Interface developments meet the construction requirements of the California Fire and Building Codes.	Fire

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6-8	Establish criteria for the design, maintenance, modification and replacement of fire facilities.	1. Demand for service is continually monitored by Cal-Fire and recommendations are brought to the city.	Fire
6-9	Establish criteria for weed abatement programs.	1. The Fire Prevention Division has a pro-active hazard abatement program in which all vacant parcels are inspected on an annual basis to ensure proper maintenance is being conducted by property owners. 2. During development, the Fire Prevention division ensures that all Wildland Urban Interface developments meet the construction requirements of the California Fire and Building Codes.	Fire
The City Structure Conservation Element Goals, Objectives, Policies, and Programs			
9.7 Conservation Element Goals, Objectives, Policies, and Programs			
9.7.1 Conservation Element Goals			
Goal 7.1	To achieve the wise use of natural resources within the City of Moreno Valley, its sphere of influence and planning area.	The City continues to adhere to Goal 7.1, which includes conservation of natural resources within the city limits and is sphere of influence.	Planning
9.7.2 Conservation Element Objectives and Goals			
Objective 7.1	Minimize erosion problems resulting from development activities.	Accomplished through grading and erosion control plans consistent with Municipal Code Chapter 8.21.	Land Development
Policies:			

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
7.1.1	Require that grading plans include appropriate and feasible measures to minimize erosion, sedimentation, wind erosion and fugitive dust.	Grading plans are reviewed for these aspects consistent with Municipal Code Chapter 8.21.	Land Development
7.1.2	Circulation patterns within newly developing portions of Moreno Valley, particularly in hillside areas, should follow natural contours to minimize grading.	Circulation patterns are accomplished through review of site plans and tract maps consistent with Municipal Code Chapters 8.21 and 9.16	Land Development
Objective 7.2	Maintain surface water quality and the supply and quality of groundwater.	Surface water quality is achieved through the review and implementation of WQMPs consistent with Municipal Code Chapter 8.10.	Land Development
Policies:			
7.2.1	New development may use individual wells only where an adequate supply of good quality groundwater is available.	Well installation is governed by Riverside County Department of Environmental Health.	Land Development
7.2.2	The City shall comply with the provisions of its permit(s) issued by the Regional Water Quality Control Board for the protection of water quality pursuant to the National Pollutant Discharge Elimination System.	This is an on-going policy, consistent with Municipal Code Chapter 8.10.	Land Development
7.2.3	In concert with the water purveyor identify aquifer recharge areas and establish regulations to protect recharge areas and regulate new individual wells.	To date, this item is not required. Wells governed by Riverside County Department of Environmental Health. **This policy may need to be reviewed further with the next comprehensive General Plan update.**	Land Development

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Objective 7.3	Minimize the consumption of water through a combination of water conservation and reuse.	To date, this item is not required. Wells are governed by Riverside County Department of Environmental Health. **This policy may need to be reviewed further with the next comprehensive General Plan update.**	Land Development/Planning/Special Districts
Policies:			
7.3.1	Require water conserving landscape and irrigation systems through development review. Minimize the use of lawn within private developments, and within parkway areas. The use of mulch and native and drought tolerant landscaping shall be encouraged.	The City's Water Conservation Landscape Ordinance as approved in 2009 requires water conservation landscape and irrigation systems in all development review. City uses Public Works Department Landscape Design Guidelines, Planning Division Landscape Standards and Municipal Code Chapter 17, Title 9 when reviewing and approving landscape plans for public landscape. In 2016, non-functional turf (irrigated with potable water) was removed in all publically maintained medians and parkway and replaced with drought tolerant landscaping and water efficient irrigation. This is an ongoing policy.	Planning
7.3.2	Encourage the use of reclaimed wastewater, stored rainwater, or other legally acceptable non-potable water supply for irrigation.	Land Development contributes to reuse through review/implementation of WQMPs consistent with Municipal Code Chapter 8.10.	Land Development/Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Objective 7.4	Maintain, protect, and preserve biologically significant habitats where practical, including the San Jacinto Wildlife Area, riparian areas, habitats of rare and endangered species, and other areas of natural significance.	The Planning Division, through the provisions of the Western Riverside County Multi-species Habitat Conservation Plan. assures that biologically significant habitats are protected and preserved during site design review at the Project Review Staff Committee. This is an ongoing objective.	Planning
Policies:			
7.4.1	Require all development, including roads, proposed adjacent to riparian and other biologically sensitive habitats to provide adequate buffers to mitigate impacts to such areas.	Development or public rights of way proposed adjacent to significant habitats are protected and preserved during site design review and review at the Project Review Staff Committee. This is an ongoing policy.	Planning
7.4.2	Limit the removal of natural vegetation in hillside areas when retaining natural habitat does not pose threats to public safety.	1. The Fire Prevention Division has a pro-active hazard abatement program in which all vacant parcels are inspected on an annual basis to ensure proper maintenance is being conducted by property owners.	Fire
7.4.3	Preserve natural drainage courses in their natural state and the natural hydrology, unless the protection of life and property necessitate improvement as concrete channels.	Accomplished through site design consistent with Municipal Code Chapters 8.12, 8.21, and 9.16.	Planning / Land Development

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
7.4.4	Incorporate significant rock formations into the design of hillside developments.	Natural rock formations are incorporated into design of hillside residential developments through Municipal Code standards included in Section 9.03.040 "Residential Site Development Standards" and Section 9.16.190 "Natural Open Space Standards". Section 9.03.060 "Planned Unit Developments" also incorporates the conservation of Cultural and Natural Resources. This is an ongoing policy.	Planning
7.4.5	The City shall fulfill its obligations set forth within any agreement(s) and permit(s) that the City may enter into for the purpose of implementing the Western Riverside County Multi-species Habitat Conservation Plan.	This goal is satisfied through the Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP) approved on June 17, 2003, The MSHCP Plan was incorporated by the City of Moreno Valley and the City fulfills its obligations for implementing the Plan regarding agreements, permits, review of cell groups etc. This is an ongoing policy.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Objective 7.5	Encourage efficient use of energy resources.	The City's adopted Climate Action Strategy provides strategies for efficient use of energy resources citywide. MVU regularly forecasts demand for energy and procures enough energy to meet demand. A portion of the energy is from renewable resources, such as wind and solar. This is an ongoing objective.	Planning/MVU

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Policies:			
7.5.1	Encourage building, site design, and landscaping techniques that provide passive heating and cooling to reduce energy demand.	Building, site design and landscaping techniques that provide passive heating and cooling as well as energy reduction are achieved by following the current 2016 California Energy and Green Code for reference. MVU has established Energy Efficiency Programs for residential and commercial customers that provide rebates and incentives for the installation of energy saving projects, including window film and cool roof applications.	Building/Planning /MVU

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
7.5.2	Encourage energy efficient modes of transportation and fixed facilities, including transit, bicycle, equestrian, and pedestrian transportation. Emphasize fuel efficiency in the acquisition and use of City-owned vehicles.	**MVU:** In March 2016, MVU completed the installation of electric vehicle charging stations that are available to the public. Installation of additional electric vehicle charging stations at City Hall will begin in February 2017. **Transportation:** This is an on-going policy. It is accomplished through implementation of the Bicycle Master Plan, continued development of the Safe Routes to School program, and support of the recommendations within RTA's Comprehensive Operational Analysis. Also Public Works uses fuel efficiency as a major factor in the acquisition of City vehicles.	Transportation/MVU
7.5.3	Locate areas planned for commercial, industrial and multiple family density residential development within areas of high transit potential and access.	The General Plan Land Use Map and the City's zoning map have provided land use designations and patterns that provide opportunities for commercial, industrial and multiple-family residential development to locate within areas of high transit potential and access. New plans such as the Nason Corridor and Alessandro Corridor have provided additional opportunities for development near transit corridors. This is an ongoing policy.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
7.5.4	Encourage efficient energy usage in all city public buildings.	Efficient energy usage in all city public buildings is achieved by following the current 2016 California Energy and Green Code for reference. MVU works with Facilities to implement energy efficient measures in MVU-served city facilities. Examples include lighting retrofits at the Conference and Rec Center and the Animal Shelter. This is an ongoing policy.	Building/MVU
7.5.5	Encourage the use of solar power and other renewable energy systems.	The use of solar power and other renewable energy systems is achieved by following the current 2016 California Energy and Green Code and by goals included in the City's Climate Action Plan. MVU has a solar program for residential and commercial customers. To date, MVU customers have installed over 6 MW of solar.	Planning / Building
Objective 7.6	Identify and preserve Moreno Valley's unique historical and archaeological resources for future generations.	The City has identified historical and archeological resources for preservation purposes. This includes review of historic resources through project review under the California Environmental Quality Act (CEQA) and archeological resources through Native American Tribal entity review and general Archeological Studies through CEQA review. This is an ongoing objective of the City.	Planning / Building
Policies:			

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
7.6.1	Historical, cultural and archaeological resources shall be located and preserved, or mitigated consistent with their intrinsic value.	Through environmental review and required technical studies, project conditions of approval and coordination with Native American Tribes,, mitigation measures are provided to conserve cultural resources that are uncovered during excavation and construction act ivies This is an ongoing policy.	Planning
7.6.2	Implement appropriate mitigation measures to conserve cultural resources that are uncovered during excavation and construction activities.	Through environmental review and required technical studies, project conditions of approval and coordination with Native American Tribes, mitigation measures are provided to conserve cultural resources that are uncovered during excavation and construction activities This is an ongoing policy.	Planning
7.6.3	Minimize damage to the integrity of historic structures when they are altered.	Altered structures are reviewed internally with Building and Planning staff and on an individual basis with the Environmental and Historical Preservation Board. This is an ongoing policy.	Planning
7.6.4	Encourage restoration and adaptive reuse of historical buildings worthy of preservation.	Restoration and adaptive reuse to preserve historical buildings are reviewed internally with Building and Planning staff and on an individual basis with the Environmental and Historical Preservation Board. This is an ongoing policy.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
7.6.5	Encourage documentation of historic buildings when such buildings must be demolished.	When historic buildings must be demolished, they are first reviewed by the Environmental and Historical Preservation Board. Any documentation would occur through the Building and Safety Division.	Planning
Objective 7.7	Where practical, preserve significant visual features significant views and vistas.	Review of development projects through Project Staff Review strive to preserve visual features, significant views and vistas. The item is further reviewed through Appendix G, "Aesthetics" and "Cultural Resources" of the California Environmental Quality Act (CEQA Guidelines. This is an ongoing objective.	Planning
Policies:			
7.7.1	Discourage development directly upon a prominent ridgeline.	Section 9.03.040 B "Residential Site Development Standards" of the Municipal Code establishes standards for hillside residential development consistent with the goals, objectives and policies of the General Plan. Allowable development would preserve natural hillsides and ridgelines. **Goals, objectives and policies of hillside residential development will be further evaluated with the next comprehensive General Plan update**.	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
7.7.2	Require new electrical and communication lines to be placed underground.	This item is accomplished through site design consistent with Municipal Code Section 9.14.130.	Land Development
7.7.3	Implement reasonable controls on the size, number and design of signs to minimize degradation of visual quality.	Sign regulations included in Chapter 9.12 "Sign Regulations" provides controls on size, number and design of signs. Sign programs for larger commercial and industrial sites also provide regulations that are consistent with the Municipal Code and General Plan policy.	Planning
7.7.4	Gilman Springs Road, Moreno Beach Drive, and State Route 60 shall be designated as local scenic roads.	Caltrans manages the Scenic Highway Program in accordance with State Scenic Highway Guidelines and Sections 260 through 263 of the Streets and Highways Code. A county highway component was added to the Program in Section 154 of the Streets and Highways Code. Key criteria include memorable landscape, minimal intrusions, local support, and length not less than 1 mile.	Transportation/Planning
7.7.5	Require development along scenic roadways to be visually attractive and to allow for scenic views of the surrounding mountains and Mystic Lake.	Development along scenic roadways and the allowance for scenic views of the surrounding mountains are achieved through environmental review and Appendix N "Aesthetics" of the California Environmental Quality Act Guidelines.	Building/Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
7.7.6	Minimize the visibility of wireless communication facilities by the public. Encourage "stealth" designs and encourage new antennas to be located on existing poles, buildings and other structures.	Chapter 9.09, Section 9.09.040 "Communication facilities, antennas and satellite dishes includes standards to minimize the visibility of wireless communications and encourages stealth designs. Co-location of facilities are encouraged. This is an ongoing policy.	Planning
Objective 7.8	Maintain an adequate system of solid waste collection and disposal to meet existing and future needs.	Maintain an adequate system of solid waste collection and disposal to meet existing and future needs: Franchise agreement is in place, continued update/amendments as existing and future needs change and or emerge.	Waste Coordinator

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Policies:			
7.8.1	Encourage recycling projects by individuals, non-profit organizations, or corporations and local businesses, as well as programs sponsored through government agencies.	Encourage recycling projects by individuals, non-profit organizations, or corporations and local businesses, as well as programs sponsored through government agencies. The City of Moreno Valley actively encourages recycling projects and promotes participation in Keep Moreno Valley Clean and Beautiful (KMVCB); and educates groups regarding recyclable materials guidelines and goals. The City is involved in extensive outreach and education activities with respect to the three R's: reduce, reuse, recycle.	Waste Coordinator
9.7.3 Conservation Element Programs			
Programs:			

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
7-1	Support regional solid waste disposal efforts by the County of Riverside.	**Capital Projects:** The City offers a number of waste reduction, recycling and community clean-up programs. There is a franchise agreement in place with a major solid waste/recycling (AB 939) hauler, for residential (curbside) and commercial (AB 341) materials, that has resulted in the attainment of significant diversion. The City in partnership with Riverside County hosts biannual hazardous and electronic waste collections and community outreach events. The City is implementing AB 1826, requiring businesses to recycle their organic waste. The City has implemented a used motor oil and filters recycling public education program, and promotes Riverside County's free Backyard Composting Workshops, where residents can learn to properly compost green waste.	Waste Coordinator/M&O/Capital Projects
7-2	Advocate for natural drainage channels to the Riverside County Flood Control District, in order to assure the maximum recovery of local water, and to protect riparian habitats and wildlife.	This item is accomplished through site design and coordination with Flood Control consistent with Municipal Code Chapter 8.12.	Land Development /Capital Projects

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
7-3	Maintain a close working relationship with EMWD to ensure that EMWD plans for and is aware of opportunities to use reclaimed water in the City.	A close working relationship is maintained with EMWD on all projects to review reclaimed water opportunities in the City	Land Development/Special Districts
7-4	Provide guidelines for preferred planting schemes and specific species to encourage aesthetically pleasing landscape statements that minimize water use.	Current Landscape Development Guidelines and Specifications in the Municipal Code provide preferred planting schemes and aesthetically pleasing landscape statements that minimize water use and require drought tolerant species. This is an ongoing policy.	Planning
7-5	Develop incentives where appropriate, for the maintenance and sensitive rehabilitation of historic structures and properties.	Although historic structures and properties are reviewed and conserved, specific incentives have not been developed for maintenance and sensitive rehabilitation of historic structures. **This item shall be further reviewed and evaluated in the next comprehensive General Plan update.**	Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
7-6	In areas where archaeological or paleontological resources are known or reasonably expected to exist, based upon the citywide survey conducted by the UCR Archaeological Research Unit, incorporate the recommendations and determinations of that report to reduce potential impacts to levels of insignificance.	Archeological and paleontological resources are reviewed through face to face meetings with Native American Tribes and review of studies that determine where resources lie. One such vehicle to review resources is the studies and reports provided by the UCR Archaeological Research Unit. The City incorporates the recommendations and determinations of these reports into the review of proposed development projects to reduce any noted impacts to levels of insignificance. This is an ongoing policy.	Planning
The City Structure Housing Element Goals, Objectives, Policies, and Programs			
9.8 Housing Element Goals, Objectives, Policies, and Programs			
9.8.1 Housing Element Goals			
Goal 8.1	Improve and maintain decent, sanitary and affordable housing.	**Housing:** Following the dissolution of RDA, there are no currently active programs due to limited or no funding available. The Housing Authority is continuing to monitor previously funded affordable units.	Housing/Planning
Goal 8.2	Improve and maintain decent, sanitary and affordable housing for very-low income households and seniors.	**Housing:** Following the dissolution of RDA, there are no currently active programs due to limited or no funding available. The Housing Authority is continuing to monitor previously funded affordable units.	Housing/Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Goal 8.3	Reduce substandard housing and health and safety violations.	**Housing:** Following the dissolution of RDA, there are no currently active programs due to limited or no funding available. The Housing Authority is continuing to monitor previously funded affordable units.	Housing/Planning
Goal 8.4	Assist in the revitalization of older neighborhoods.	**Housing:** Following the dissolution of RDA, there are no currently active programs due to limited or no funding available.	Housing/Planning
Goal 8.5	Improve and maintain decent and affordable rental housing.	**Housing:** Following the dissolution of RDA, there are no currently active programs due to limited or no funding available. The Housing Authority is continuing to monitor previously funded affordable units.	Housing/Planning
Goal 8.6	Assist very low, low and moderate-income first time buyers to purchase homes.	**Housing:** Following the dissolution of RDA, there are no currently active programs due to limited or no funding available.	Housing/Planning
Goal 8.7	Add to the number of affordable rental units for very low and low-income households.	**Housing:** Following the dissolution of RDA, there are no currently active programs due to limited or no funding available. The Housing Authority is continuing to seek new opportunities to develop new units.	Housing/Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Goal 8.8	Create affordable housing units for senior households.	**Housing:** Following the dissolution of RDA, there are no currently active programs due to limited or no funding available. The Housing Authority is continuing to seek new opportunities to develop new units.	Housing/Planning
9.8.2 Housing Element Objectives and Policies			
Objective 8.1	Rehabilitate a minimum of fifteen single- family homes under the Home Improvement Loan Program (HILP).	From the 2014-2021 Housing Element Update -The Home Improvement Loan Program is on hold pending identification of new funding source. The program was previously funded by Redevelopment Agency. **Housing:** The program has met its goal and is currently no longer active due to funding.	Housing/Planning
Objective 8.2	Rehabilitate a minimum of fifteen single-family homes under the Homeowner Assistance for Minor Rehabilitation loan program (HAMR).	From the 2014-2021 Housing Element Update - The Homeowners Assistance for Minor Rehabilitation (HAMR) program is on hold pending identification of new funding source. The program was previously funded by the Redevelopment Agency. **Housing:** The program has met its goal and is currently no longer active due to funding.	Housing/Planning
Policies:			

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
8.2.1	Rehabilitate single-family homes to correct substandard conditions, improve handicap accessibility, and improve the aesthetics of older neighborhoods, thereby contributing to their preservation and revitalization.	**Housing:** Following the dissolution of RDA, there are no currently active programs due to limited or no funding available. The Housing Authority is continuing to seek new opportunities to contribute to preservation of units.	Housing/Planning
Objective 8.3	Rehabilitate a minimum of ninety mobile homes, for very low-income homeowners, in mobile home parks citywide, under the Mobile Home Grant Program.	From the 2014-2021 Housing Element Update - Policy/Program # 8.4 - Program is due to continue as the City converted to a contract program with Habitat for Humanity starting in FY 2013-14. - Housing may have additional information. **Housing:** Following the dissolution of RDA, there are no currently active programs due to limited or no funding available. Through the City's CDBG funds, there continues to be multiple units addressed each year.	Housing/Planning
Policies:			
8.3.1	Correct substandard conditions in mobile home parks.	Following the dissolution of RDA, there are no currently active programs due to limited or no funding available. Through the City's CDBG funds, there continues to be multiple units addressed each year.	Housing/Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Objective 8.4	Obtain code compliance from a minimum of twenty-five very low and moderate-income property owners, citywide, with emphasis on focus neighborhoods.	From the 2014-2021 Housing Element Update - Policy/Program # 8.3 - Program description - Administer a program to provide grant funds for neighborhood beautification in targeted neighborhoods. **Housing:** Following the dissolution of RDA, there are no currently active programs due to limited or no funding available. Code Compliance continues to seek compliance of the units.	Housing/Planning
Policies:			
8.4.1	Enforce correction by property owners of identified housing and code violations in rental properties occupied by very low to moderate-income households.	From the 2014-2021 Housing Element Update - Policy/Program # 8.3 - New program funds included in FY 2013-14 CDBG allocation will allow continuation of the program. **Housing:** Following the dissolution of RDA, there are no currently active programs due to limited or no funding available. Code Compliance continues to seek compliance of the units	Housing/Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Objective 8.5	Conduct five neighborhood clean-ups annually; provide related services to Community Development Block Grant (CDBG) areas in conjunction with other projects, and assist in clean-up of 360 housing units.	From the 2014-2021 Housing Element Update - Policy/Program # 8.6 -The program will continue with funds from future CDBG allocations.	Housing/Planning
Policies:			Housing/Planning
8.5.1	Provide neighborhood improvement programs to CDBG target areas.	From the 2014-2021 Housing Element Update - Policy/Program # 8.5 - The program originally included both CDBG target areas and the Redevelopment Area. The program was revised after dissolution of the state's redevelopment agencies. Funding of the program in the CDBG target areas will continue in the 2014-2021 planning cycle. **Housing:** Following the dissolution of RDA, there are no currently active programs due to limited or no funding available.	Housing/Planning
Objective 8.6	Assist 300 households citywide.	Following the dissolution of RDA, there are no currently active programs due to limited or no funding available.	Housing/Planning
Policies:			

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
8.6.1	Provide fair housing and landlord/tenant education services to very low to moderate-income households.	Following the dissolution of RDA, there are no currently active programs due to limited or no funding available. Through the City's CDBG funding, the City continues to fund Fair Housing services.	Housing/Planning
Objective 8.7	Rehabilitate fifty multi-family units, citywide, through utilization of the Rental Rehabilitation Program.	**The program has met its goal and is currently no longer active due to funding.**	Housing/Planning
Policies:			
8.7.1	To eliminate substandard housing conditions for low-income renters, while enhancing the appearance of multi-family developments.	The City is currently working on establishing funding sources for this item. Ongoing.	Housing/Planning
Objective 8.8	Assist households with down payment and closing costs.	From the 2014-2021 Housing Element Update - Policy/Program # 8.10 - Program description - Provide funds for Homebuyer Assistance Program (HAP) silent seconds. Work with approved lenders. **Housing: Following the dissolution of RDA, there are no currently active programs due to limited or no funding available.**	Housing/Planning
Policies:			
8.8.1	Provide assistance to facilitate homeownership for very low to moderate-income households.	From the 2014-2021 Housing Element Update - Policy/Program # 8.10 - Program will continue (need update from Housing) Housing: Following the dissolution of RDA, there are no currently active programs due to limited or no funding available.	Housing/Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Objective 8.9	Create a minimum of 126 affordable rental units, citywide.	**Following the dissolution of RDA, there are no currently active programs due to limited or no funding available.** The Housing Authority will continue to address new units as funding is available.	Housing/Planning

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Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
Policies:			
8.9.1	Facilitate the creation of affordable rental units.	From the 2014-2021 Housing Element Update - Policy/Program # 8.13 - Program 8.13 was deleted after dissolution of the state's redevelopment agencies. The City will continue to look for new funding source and other programs to promote the development of affordable units for larger families. Housing: Following the dissolution of RDA, there are no currently active programs due to limited or no funding available.	Housing/Planning
Objective 8.10	Create a minimum of seventy senior units.	Following the dissolution of RDA, there are no currently active programs due to limited or no funding available**.** The Housing Authority will continue to address new units as funding is available.	Housing/Planning
Policies:			
8.10.1	Create decent and affordable housing opportunities for low and very-low income seniors.	Following the dissolution of RDA, there are no currently active programs due to limited or no funding available. The Housing Authority will continue to address new units as funding is available.	Housing/Planning
9.8.3 Housing Element Programs			
Programs:			

APPENDIX A

Moreno Valley General Plan

Complete list of Goals and Policies

Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
8-1	Utilize the Home Improvement Loan Program (HILP) that provides a 3% loan for up to $15,000 deferred for 20 years. Available citywide for very low to lower income homeowners.	**The program has met its goal and is currently no longer active due to funding.**	Housing/Planning
8-2	Utilize the Homeowner Assistance for Minor Rehabilitation (HAMR) loan program that provides a 3% to 5% loan for up to $7,500 amortized over a 10-year term.	**The program has met its goal and is currently no longer active due to funding.**	Housing/Planning
8-3	Utilize the Mobile Home Grant Program that provides grants up to $10,000 for owner-occupants of mobile homes.	CDBG Funding is still being used for this purpose.	Housing/Planning
8-4	Provide enhanced code compliance services and referrals to City housing rehabilitation programs.	When Redevelopment was dissolved several years ago any referrals ceased at that point due to lack of funding availability	Housing/Planning
8-5	Utilize the City Neighborhood Clean-up Program to provide volunteers and equipment to neighborhoods for clean-up activities.	This program was administered by the Sustainability & intergovernmental Program Manager. The city has created an Annual Day of Volunteerism (5.1.2) that may replace this program.	Housing/Planning
8-6	Contract with a fair housing agency to mediate between landlords and tenants and educate them on their rights and responsibilities.	Fair housing receives CDBG funding for these activities on an annual basis.	Housing/Planning
8-7	Update the City's Analysis of Impediments to Fair Housing.	This item is no longer active due to funding loss. Funding sources are being looked at.	Housing/Planning
8-8	Provide rehabilitation loans through the City's Rental Rehabilitation Program that offers 5% loans with the first year deferred and amortized over a 19-year period.	The program has met its goal and is currently no longer active due to funding.	Housing/Planning

APPENDIX A

Moreno Valley General Plan

Complete list of Goals and Policies

Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
8-9	Through the Homebuyer Assistance Program, provide 30-year deferred silent second loans, with no interest, up to 20% or $200,000 of the purchase price of resale homes.	The program has met its goal and is currently no longer active due to funding.	Housing/Planning
8-10	Work with local CHDO to construct and/or rehabilitate houses for very low-income households.	The City receives an allocation of HOME funds for CHDOs. This funding may only be used for this purpose.	Housing/Planning
8-11	Purchase HUD homes for resale to first time homebuyers.	**Following the dissolution of RDA, there are no currently active programs due to limited or no funding available.** The Housing Authority will continue to address new units as funding is available.	Housing/Planning
8-12	Administer new construction home ownership program and youth job training.	**Following the dissolution of RDA, there are no currently active programs due to limited or no funding available.** The Housing Authority will continue to address new units as funding is available.	Housing/Planning
8-13	Work with housing developers by providing Agency assistance to write-down the costs of units via loans.	**Following the dissolution of RDA, there are no currently active programs due to limited or no funding available.** The Housing Authority will continue to address new units as funding is available.	Housing/Planning

APPENDIX A

Moreno Valley General Plan

Complete list of Goals and Policies

Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
8-14	Provide financial assistance for the development of affordable rental units for larger families.	**Following the dissolution of RDA, there are no currently active programs due to limited or no funding available.** The Housing Authority will continue to address new units as funding is available.	Housing/Planning
8-15	Revise General Plan.	The General Plan will need to be revised to add the R30 land use. This will be provided with the next comprehensive General Plan update.	Housing/Planning
8-16	Continue to implement permit streamlining.	Permit streamlining is ongoing in support of affordable housing projects within the Housing Element.	Housing/Planning
8-17	Develop standards for mobile home parks and mobile home subdivisions.	If not governed or following under state regulations, Mobile home parks and subdivisions are addressed in the Municipal Code regarding use (Section 9.02.020-1 - Conditional Use Permit in residential zones) and standards (Section 9.08.110 "Manufactured Home Requirements").	Housing/Planning
8-18	Review parking standards for multi-family 3 and 4 bedroom units, including covered parking requirements to determine if reductions are appropriate.	The Municipal Code addresses density bonus, affordable housing and senior housing projects through reductions/modifications to standards.	Housing/Planning
8-19	Review second unit regulations to determine if expansion is merited to additional districts.	This item is ongoing to meet new state regulations and will remain in compliance with State law requirements.	Housing/Planning

APPENDIX A

Moreno Valley General Plan

Complete list of Goals and Policies

Goal/Policy	Description	Discussion on Implementation Status	Responsible Party
8-20	Continue to pay the development fees for projects, on a case-by-case basis, that have received State or Federal funds, such as Section 202 and Tax Credits.	All uses, including Section 202 projects , continue to pay development impact fees on a case by case basis (ongoing).	Housing/Planning
8-21	Utilize Redevelopment Agency funds, where appropriate and necessary, to facilitate infrastructure for affordable projects.	**Following the dissolution of RDA, there are no currently active programs due to limited or no funding available.**	Housing/Planning
8-22	Propose general plan changes for rezoning areas in the city to housing uses or mixed uses that include housing.	The Municipal Code was updated in 2014 to include provisions for mixed use projects	Housing/Planning
8-23	Facilitate the construction of a sixty-nine unit multi-family senior complex.	We are currently pursuing a senior development opportunity on Housing Authority property.	Housing/Planning

PLANNING COMMISSION

STAFF REPORT

Meeting Date: February 14, 2019

2018 GENERAL PLAN ANNUAL PROGRESS REPORT

Case:	PEN19-0002
Applicant:	City of Moreno Valley
Owner:	City of Moreno Valley
Representative:	Community Development Department
Location:	Citywide
Case Planner:	Claudia Manrique
Council District:	All

SUMMARY

Government Code Section 65400 requires that cities submit an annual report on the status of their General Plan and progress on its implementation to the Governor's Office of Planning and Research (OPR) and the Department of Housing and Community Development (HCD). Prior to submittal to the state, the annual report must be presented to the City Council for review and acceptance. As a procedural matter, staff is bringing the annual report to the Planning Commission for review and recommendation to the City Council prior to the City Council consideration given the Commission's advisory role to the City Council in planning matters, including implementation of the General Plan.

BACKGROUND

California State Law requires each city to adopt a comprehensive, long-term general plan for its physical development including consideration of any land located outside its boundaries, which bears a relationship to its planning activities. In essence, the City's

general plan serves as the blueprint for future growth and development. As a blueprint for the future, the plan contains goals, objectives, policies and programs designed to provide decision makers with information and a basis for all land use related decisions.

The City of Moreno Valley incorporated on December 3, 1984. The City's first General Plan was adopted on September 8, 1988. The last comprehensive update of the General Plan was approved by the City Council on July 11, 2006. The last update of the Housing Element of the General Plan was approved by the City Council on February 11, 2014.

The existing General Plan incorporates all required elements as follows, with dates of the last respective Element update noted:

- Circulation Element (2006)
- Community Development Element (2006)
- Conservation Element (2006)
- Housing Element (2014)
- Parks, Recreation and Open Space Element (2006)
- Safety/Noise Element (2006)

The Housing Element is the only mandatory Element of the General Plan that must be updated on a set schedule. The last update to the city's Housing Element was completed in February 2014 and HCD provided the City with certification of the document on May 19, 2014. With the 2014 certification from HCD, the City qualified to be on the eight-year update cycle, the next required update of the Housing Element is in year 2021.

Aside from the Housing Element, state law recommends that local governments update their other general plan elements "periodically" but does not specify how often. Consistent with prudent planning practices and in light of changing local, regional, and market influences, other elements of the General Plan should be updated from time to time to ensure the policies and goals reflect desired vision for the city, are considerate of pertinent changes in planning laws and environmental regulations, and do not become stale with respect to implementation. The last comprehensive update of the City General Plan was completed in year 2006.

As outlined in the City's adopted strategic plan Momentum Moval the city initiated efforts to develop the scope of work, schedule and budget for a comprehensive General Plan update in year 2017. At that time plans were to launch implementation of the work plan in early 2018. That effort was put on hold in early 2018 to allow for some additional internal vetting of the scope of work. The implementation phase is now expected to resume in the first quarter of 2019. The comprehensive update will touch on all required Elements and includes consideration for three additional elements (Economic Development, Healthy Community, and Environmental Justice) along with compliance with any other applicable legislative mandates.

ANNUAL REPORT CONTENTS

The 2018 General Plan Annual Progress Report (Attachment 1) summarizes the City of Moreno Valley's progress towards implementing the goals, policies and programs of the City's 2006 General Plan. It covers the period of January 1, 2018 through December 31, 2018.

The General Plan Annual Report includes a report of major projects and General Plan amendments approved by the Planning Commission and City Council in 2018. In summary, four (4) major projects and five (5) General Plan Amendments were approved during this annual reporting period.

General Plan Amendments

Two (2) of the General Plan Amendments were residential projects. The first was for an area known as the Moreno Valley Ranch Specific Plan 193. With the project the Specific Plan was amended (PEN16-0128) along with an amendment to the land use element of the General Plan (project #PEN16-0127) to convert approximately 22 acres of Open Space/Golf Course (GC) designated property to residential land use with a density range up to approximately 20 dwelling units to the acre. The amendments were processed concurrent with a Plot Plan to build a 417 unit multiple-family apartment complex on the 22 acres. A second general plan amendment affecting residential land use changed 8.856 acres of previously designated Residential 3 (R3) land to Residential 10 (R10). The change effectively increased the potential development intensity of the land from large lot single-family dwelling units up to three units to the acre to small lot single family residential up to ten dwelling units to the acre. Tentative Tract Map 37544 (PEN18-0092) was approved concurrently for 45 single-family lots. Both of these projects are consistent with established General Plan Goals and Objectives 9.2.1 and 9.2.2, which promote the rational utilization of presently underdeveloped and undeveloped parcels and providing a wide range of residential opportunities and dwelling types to meet the demands of present and future residents of all socioeconomic groups.

A General Plan Amendment (PEN16-0013) was processed to modify portions of the Festival Specific project site north of State Route 60 and east of Heacock from commercial (C) and office (O) land use designations to business park (BP). General Plan Amendment (PEN18-0024) also involved an amendment of land previously designated for office (O) land use located at the northeast corner of Frederick and Brodiaea to business park (BP). Both of these amendments were processed in response to market demands for broader opportunities for industrial land uses that may provide a sound and diversified economic base and ample employment opportunities for the citizens of Moreno Valley. Finally project #PEN16-0048 involved a land use designation change from Residential 2 (R2) to Office (O) on vacant land along the east side of Nason Street south of Brodiaea. The amendment will enable development of a new medical office complex that is supportive and compatible with land uses at the neighboring Riverside University Health System - Medical Center (RUHS-MC) and creates opportunity for more diversified professional employment opportunities.

Housing

HCD requires the reporting of Housing Element implementation on specific State reporting forms, which were updated on January 16, 2019. The method of reporting of Housing Element implementation is established by HCD with the purpose of tracking overall housing production in a community, as well as, more specifically, a City's progress towards meeting its Regional Housing Needs Allocation (RHNA). The City's Housing Element Implementation Progress Report is included as Appendix A to the General Plan Annual Report (Attachment 1).

In summary, 434 new residential units were finaled in 2018, including ten (10) apartment units, 423 single-family residences, and one accessory dwelling unit. All ten apartments fall into the Moderate Income Level Housing (>=8 units) category, and all of the single-family residences fall into the Above Moderate Income Level Housing (1-5 units) category. The City's progress in meeting its Year 2014-2021 RHNA goals is summarized in the table below.

Housing Unit Construction in Relation to RHNA				
Income Level	*2014-2021 RHNA (# units)*	*2017 Annual Report Remaining RHNA Need*	*New Units 2018*	*2018 Remaining RHNA Need*
Very Low	1500	1500	0	1500
Low	993	993	0	993
Moderate	1112	1020	10	1010
Above-Moderate	2564	1906	424	1484
Total	**6,169**	**5,548**	**434**	**4,987**

ENVIRONMENTAL

The General Plan Annual Report qualifies for the general rule exemption in accordance with Section 15061(b)3 of the California Environmental Quality Act (CEQA) Guidelines.

NOTIFICATION

No public notification other than accomplished with routine posting of the meeting agenda is required for this Planning Commission item.

STAFF RECOMMENDATION

Staff recommends that the Planning Commission **APPROVE** Resolution No. 2019-10, and thereby:

1. **CERTIFY** that the General Plan Annual Report qualifies for the general rule exemption in accordance with Section 15061(b)3 of the California Environmental Quality Act (CEQA) Guidelines; and

2. **RECOMMENDS** to the City Council that the January 2018 to December 2018 General Plan Annual Report is consistent with the requirements of Government Code Section 65400 and is ready for submittal to the Office of Planning and Research and to the Department of Housing and Community Development by April 1, 2019.

Prepared by:
Claudia Manrique
Associate Planner

Approved by:
Patty Nevins
Planning Official

ATTACHMENTS

1. 2018 General Plan Annual Report
2. Appendix A - Housing Element Implementation Progress Report
3. Appendix B - Annual Report GP Goals-Policies
4. Resolution 2019-10

RESOLUTION NO. 2019-____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, APPROVING THE GENERAL PLAN ANNUAL PROGRESS REPORT AND DIRECTING STAFF TO SUBMIT THE REPORT TO THE STATE OFFICE OF PLANNING AND RESEARCH AND STATE DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT BY APRIL 1, 2019

WHEREAS, the State of California requires non-charter cities and counties to adopted a General Plan to provide guidance and direction for development activities; and

WHEREAS, the City of Moreno Valley's completed and adopted a comprehensive update of General Plan on July 11, 2006, except for the Housing Element which was last updated and adopted as required by the State of California in early 2014; and

WHEREAS, California Government Code section 65400 mandates that cities submit an Annual Report on the status of the General Plan and its implementation to their legislative bodies, the State Office of Planning and Research (OPR) and the Department of Housing and Community Development (HCD); and

WHEREAS, the City's Housing Element was certified and authorized by the State to be updated and reviewed for consistency with the State Department of Housing and Community Development regulations on an eight-year cycle, with Moreno Valley's next Housing Element update due in 2021; and

WHEREAS, the current General Plan Annual Progress Report is required to include: a) The state of the Plan and the progress of its implementation; b) the progress in meeting its share of regional housing needs; and c) the degree to which the General Plan complies with the Guidelines established by OPR; and

WHEREAS, the City has prepared its Annual Progress Report in accordance with the Guidelines adopted by OPR, and it includes major accomplishments, status of General Plan implementation, an evaluation of current General Plan goals, objectives, policies and programs, and a regional housing report; and

WHEREAS, the Annual Progress Report includes vital General Plan and housing information from January 2018 to December 2018; and

WHEREAS, on February 14, 2019, the City Planning Commission reviewed the Annual Progress Report and has recommended approval by City Council; and

WHEREAS, on March 5, 2019, the City Council of the City of Moreno Valley reviewed and considered the Annual Progress Report in its entirety; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred.

NOW, THEREFORE, BE IT HEREBY FOUND AND RESOLVED by the City Council of the City of Moreno Valley as follows:

SECTION 1. That the City of Moreno Valley has completed the 2018 General Plan Annual Report as required by California Government Code Section 65400.

SECTION 2. That the General Plan Annual Progress Report provided herein, as Exhibit A, is consistent with the mandatory content requirements of the State Guidelines.

SECTION 3. BE IT FURTHER RESOLVED that the City Council **HEREBY**:

1. **CERTIFIES** that this action on the General Plan Annual Progress Report is exempt under the general rule provision allowed in Section 15061(b)(3) of the California Environmental Quality Act (CEQA) Guidelines.

2. **APPROVES** Resolution No. 2019-_____, approving the General Plan Annual Progress Report and directing staff to submit the report to the State Office of Planning and Research and the State Department of Housing and Community Development by April 1, 2019.Resolution No. 2019.

Approved and adopted this 5th day of March, 2019.

_____
Mayor of the City of Moreno Valley

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

_____
City Attorney

RESOLUTION JURAT

STATE OF CALIFORNIA)

COUNTY OF RIVERSIDE) ss.

CITY OF MORENO VALLEY)

I, Pat Jacquez-Nares, City Clerk of the City of Moreno Valley, California, do hereby certify that Resolution No. 2019-_ was duly and regularly adopted by the City Council of the City of Moreno Valley at a regular meeting thereof held on the 5th day of March, 2019 by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Council Members, Mayor Pro Tem and Mayor)

_____

CITY CLERK

(SEAL)

Report to City Council

TO:	Mayor and City Council
FROM:	Marshall Eyerman, Chief Financial Officer
AGENDA DATE:	March 5, 2019
TITLE:	RECEIPT OF QUARTERLY INVESTMENT REPORT FOR THE QUARTER ENDED DECEMBER 31, 2018

RECOMMENDED ACTION

Recommendation:

1. Receive and file the Quarterly Investment Report for quarter ended December 31, 2018, in compliance with the City's Investment Policy.

SUMMARY

The attached Quarterly Investment Report presents the City's cash and investments for the quarter that ended December 31, 2018. This report is in compliance with California Government Code Section 53646 regarding the reporting of detailed information on all securities, investments, and monies of the City, as well as the reporting of the market value of the investments held. All of the investments contained within the portfolio are in full compliance with the City's Investment Policy and Government Code Section 53601 as to the types of investments allowed. It is recommended that the City Council receive and file the attached Quarterly Investment Report.

DISCUSSION

The City maintains a portfolio of investments in order to earn interest on cash balances that are not currently required to fund operations. California Government Code Sections 53601 and 53646 establish the types of investments allowed, the governing restrictions on these investments, the third-party custodian arrangement for certain investments, and the reporting practices related to the portfolios of local agencies. The City has implemented an Investment Policy, which was last reviewed by the City Council on May 15, 2018. The policy is in full compliance with the requirements of both of the above-mentioned Code Sections.

The attached Quarterly Investment Report presents the City's cash and investments for the quarter that ended December 31, 2018. The report complies with California Government Code Section 53646 regarding the reporting of detailed information on all securities, investments, and monies of the City, as well as the reporting of the market value of the investments held. All of the investments contained within the portfolio are in full compliance with the City's Investment Policy and Government Code Section 53601 as to the types of investments allowed. As stated in the attached report, there is more than adequate liquidity within the portfolio for the City to meet its budgeted expenditures over the next six months.

The City's investment policy has set the primary goals of the portfolio management as Safety and Liquidity followed by Yield. The City currently utilizes two investment management firms who use an active investment management approach in which securities are purchased but not necessarily held to maturity, and may be actively traded based on market conditions and the City's investment goals. The City's cash flow requirements are evaluated on an ongoing basis, with short-term needs accommodated through the City's pooled investment funds with the State Local Agency Investment Fund (LAIF). LAIF is a pool of public funds managed by the State Treasurer of California, providing 24-hour liquidity while yielding a rate of return approximately equivalent to a one-year treasury bill. With the combined use of a conservative approach to evaluating cash flow needs and LAIF liquidity, the City will not have to liquidate securities at current market rates that are intended to be held for longer-term investment.

The table shows some of the key portfolio measures for the month.

	Portfolio, Balance	Avg. Yield to Maturity Trends		
		Dec 2018	Nov 2018	Dec 2017
Chandler	$89,215,211	2.14%	2.13%	1.73%
Insight	$56,671,250	1.90%	1.83%	1.44%
LAIF	$46,268,140	2.291%	2.208 %	1.239%

Bond proceeds are held and invested by a Trustee. The investment of these funds is governed by an investment policy approved by the City Council as a part of the governing documents for each specific bond issue. Deferred Compensation Plan funds are included in the report but these funds are held and invested by the respective plan administrators based on the direction of the participating employees. These funds are placed in a trust separate from City funds.

ALTERNATIVES

1. Receive and file the Quarterly Investment Report for December 31, 2018. ***Staff recommends this alternative as it accomplishes timely investment reporting.***

2. Do not accept and file the Quarterly Investment Report and provide staff with

additional direction. ***Staff does not recommend this alternative as it will not accomplish timely investment reporting.***

FISCAL IMPACT

After the December meeting the fed funds rate now stands at a range of 2.25% to 2.50%. The Treasury yield curve continued to flatten in December with the spread between the 2-year and the 10-year Treasury yields narrowing from 52 basis points last year to just 20 basis points at month end. By comparison the average spread over the past 20 years has been about 140 basis points. Based on current economic activity it is anticipated that the FOMC will take no additional actions through the first quarter of 2019.

NOTIFICATION

Publication of the agenda

PREPARATION OF STAFF REPORT

Prepared By:
Brooke McKinney
Treasury Operations Division Manager

Department Head Approval:
Marshall Eyerman
Chief Financial Officer/City Treasurer

CITY COUNCIL GOALS

Revenue Diversification and Preservation. Develop a variety of City revenue sources and policies to create a stable revenue base and fiscal policies to support essential City services, regardless of economic climate.

CITY COUNCIL STRATEGIC PRIORITIES

1. **Economic Development**
2. **Public Safety**
3. **Library**
4. **Infrastructure**
5. **Beautification, Community Engagement, and Quality of Life**
6. **Youth Programs**

ATTACHMENTS

1. 12-2018 Investment Report
2. CAM-Newsletter-January-2019

APPROVALS

Budget Officer Approval	✓ Approved	2/06/19 3:40 PM
City Attorney Approval	✓ Approved	2/25/19 1:07 PM
City Manager Approval	✓ Approved	2/26/19 6:17 PM

CITY OF MORENO VALLEY

Treasurer's Cash and Investments Report

December 2018

General Portfolio	Cost Value	Market Value	Par Value	Average Maturity (in years)	Average Yield to Maturity	Average Duration (in years)
Bank Accounts	5,307,873	5,307,873	5,307,873			
State of California LAIF Pool	46,268,140	46,224,237	46,268,140	**0.54**	**2.29%**	
Investments-Chandler	88,817,848	87,919,429	89,215,211	**2.57**	**2.14%**	**2.31**
Investments-Insight	56,509,014	56,150,975	56,671,250	**0.95**	**1.90%**	**0.91**
Total General Portfolio	**196,902,875**	**195,602,514**	**197,462,474**			

Bond Proceeds with Fiscal Agents	Market Value
Construction Funds	6,321,116
Principal & Interest Accounts	1,866,311
Debt Service Reserve Funds	2,115,249
Custody Accounts	332,737
Arbitrage Rebate Accounts	4,524
Other Accounts	12,823
Total Bond Proceeds	**10,652,760**

Deferred Compensation Funds	Market Value as of Dec 31, 2018
Nationwide	13,995,938
ICMA	5,634,158
Total Deferred Compensation Funds	**19,630,096**

Total Investment Portfolio	**225,885,371**

1. I hereby certify that the investments are in compliance with the investment policy adopted by the City Council. There are no items of non-compliance for this period.
2. The market values for the specific investments in the General Portfolio are provided by the City's investment advisors, Chandler Asset Management and Insight Asset Management.
3. The market value for LAIF is provided by the State Treasurer.
4. The market values for investments held by fiscal agents and the deferred compensation plans are provided by each respective trustee or fiscal agent.
5. The City has the ability to meet its budgeted expenditures for the next six months pending any future action by City Council or any unforeseen catastrophic event.

/S/ Marshall Eyerman
City Treasurer

PORTFOLIO PERFORMANCE - 36 MONTH TREND

Period	Total General Portfolio (1)	Local Agency Investment Fund (LAIF)		Chandler				Insight			
						Rate of Return (3)				Rate of Return (3)	
	Asset Balance (par)	Balance	Yield	Asset Balance (par)	Weighted Avg YTM (2)	Investment Portfolio (4)	Benchmark 1-5 Gov(5)	Asset Balance (par)	Weighted Avg YTM (2)	Investment Portfolio (4)	Benchmark 1-3 Gov(5)
Jan-16	168,824,464	30,850,627	0.446%	82,510,170	1.43%	1.13%	1.01%	54,319,684	(6)	0.51%	0.65%
Feb-16	175,430,692	37,750,627	0.467%	82,617,177	1.44%	1.17%	1.23%	54,372,589	(6)	0.59%	0.98%
Mar-16	173,065,238	34,310,627	0.506%	82,721,056	1.46%	1.61%	1.69%	54,499,863	1.08%	0.84%	0.92%
Apr-16	169,665,429	32,296,705	0.525%	82,769,869	1.47%	1.62%	1.61%	54,517,986	1.08%	0.88%	0.91%
May-16	186,737,459	40,246,705	0.552%	82,923,233	1.49%	1.50%	1.48%	54,535,685	1.10%	0.82%	0.73%
Jun-16	179,533,412	39,271,705	0.576%	82,995,248	1.49%	2.58%	2.39%	54,552,897	1.09%	1.26%	1.31%
Jul-16	173,464,003	35,222,341	0.588%	83,081,551	1.48%	2.44%	2.42%	54,560,166	1.08%	1.20%	1.26%
Aug-16	170,506,021	31,792,341	0.614%	83,224,209	1.50%	2.21%	2.09%	54,644,115	1.10%	1.15%	1.07%
Sep-16	176,898,187	37,892,341	0.634%	83,379,424	1.49%	1.80%	1.70%	54,722,092	1.10%	1.24%	0.88%
Oct-16	171,480,180	33,193,311	0.654%	83,523,267	1.49%	1.74%	1.69%	54,763,602	1.10%	1.24%	0.91%
Nov-16	169,062,818	29,923,311	0.678%	83,701,960	1.47%	1.19%	1.03%	54,796,940	1.14%	1.01%	0.76%
Dec-16	171,351,017	30,054,201	0.719%	83,828,755	1.52%	1.35%	1.24%	54,953,105	1.14%	1.06%	0.89%
Jan-17	178,020,726	37,628,655	0.751%	83,921,074	1.56%	0.59%	0.41%	54,865,800	1.14%	0.13%	0.40%
Feb-17	186,127,218	46,028,655	0.777%	84,036,078	1.56%	0.57%	0.38%	54,956,116	1.16%	0.26%	0.39%
Mar-17	180,720,329	40,778,655	0.821%	84,203,833	1.59%	0.27%	0.10%	55,036,202	1.17%	0.28%	0.25%
Apr-17	176,886,824	36,353,121	0.884%	84,254,557	1.58%	0.57%	0.38%	55,069,278	1.18%	0.38%	0.35%
May-17	184,129,362	43,453,119	0.925%	84,366,558	1.61%	0.95%	0.75%	55,139,856	1.21%	0.52%	0.57%
Jun-17	191,761,138	49,953,121	0.978%	84,433,672	1.63%	0.08%	-0.30%	55,188,911	1.24%	0.54%	0.83%
Jul-17	186,724,734	44,548,019	1.051%	84,553,984	1.64%	0.33%	0.00%	55,200,136	1.24%	0.74%	0.89%
Aug-17	180,293,288	39,248,019	1.084%	84,648,884	1.65%	0.86%	0.61%	55,293,843	1.27%	0.79%	0.95%
Sep-17	180,597,317	37,148,019	1.111%	84,681,990	1.68%	0.52%	0.15%	55,327,685	1.38%	0.90%	1.00%
Oct-17	179,411,035	37,462,434	1.143%	84,785,780	1.68%	0.62%	0.26%	55,413,748	1.35%	1.01%	1.06%
Nov-17	175,469,499	34,062,434	1.172%	84,916,378	1.69%	1.16%	0.88%	55,471,666	1.38%	1.12%	1.13%
Dec-17	179,112,928	36,962,434	1.239%	85,008,412	1.73%	1.14%	0.86%	55,541,162	1.44%	0.82%	0.42%
Jan-18	192,795,926	49,974,332	1.350%	85,144,970	1.78%	0.47%	0.12%	55,563,293	1.48%	-0.13%	0.93%
Feb-18	202,940,569	55,774,331	1.412%	85,263,827	1.80%	0.08%	-0.23%	55,682,887	1.55%	-0.19%	-0.13%
Mar-18	195,416,305	52,074,331	1.524%	85,446,356	1.82%	0.22%	0.00%	55,785,899	1.57%	-0.01%	0.03%
Apr-18	191,668,439	48,358,005	1.661%	85,541,787	1.86%	-0.33%	-0.62%	55,920,551	1.63%	0.00%	0.00%
May-18	210,976,889	65,058,005	1.755%	85,714,498	1.91%	-0.16%	-0.39%	55,998,203	1.67%	0.65%	1.65%
Jun-18	207,635,739	61,758,005	1.854%	88,337,665	1.97%	-0.05%	-0.28%	56,077,829	1.70%	0.36%	0.08%
Jul-18	190,571,998	44,418,902	1.944%	88,543,794	2.00%	-0.36%	-0.63%	56,116,437	1.70%	-0.14%	0.50%
Aug-18	191,837,452	45,518,902	1.998%	88,654,200	2.03%	-0.23%	-0.53%	56,196,487	1.69%	0.76%	-0.01%
Sep-18	187,805,745	38,718,902	2.063%	88,810,836	2.04%	-0.16%	-0.47%	56,303,716	1.76%	0.83%	0.04%
Oct-18	188,925,543	39,668,140	2.144%	88,887,254	2.09%	-0.90%	-0.31%	56,473,609	1.80%	0.97%	0.25%
Nov-18	192,152,043	42,768,140	2.208%	89,084,357	2.13%	0.57%	0.40%	56,568,013	1.83%	1.52%	2.25%
Dec-18	197,462,474	46,268,140	2.291%	89,215,211	2.14%	1.52%	1.47%	56,671,250	1.90%	1.68%	2.33%

Notes:

(1) Total General Portfolio includes all assets that comprise the City's Investment Portfolio which is LAIF as well as assets managed by Chandler and Cutwater.

(2) Yield to Maturity (YTM): The rate of return on an investment or security if it were to be held until maturity. This yield does not reflect changes in the market value of a security

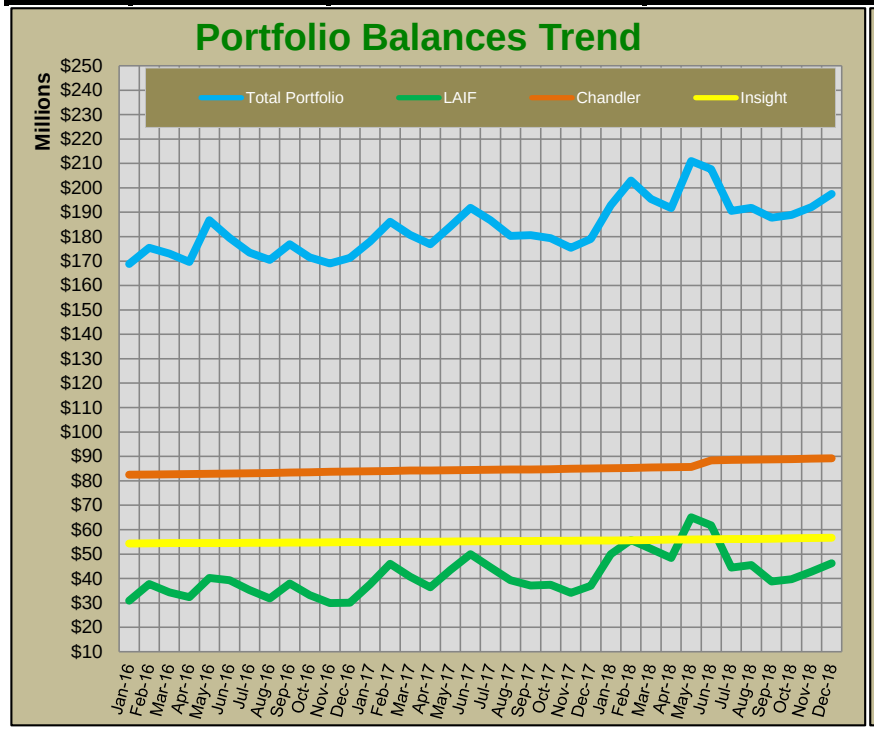
(3) Rate of Return represents the gain or loss on an investment or portfolio of investments over a specified period, expressed as a percentage of increase over the initial investment cost. Gains on investments are considered to be any income received from the security or portfolio plus any realized capital gain. This measure of return recognizes the changes in market values of a security or portfolio of securities.

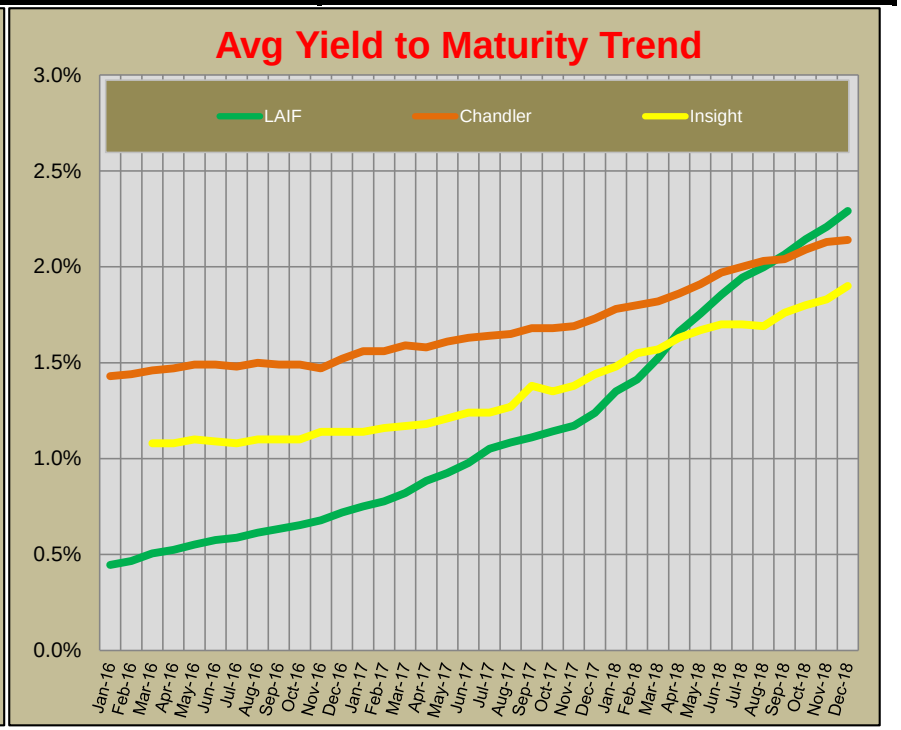
(4) The Rate of Return for the investment portfolio reflects the performance of the portfolio durint the past twelve months.

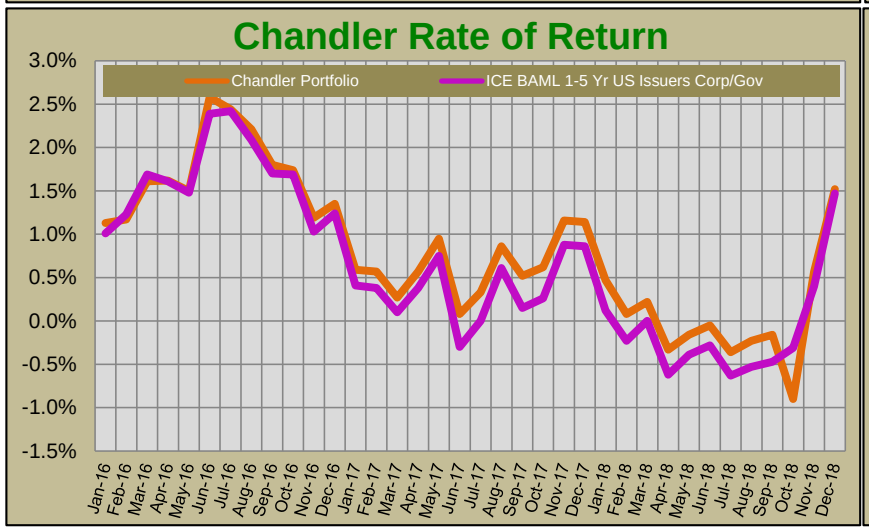
(5) The portfolio benchmarks are: Chandler-ICE Bank of America-Merrill Lynch 1 to 5 year Government Index and Insight- Bank of America-ICE Merrill Lynch 1 to 3 year Treasury Index

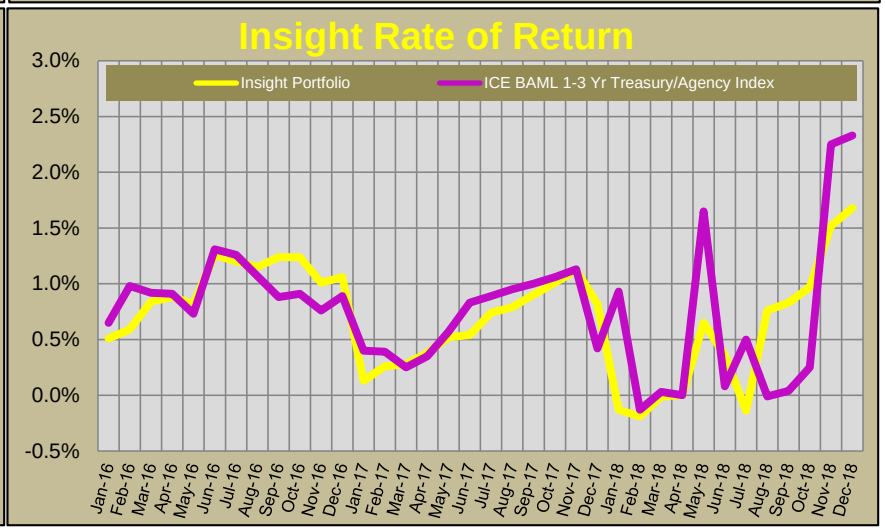
(6)As the result of a transition to a new reporting platform Weighted Avg Yield to Maturity and Total Return Yield data is not available. Insight staff are working to rectify this problem.

PORTFOLIO PERFORMANCE - 36 MONTH TREND









PORTFOLIO CHARACTERISTICS
The portfolio invested in LAIF represents the City's immediate cash liquidity needs and is managed by City staff in a manner to fund the day to day operations of the City.
The portfolio managed by Insight is comprised of idle cash balances related to funds that generally expect to expend cash within the next 36 months. (Example: Gen Fund, Zone A, Measure A, NSP etc.)
The portfolio managed by Chandler is comprise of idle cash balances related to funds that generally expect to expend cash with the next 24 to 60 months. (Example: Reserve Funds, Facility & Equip Replacement, Endowments etc.)

FUNDS WITH FISCAL AGENTS

Account Name	Account Number	Investment	Issuer	Value Date	Maturity Date	Market Value	Stated Rate	Yield	Price	% of of Portfolio
Wells Fargo	**CFD # 5**									
Series B Revenue	**22333500**	**cash**	**cash**	**12/31/18**	**01/01/19**	**0**	**0.00%**	**0.00%**	**1.000**	**0.000%**
Series B Revenue	22333500	Money Market	WF Government Fund	12/31/18	01/01/19	1,137	1.80%	2.06%	1.000	0.011%
Series A Principal	**22333501**	**Money Market**	**WF Government Fund**	**12/31/18**	**01/01/19**	**3,604**	**1.80%**	**2.06%**	**1.000**	**0.034%**
Series A reserve	22333502	Money Market	WF Government Fund	12/31/18	01/01/19	61	1.80%	2.06%	1.000	0.001%
Series B reserve	**22333503**	**Money Market**	**WF Government Fund**	**12/31/18**	**01/01/19**	**546,000**	**1.80%**	**2.06%**	**1.000**	**5.125%**
Series A interest	22333503	cash	WF Government Fund	12/31/18	01/01/19	0	1.80%	2.06%	1.000	0.000%
Series B admin fund	**22333504**	**Money Market**	**WF Government Fund**	**12/31/18**	**01/01/19**	**1**	**1.80%**	**2.06%**	**1.000**	**0.000%**
Series B interest	22333504	cash	cash	12/31/18	01/01/19	0	0.01%	0.01%	1.000	0.000%
Series B interest	**22333505**	**Money Market**	**WF Govt Fund**	**12/31/18**	**01/01/19**	**0**	**1.80%**	**1.80%**	**1.000**	**0.000%**
Series A Revenue	22333505	cash	cash	12/31/18	01/01/19	0	0.01%	0.01%	1.000	0.000%
Series B interest	**22333506**	**Money Market**	**WF Govt Fund**	**12/31/18**	**01/01/19**	**0**	**1.80%**	**1.80%**	**1.000**	**0.000%**
Series A Revenue	22333506	cash	cash	12/31/18	01/01/19	0	0.01%	0.01%	1.000	0.000%
Series B interest	**22333507**	**Money Market**	**WF Govt Fund**	**12/31/18**	**01/01/19**	**17,882**	**1.80%**	**1.80%**	**1.000**	**0.168%**
Series A Revenue	22333507	cash	cash	12/31/18	01/01/19	0	0.01%	0.01%	1.000	0.000%
Series B interest	**22333508**	**Money Market**	**WF Govt Fund**	**12/31/18**	**01/01/19**	**0**	**1.80%**	**1.80%**	**1.000**	**0.000%**
Series A Revenue	22333508	cash	cash	**12/31/18**	**01/01/19**	**0**	**4.24%**	**4.24%**	**1.000**	**0.000%**
						568,685				
Wells Fargo	**Community Facilities Disctrict 87-1 (IA-1)**									
Special tax funds	**22631800**	**cash**	**cash**	**12/31/18**	**01/01/19**	**0**	**0.00%**	**0.01%**	**1.000**	**0.000%**
special tax funds	22631800	Money Market	WF Government Fund	12/31/18	01/01/19	208,700	1.80%	2.06%	1.000	1.959%
interest acct	**22631801**	**Money Market**	**WF Government Fund**	**12/31/18**	**01/01/19**	**9,351**	**1.80%**	**2.06%**	**1.000**	**0.088%**
reserve fund	22631802	Money Market	WF Government Fund	12/31/18	01/01/19	198	1.80%	2.06%	1.000	0.002%
reserve fund	**22631804**	**Money Market**	**WF Government Fund**	**12/31/18**	**01/01/19**	**1,030,380**	**1.80%**	**2.06%**	**1.000**	**9.672%**
admin exp acct	22631805	Money Market	WF Government Fund	12/31/18	01/01/19	10,643	1.80%	2.06%	1.000	0.100%
cost of issuance	**22631806**	**Money Market**	**WF Government Fund**	**12/31/18**	**01/01/19**	**0**	**1.80%**	**2.06%**	**1.000**	**0.000%**
debt service acct	22631809	Money Market	WF Government Fund	12/31/18	01/01/19	537,670	1.80%	2.06%	1.000	5.047%
debt service acct	**22631809**	**US Treasuty Not**	**US Treasury**	**12/31/18**	**01/01/19**	**0**	**1.00%**	**1.00%**	**1.000**	**0.000%**
surplus acct	22631810	Money Market	WF Government Fund	12/31/18	01/01/19	0	1.80%	1.80%	1.000	0.000%
special tax funds	**22631900**	**Money Market**	**WF Government Fund**	**12/31/18**	**01/01/19**	**380**	**1.80%**	**2.06%**	**1.000**	**0.004%**
interest acct	22631901	Money Market	WF Government Fund	12/31/18	01/01/19	3,017	1.80%	2.06%	1.000	0.028%
principal fund	**22631902**	**Money Market**	**WF Government Fund**	**12/31/18**	**01/01/19**	**102**	**1.80%**	**2.06%**	**1.000**	**0.001%**
reserve fund	22631904	Money Market	WF Government Fund	12/31/18	01/01/19	367,149	1.80%	2.06%	1.000	3.447%
admin exp acct	**22631905**	**Money Market**	**WF Government Fund**	**12/31/18**	**01/01/19**	**2,176**	**1.80%**	**2.06%**	**1.000**	**0.020%**
cost of issuance	22631906	Money Market	WF Government Fund	12/31/18	01/01/19	0	1.80%	2.06%	1.000	0.000%
surplus acct	**22631907**	**Money Market**	**WF Government Fund**	**12/31/18**	**01/01/19**	**4,524**	**1.80%**	**2.06%**	**1.000**	**0.042%**
						2,174,290				
Wells Fargo	**2013 Total Road Improvement COPs**									
revenue fund	**46612400**	**Money Market**	**WF Government Fund**	**12/31/18**	**01/01/19**	**0**	**1.80%**	**2.06%**	**1.000**	**0.000%**
interest fund	46612401	Money Market	WF Government Fund	12/31/18	01/01/19	399	1.80%	2.06%	1.000	0.004%
principal fund	**46612402**	**Money Market**	**WF Government Fund**	**12/31/18**	**01/01/19**	**386**	**1.80%**	**2.06%**	**1.000**	**0.004%**
reserve fund	46612403	Money Market	WF Government Fund	12/31/18	01/01/19	0	1.80%	2.06%	1.000	0.000%
admin fund	**46612404**	**Money Market**	**WF Government Fund**	**12/31/18**	**01/01/19**	**771**	**1.80%**	**2.06%**	**1.000**	**0.007%**
surplus fund	46612405	Money Market	WF Government Fund	12/31/18	01/01/19	0	1.80%	2.06%	1.000	0.000%
acquisition fund	**46612407**	**Money Market**	**WF Advantage**	**12/31/18**	**01/01/19**	**0**	**1.80%**	**1.80%**	**1.000**	**0.000%**
						1,556				
Wells Fargo	**2013 Partial Refunding of the 2005 Lease Revenue Bonds**									
revenue fund	**48360700**	**Money Market**	**WF Government Fund**	**12/31/18**	**01/01/19**	**334**	**1.80%**	**2.06%**	**1.000**	**0.003%**
interest fund	48360701	Money Market	WF Government Fund	12/31/18	01/01/19	31	1.80%	2.06%	1.000	0.000%
principal fund	**48360702**	**Money Market**	**WF Government Fund**	**12/31/18**	**01/01/19**	**221**	**1.80%**	**2.06%**	**1.000**	**0.002%**
cost of issuance	48360705	Money Market	WF Government Fund	12/31/18	01/01/19	0	1.80%	1.80%	1.000	0.000%
						586				

Account Name	Account Number	Investment	Issuer	Value Date	Maturity Date	Market Value	Stated Rate	Yield	Price	% of of Portfoli
Wells Fargo	**2017 Refunding of the 2007 RDA TABs**									
income fund	**49150300**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	938,707	1.80%	2.06%	1.000	8.812%
interest fund	49150301	**Money Market**	WF Government Fund	**12/31/18**	01/01/19	0	1.80%	2.06%	1.000	0.000%
reserve fund	**49150304**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	0	1.80%	2.06%	1.000	0.000%
expense acct	49150305	**Money Market**	WF Government Fund	**12/31/18**	01/01/19	0	1.80%	2.06%	1.000	0.000%
cost of issuance	**49150307**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	0	1.80%	2.06%	1.000	0.000%
bond proceeds	49150308	**Money Market**	WF Government Fund	**12/31/18**	01/01/17	0	1.80%	0.01%	1.000	0.000%
						938,707				
Wells Fargo	**Community Facilities District 7 Improvement Area 1**									
special tax fund	**77025300**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	331,141	1.80%	2.06%	1.000	3.108%
bond fund	77025301	**Money Market**	WF Government Fund	**12/31/18**	01/01/19	143,922	1.80%	2.06%	1.000	1.351%
reserve fund	**77025302**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	171,461	1.80%	2.06%	1.000	1.610%
cost of issuance	**77025303**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	0	1.80%	2.06%	1.000	0.000%
improvement fund	**77025304**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	0	1.80%	2.06%	1.000	0.000%
admin exp acct	**77025305**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	3	1.80%	2.06%	1.000	0.000%
						646,527				
Wells Fargo	**2016 Taxable Refunding Lease Revenue Bonds (Electric Utility)**									
revenue fund	**77157100**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	899	1.80%	2.06%	1.000	0.008%
interest fund	77157101	**Money Market**	WF Government Fund	**12/31/18**	01/01/19	1	1.80%	2.06%	1.000	0.000%
principal fund	**77157102**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	0	1.80%	2.06%	1.000	0.000%
reserve fund	77157103	**Money Market**	WF Government Fund	**12/31/18**	01/01/19	0	1.80%	2.06%	1.000	0.000%
capitalized interest	**77157104**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	181,624	1.80%	2.06%	1.000	1.705%
cost of issuance	77157110	**Money Market**	WF Government Fund	**12/31/18**	01/01/17	0	1.80%	0.01%	1.000	0.000%
						182,524				
Wells Fargo	**2014 Partial Refunding of the 2005 Lease Revenue Bonds**									
revenue fund	**83478300**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	125	1.80%	2.06%	1.000	0.001%
interest fund	83478301	**Money Market**	WF Government Fund	**12/31/18**	01/01/19	94	1.80%	2.06%	1.000	0.001%
principal fund	**83478302**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	0	1.80%	2.06%	1.000	0.000%
redemption fund	**83478303**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	0	1.80%	1.80%	1.000	0.000%
						219				
Wells Fargo	**2015 Taxable Lease Revenue Bonds (Electric Utility)**									
revenue fund	**84457000**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	174	1.80%	2.06%	1.000	0.002%
interest fund	84457001	**Money Market**	WF Government Fund	**12/31/18**	01/01/19	0	1.80%	2.06%	1.000	0.000%
principal fund	**84457002**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	0	1.80%	2.06%	1.000	0.000%
reserve fund	84457005	**Money Market**	WF Government Fund	**12/31/18**	01/01/19	0	1.80%	2.06%	1.000	0.000%
construction fund	**84457006**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	0	1.80%	2.06%	1.000	0.000%
construction fund	84457006	Government Pool	Local Agency Investment	**12/31/18**	01/01/19	0	0.01%	0.01%	1.000	0.000%
cost of issuance	**84467007**	**Money Market**	**WF Government Fund**	**12/31/18**	01/01/19	0	1.80%	1.80%	1.000	0.000%
						174				
Wilmington Trust	**2018 Streetlight Financing**									
construction fund	**84457006**	**cash**	**cash**	**12/31/18**	01/01/19	6,139,492	1.80%	2.06%	1.000	57.633%
construction fund	**84457006**	**Money Market**		**12/31/18**	01/01/19	0			1.000	0.000%
						6,139,492				10
			Totals			**10,652,760**				

Type	Summary of Bond Proceeds with Fiscal Agents		
1	Construction Funds	6,321,116	
2	**Principal & Interest Accounts**	**1,866,311**	
3	Debt Service Reserve Funds	2,115,249	
4	**Custody Accounts**	**332,737**	
5	Arbitrage Rebate Accounts	4,524	
6	**Other Accounts**	**12,823**	
	Total Fiscal Agent Funds	**10,652,760**	**100%**

DEFERRED COMPENSATION FUNDS

Nationwide

Fund	Market Value as of Dec 31, 2018
Liquid Savings	
Nationwide Fixed (Part Time Employee)	838,227
Liquid Savings (Part Time Employees)	**0**
Certificates of Deposit 3 years	0
Certificates of Deposit 5 years	**0**
Invesco Mid Cap Core Equity	31,036
Bond Fund of America	**125,667**
Growth Fund of America	112,657
Investment Co. of America	**91,396**
Income Fund of America	358,095
Brown Cap Mgmt Inc SM Co	**233,559**
Fidelity Independence	3,180
Fidelity Equity Income	**96,368**
Fidelity Magellan	385,701
Fidelity Puritan	**81,119**
Fidelity Contrafund	326,686
Janus Henderson Research Fund	**27,449**
Janus Henderson Forty	40,943

Fund	Market Value as of Dec 31, 2018
Nationwide US Sm Cap Val Ins Svc	**56,830**
American Century Balanced	49
Am Century Growth	**110,400**
Am Century Select	205,013
JP Morgan Mid Cap Value A	**1,392,823**
Vanguard Index 500	122,839
Vanguard Institutional Index	**868,226**
Vanguard Wellington	27,558
Vanguard Windsor II	**207,308**
Vanguard Total Bond Index	368,241
Washington Mutual Inv	**152,748**
DFA US Micro Cap Port	94,911
EuroPacific Growth	**287,412**
Stable Fund C	3,093,180
N B Socially Responsive Fund	**65,890**
Dtsch High Income Fund A	81,680
Dtsch Eq Divd A	**101,680**
Oppenheimer Global Fund A	492,244

Fund	Market Value as of Dec 31, 2018
Federated Kaufmann Fund	**175,183**
Putnam Growth Opportunity A	11,761
Nationwide InvDes Mod Cons Fund SC	**77,840**
Nationwide InvDes Mod Aggr Fund	936,363
Nationwide InvDes Aggr Fund	**350,416**
Nationwide InvDes Mod Fd	847,018
Nationwide Inv Des Cons	**193,362**
Nationwide Large Cap Growth	57,694
Nationwide Fund A	**32,582**
Nationwide Dest 2015 Inst Svc	22,109
Nationwide Dest 2020 Inst Svc	**85,437**
Nationwide Dest 2025 Inst Svc	491,622
Nationwide Dest 2030 Inst Svc	**134,062**
Nationwide Dest 2035 Inst Svc	25,061
Nationwide Dest 2040 Inst Svc	**31,383**
Nationwide Dest 2045 Inst Svc	37,077
Nationwide Dest 2050 Inst Svc	**5,853**
Total Nationwide Deferred	**$13,995,938**

ICMA

Fund	Market Value as of Dec 31, 2018
Aggressive Oppor.	**$117,974**
International	44,444
Global Equity Growth	**310,622**
Growth and Income	144,091
Broad Market	**53,052**
500 Stock Index	286,925
Equity Income	**205,564**
MS Retirement Income	19,176
Core Bond	**113,669**
Cash Management	18,780
Plus Fund	**1,356,365**
Retirement Income Advantage	14,058
Conservative Growth	**76,993**
Traditional Growth	17,520
Long-Term Growth	**817,805**
Western Asset Core Plus Bond	15,824
Milestone 2010	**20,572**
Milestone 2020	118,752
Milestone 2025	**11,048**
Milestone 2030	13,233
Milestone 2035	**17,928**
Milestone 2040	26,716

Fund	Market Value as of Dec 31, 2018
VT Vantagepoint Discovery	76,804
VT Vantagepoint Inflation Focused	**115,940**
VT Vantagepoint Mid/Sm Index	139,131
VT Vantagepoint Overseas Equity Index Fund	**208,176**
VT Vantagepoint Select Value	19,093
VT Carillon Eagle Mid Cap Gr	**5,617**
Vantage Growth Fund	331,206
VT Puritan	**54,989**
VT Diversified International	33,268
VT TR Price Growth Stock Adv	**262,903**
VT Nuveen Real Estate Secs	47,518
VT TR Price Small Cap Value	**0**
VT Invesco Diversified	6,786
VT Gold Sach Mid Cap Value	**0**
VT Oppenheimer Main Street	55,427
VT Contrafund	**228,221**
VT PIMCO Total Return	0
VT PIMCO High Yield	**25,671**
VT Victory Sycamore Est Value	18,141
VT MFS Value	**83,735**
VT AMG TimesSquare Mid Cap Growth Admin	100,421
Total ICMA	**$5,634,158**

Summary by Plan

Deferred Compenstation Plan	Market Value as of Dec 31, 2018
Total Nationwide	$13,995,938
Total ICMA	5,634,158
Total Deferred Compensation Plans	**$19,630,096**

Summary by Investment Type

Investment Type	Market Value as of Dec 31, 2018
Savings Deposits and CD's	$3,931,407
Mutual Funds	15,698,689
Total Deferred Compensation Plans	**$19,630,096**

City of Moreno Valley - Account #10119

MONTHLY ACCOUNT STATEMENT

DECEMBER 1, 2018 THROUGH DECEMBER 31, 2018

Chandler Team:
For questions about your account, please call (800) 317-4747,
or contact **operations@chandlerasset.com**

Custodian
Union Bank N.A.
Tina Guzman
(619) 230-3547

CHANDLER ASSET MANAGEMENT
chandlerasset.com

Portfolio Summary

As of December 31, 2018

PORTFOLIO CHARACTERISTICS

Average Modified Duration	2.31
Average Coupon	2.02%
Average Purchase YTM	2.14%
Average Market YTM	2.76%
Average S&P/Moody Rating	AA/Aa1
Average Final Maturity	2.57 yrs
Average Life	2.43 yrs

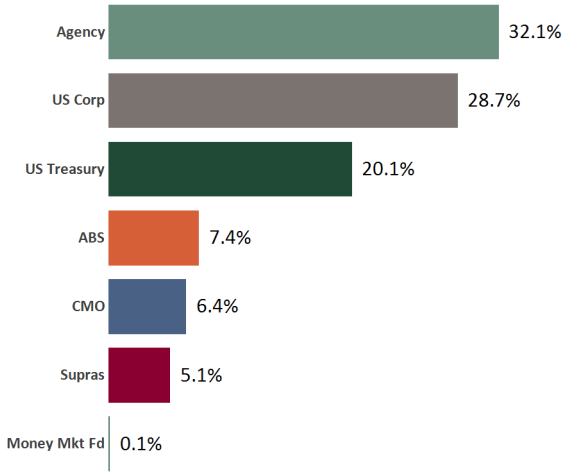
ACCOUNT SUMMARY

	Beg. Values as of 11/30/18	End Values as of 12/31/18
Market Value	87,084,984	87,919,429
Accrued Interest	397,422	417,709
Total Market Value	**87,482,406**	**88,337,138**
Income Earned	152,171	159,746
Cont/WD		0
Par	89,084,357	89,215,211
Book Value	88,804,812	88,944,272
Cost Value	88,685,161	88,817,848

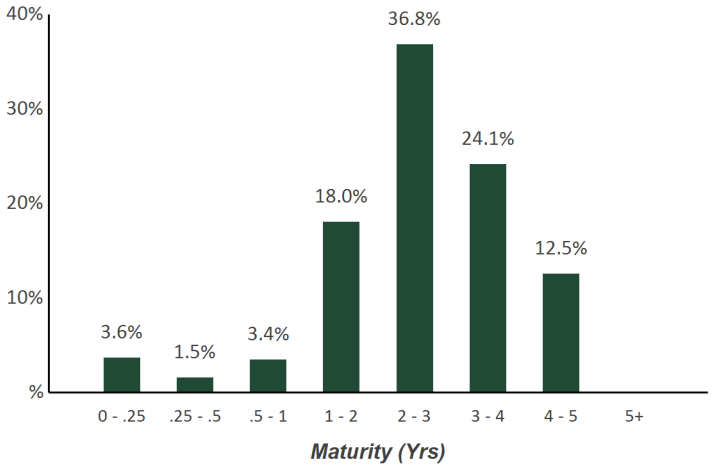
TOP ISSUERS

Federal National Mortgage Assoc	20.2%
Government of United States	20.1%
Federal Home Loan Mortgage Corp	12.8%
Federal Home Loan Bank	5.5%
Inter-American Dev Bank	4.4%
Honda ABS	2.2%
US Bancorp	2.1%
General Electric Co	2.0%
Total	**69.3%**

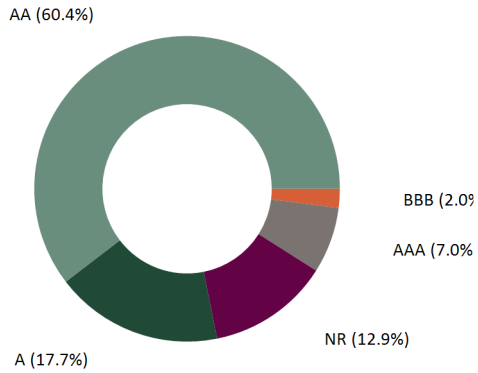
SECTOR ALLOCATION



MATURITY DISTRIBUTION



CREDIT QUALITY (S&P)



PERFORMANCE REVIEW

					Annualized				
TOTAL RATE OF RETURN	**1M**	**3M**	**YTD**	**1YR**	**2YRS**	**3YRS**	**5YRS**	**10YRS**	**5/31/20**
City of Moreno Valley	0.98%	1.41%	1.52%	1.52%	1.33%	1.34%	1.33%	N/A	1.56
ICE BAML 1-5 Yr US Treasury/Agency Index	1.10%	1.71%	1.53%	1.53%	1.10%	1.09%	1.10%	N/A	1.27
ICE BAML 1-5 Yr US Issuers Corp/Govt Rtd AAA-A Idx	1.08%	1.61%	1.47%	1.47%	1.16%	1.19%	1.20%	N/A	1.43

Statement of Compliance

As of December 31, 2018

City of Moreno Valley

Assets managed by Chandler Asset Management are in full compliance with state law and with the City's investment policy.

Category	Standard	Comment
Treasury Issues	No Limitation	*Complies*
Agency Issues	No Limitation	*Complies*
Supranational Securities	"AA" rated by a NRSRO; 30% maximum; 5% max per issuer; Issued by IBRD, IFC or IADB only	*Complies*
Municipal Securities (Local Agency/State-CA and others)	No Limitation	*Complies*
Banker's Acceptances	40% maximum; 5% max per issuer; 180 days max maturity	*Complies*
Commercial Paper	"A-1/P-1/F-1" minimum ratings; "A" rated issuer or higher, if long term debt; 25% maximum; 5% max per issuer; 270 days max maturity	*Complies*
Negotiable Certificates of Deposit	30% maximum; 5% max per issuer	*Complies*
Medium Term Notes	"A" rated or better by a NRSRO; 30% maximum; 5% max per issuer	*Complied at time of purchase**
Money Market Mutual Funds and Mutual Funds	AAA/Aaa or Highest rating by two NRSROs; 20% maximum	*Complies*
Collateralized Certificates of Deposit (CD)/ Time Deposit (TD)	5% max per issuer	*Complies*
FDIC Insured Certificates of Deposit (CD)/Time Deposit (TD)	5% max per issuer	*Complies*
Asset-Backed (ABS), Mortgage Backed (MBS) and Collateralized Mortgage Obligations (CMO)	"AA" rated or better by a NRSRO; "A" rated issuer; 20% maximum (combined MBS/ABS/CMO); 5% max per issuer	*Complies*
Repurchase Agreements	1 year max maturity	*Complies*
Local Agency Investment Fund (LAIF)	Maximum program limitation; Not used by investment adviser	*Complies*
County Pooled Investment Funds; Joint Powers Authority Pool	Not used by investment adviser	*Complies*
Prohibited Securities	Reverse repurchase agreements; Futures or Option contracts; Securities lending; Zero interest accrual securities; Derivatives including but not limited to: Inverse floaters, Interest only strips from mortgages, residual securities, structured notes, forward based derivatives, forward contracts, forward rate agreements, interest rate futures, foreign currency futures contracts, option based derivatives, interest rate caps, interest rate floors, swap contracts, interest rate swaps, interest rate collars, foreign currency swaps, cross currency exchange agreements, fixed rate currency swaps, basis swaps, equity swaps, fixed rate equity swaps, floating rate equity swaps and commodity swaps.	*Complies*
Max Per Issuer	5% of portfolio per issuer, except US Government, its agencies and instrumentalities	*Complies*
Maximum maturity	5 years	*Complies*
Weighted Average Maturity	3 years	*Complies*

** General Electric (36962G7G3) rated Baa1/BBB+/BBB+ was downgraded November 2018 and October 2018; Complied at time of purchase*

Holdings Report

As of December 31, 2018

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturi Duratio
ABS									
654747AB0	Nissan Auto Receivables 2017-A A2A 1.47% Due 1/15/2020	20,591.03	03/21/2017 1.47%	20,590.92 20,590.99	99.95 2.98%	20,581.57 13.45	0.02% (9.42)	Aaa / NR AAA	1.0 0.0
47788MAC4	John Deere Owner Trust 2016-A A3 1.36% Due 4/15/2020	115,770.43	02/23/2016 1.37%	115,752.21 115,764.74	99.77 2.93%	115,499.16 69.98	0.13% (265.58)	Aaa / NR AAA	1.2 0.1
89231UAD9	Toyota Auto Receivables 2016-B 1.3% Due 4/15/2020	218,803.19	05/02/2016 1.31%	218,792.02 218,802.10	99.46 3.72%	217,622.44 126.42	0.25% (1,179.66)	Aaa / AAA NR	1.2 0.2
43814QAC2	Honda Auto Receivables 2016-2 A3 1.39% Due 4/15/2020	114,701.07	05/24/2016 1.40%	114,698.84 114,700.33	99.60 3.12%	114,247.14 70.86	0.13% (453.19)	Aaa / NR AAA	1.2 0.2
47788BAB0	John Deere Owner Trust 2017-B A2A 1.59% Due 4/15/2020	67,061.99	07/11/2017 1.60%	67,056.16 67,059.26	99.81 2.95%	66,933.85 47.39	0.08% (125.41)	Aaa / NR AAA	1.2 0.1
89237RAB4	Toyota Auto Receivable 2017-C A2A 1.58% Due 7/15/2020	390,334.33	07/25/2017 1.59%	390,330.63 390,332.40	99.60 2.98%	388,765.92 274.10	0.44% (1,566.48)	Aaa / AAA NR	1.5 0.2
89238BAB8	Toyota Auto Receivables Owner 2018-A A2A 2.1% Due 10/15/2020	810,838.13	01/23/2018 2.12%	810,755.26 810,783.36	99.61 3.07%	807,678.24 756.78	0.92% (3,105.12)	Aaa / AAA NR	1.7 0.4
161571HF4	Chase CHAIT 2016-A5 1.27% Due 7/15/2021	400,000.00	09/27/2018 2.11%	395,328.13 395,762.83	99.12 2.95%	396,494.00 225.78	0.45% 731.17	NR / AAA AAA	2.5 0.5
43811BAC8	Honda Auto Receivables 2017-2 A3 1.68% Due 8/16/2021	1,100,000.00	04/27/2018 2.62%	1,082,898.44 1,086,392.61	98.97 2.95%	1,088,626.00 821.33	1.23% 2,233.39	Aaa / AAA NR	2.6 0.8
47788BAD6	John Deere Owner Trust 2017-B A3 1.82% Due 10/15/2021	170,000.00	07/11/2017 1.83%	169,987.56 169,991.83	98.87 2.99%	168,079.34 137.51	0.19% (1,912.49)	Aaa / NR AAA	2.7 0.9
47788CAC6	John Deere Owner Trust 2016-B A4 2.66% Due 4/18/2022	275,000.00	02/21/2018 2.68%	274,980.23 274,984.25	99.68 2.90%	274,109.27 325.11	0.31% (874.98)	Aaa / NR AAA	3.3 1.4
43815HAC1	Honda Auto Receivables Owner 2018-3 A3 2.95% Due 8/22/2022	750,000.00	08/21/2018 2.98%	749,897.10 749,906.01	100.06 2.94%	750,471.74 614.58	0.85% 565.73	Aaa / NR AAA	3.6 1.9
02587AAJ3	American Express Credit 2017-1 1.93% Due 9/15/2022	1,300,000.00	Various 3.01%	1,280,843.74 1,282,374.98	98.82 3.03%	1,284,624.88 1,115.11	1.46% 2,249.90	Aaa / NR AAA	3.7 1.0
47788EAC2	John Deere Owner Trust 2018-B A3 3.08% Due 11/15/2022	875,000.00	07/18/2018 3.10%	874,933.68 874,940.42	100.49 2.87%	879,274.37 1,197.78	1.00% 4,333.95	Aaa / NR AAA	3.8 2.1
Total ABS		**6,608,100.17**	**2.53%**	**6,566,844.92** **6,572,386.11**	**3.00%**	**6,573,007.92** **5,796.18**	**7.45%** **621.81**	**Aaa / AAA** **AAA**	**2.8** **1.0**

Holdings Report

As of December 31, 2018

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturi Duratio
AGENCY									
3135G0ZG1	FNMA Note 1.75% Due 9/12/2019	850,000.00	10/29/2014 1.70%	851,929.50 850,275.64	99.39 2.64%	844,802.25 4,503.82	0.96% (5,473.39)	Aaa / AA+ AAA	0.7 0.6
3137EADR7	FHLMC Note 1.375% Due 5/1/2020	1,650,000.00	08/26/2015 1.56%	1,636,522.80 1,646,167.40	98.46 2.56%	1,624,519.05 3,781.25	1.84% (21,648.35)	Aaa / AA+ AAA	1.3 1.3
3135G0D75	FNMA Note 1.5% Due 6/22/2020	1,655,000.00	09/29/2015 1.49%	1,655,893.70 1,655,278.41	98.54 2.52%	1,630,789.01 620.63	1.85% (24,489.40)	Aaa / AA+ AAA	1.4 1.4
3137EAEK1	FHLMC Note 1.875% Due 11/17/2020	400,000.00	11/21/2017 1.96%	398,963.53 399,348.29	98.75 2.56%	395,019.20 916.67	0.45% (4,329.09)	Aaa / AA+ AAA	1.8 1.8
3135G0F73	FNMA Note 1.5% Due 11/30/2020	1,650,000.00	12/16/2015 1.90%	1,618,815.00 1,637,956.73	98.02 2.57%	1,617,303.60 2,131.25	1.83% (20,653.13)	Aaa / AA+ AAA	1.9 1.8
3130A7CV5	FHLB Note 1.375% Due 2/18/2021	1,410,000.00	02/17/2016 1.46%	1,404,303.60 1,407,571.16	97.68 2.50%	1,377,227.37 7,162.60	1.57% (30,343.79)	Aaa / AA+ AAA	2.1 2.0
3135G0J20	FNMA Note 1.375% Due 2/26/2021	1,675,000.00	Various 1.47%	1,667,519.85 1,671,672.70	97.56 2.54%	1,634,186.95 7,996.96	1.86% (37,485.75)	Aaa / AA+ AAA	2.1 2.0
3135G0K69	FNMA Note 1.25% Due 5/6/2021	1,675,000.00	06/29/2016 1.18%	1,680,695.00 1,677,752.64	97.10 2.53%	1,626,473.58 3,198.78	1.84% (51,279.06)	Aaa / AA+ AAA	2.3 2.2
313379RB7	FHLB Note 1.875% Due 6/11/2021	1,000,000.00	08/30/2017 1.67%	1,007,540.00 1,004,873.68	98.14 2.67%	981,399.00 1,041.67	1.11% (23,474.68)	Aaa / AA+ AAA	2.4 2.3
3135G0U35	FNMA Note 2.75% Due 6/22/2021	1,000,000.00	06/28/2018 2.70%	1,001,480.00 1,001,227.22	100.56 2.51%	1,005,611.00 687.50	1.14% 4,383.78	Aaa / AA+ AAA	2.4 2.3
3130A8QS5	FHLB Note 1.125% Due 7/14/2021	1,100,000.00	10/04/2016 1.33%	1,089,836.00 1,094,602.93	96.58 2.53%	1,062,340.40 5,740.63	1.21% (32,262.53)	Aaa / AA+ AAA	2.5 2.4
3137EAEC9	FHLMC Note 1.125% Due 8/12/2021	1,625,000.00	Various 1.32%	1,610,283.75 1,617,201.14	96.58 2.48%	1,569,436.37 7,058.60	1.78% (47,764.77)	Aaa / AA+ AAA	2.6 2.5
3135G0N82	FNMA Note 1.25% Due 8/17/2021	1,700,000.00	Various 1.32%	1,694,675.10 1,697,127.94	96.84 2.50%	1,646,239.20 7,909.72	1.87% (50,888.74)	Aaa / AA+ AAA	2.6 2.5
3135G0Q89	FNMA Note 1.375% Due 10/7/2021	1,740,000.00	Various 1.75%	1,710,142.50 1,722,532.43	96.99 2.51%	1,687,690.38 5,582.50	1.92% (34,842.05)	Aaa / AA+ AAA	2.7 2.6
3130AF5B9	FHLB Note 3% Due 10/12/2021	1,400,000.00	11/29/2018 2.91%	1,403,528.00 1,403,420.17	101.28 2.52%	1,417,858.40 9,216.67	1.62% 14,438.23	Aaa / AA+ NR	2.7 2.6
3135G0S38	FNMA Note 2% Due 1/5/2022	1,700,000.00	04/25/2017 1.92%	1,706,205.00 1,703,982.21	98.52 2.51%	1,674,845.10 16,622.22	1.91% (29,137.11)	Aaa / AA+ AAA	3.0 2.8

Holdings Report

As of December 31, 2018

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturi Duratio
AGENCY									
3137EADB2	FHLMC Note 2.375% Due 1/13/2022	450,000.00	01/27/2017 2.03%	457,185.15 454,400.85	99.60 2.51%	448,208.10 4,987.50	0.51% (6,192.75)	Aaa / AA+ AAA	3.0 2.8
3135G0T45	FNMA Note 1.875% Due 4/5/2022	1,725,000.00	06/19/2017 1.88%	1,724,739.53 1,724,822.88	97.99 2.52%	1,690,284.38 7,726.56	1.92% (34,538.50)	Aaa / AA+ AAA	3.2 3.1
3135G0T78	FNMA Note 2% Due 10/5/2022	900,000.00	12/12/2017 2.25%	889,749.00 891,989.40	98.11 2.53%	882,986.40 4,300.00	1.00% (9,003.00)	Aaa / AA+ AAA	3.7 3.5
3135G0T94	FNMA Note 2.375% Due 1/19/2023	1,850,000.00	04/11/2018 2.71%	1,822,731.00 1,826,861.24	99.25 2.57%	1,836,154.60 19,771.88	2.10% 9,293.36	Aaa / AA+ AAA	4.0 3.7
3137EAEN5	FHLMC Note 2.75% Due 6/19/2023	1,600,000.00	Various 2.84%	1,593,438.00 1,594,073.89	100.58 2.61%	1,609,348.80 1,466.67	1.82% 15,274.91	Aaa / AA+ AAA	4.4 4.1
Total Agency		**28,755,000.00**	**1.85%**	**28,626,176.01** **28,683,138.95**	**2.54%**	**28,262,723.14** **122,424.08**	**32.13%** **(420,415.81)**	**Aaa / AA+** **AAA**	**2.6** **2.5**
CMO									
3137BDDC7	FHLMC K716 A2 3.13% Due 6/25/2021	475,000.00	09/12/2017 1.92%	494,482.42 487,790.63	100.37 2.89%	476,764.15 247.79	0.54% (11,026.48)	Aaa / AA+ NR	2.4 2.1
3137BFDQ1	FHLMC K717 A2 2.991% Due 9/25/2021	1,050,000.00	12/28/2018 2.81%	1,050,656.25 1,050,655.59	100.24 2.83%	1,052,484.30 2,617.13	1.19% 1,828.71	NR / NR AAA	2.7 2.4
3137BM6P6	FHLMC K721 A2 3.09% Due 8/25/2022	1,350,000.00	09/21/2017 2.22%	1,401,354.00 1,388,129.06	100.49 2.89%	1,356,608.25 3,476.25	1.54% (31,520.81)	Aaa / NR NR	3.6 3.2
3137B5JM6	FHLMC K034 A2 3.531% Due 7/25/2023	1,500,000.00	08/28/2018 3.03%	1,531,816.41 1,529,628.92	102.34 2.93%	1,535,071.50 4,413.75	1.74% 5,442.58	NR / NR AAA	4.5 4.0
3137B7MZ9	FHLMC K036 A2 3.527% Due 10/25/2023	1,200,000.00	10/29/2018 3.32%	1,211,812.50 1,211,404.72	102.34 2.95%	1,228,044.00 705.40	1.39% 16,639.28	Aaa / NR AAA	4.8 4.2
Total CMO		**5,575,000.00**	**2.76%**	**5,690,121.58** **5,667,608.92**	**2.90%**	**5,648,972.20** **11,460.32**	**6.41%** **(18,636.72)**	**Aaa / AA+** **AAA**	**3.8** **3.4**

Holdings Report

As of December 31, 2018

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturi Duratio
MONEY MARKET FUND FI									
60934N104	Federated Investors Government Obligations Fund	107,110.54	Various 2.26%	107,110.54 107,110.54	1.00 2.26%	107,110.54 0.00	0.12% 0.00	Aaa / AAA AAA	0.0 0.0
Total Money Market Fund FI		**107,110.54**	**2.26%**	**107,110.54** **107,110.54**	**2.26%**	**107,110.54** **0.00**	**0.12%** **0.00**	**Aaa / AAA** **AAA**	**0.0** **0.0**
SUPRANATIONAL									
4581X0CX4	Inter-American Dev Bank Note 1.625% Due 5/12/2020	1,400,000.00	04/05/2017 1.70%	1,396,682.00 1,398,535.48	98.72 2.59%	1,382,047.80 3,096.53	1.57% (16,487.68)	Aaa / AAA AAA	1.3 1.3
45950KCM0	International Finance Corp Note 2.25% Due 1/25/2021	605,000.00	01/18/2018 2.35%	603,221.30 603,774.71	99.34 2.58%	601,029.39 5,898.75	0.69% (2,745.32)	Aaa / AAA NR	2.0 1.9
4581X0CW6	Inter-American Dev Bank Note 2.125% Due 1/18/2022	1,675,000.00	01/10/2017 2.15%	1,672,939.75 1,673,744.22	98.56 2.62%	1,650,910.15 16,116.06	1.89% (22,834.07)	Aaa / NR AAA	3.0 2.9
4581X0CZ9	Inter-American Dev Bank Note 1.75% Due 9/14/2022	850,000.00	03/23/2018 2.79%	813,178.00 819,495.50	96.81 2.66%	822,913.90 4,421.18	0.94% 3,418.40	NR / NR AAA	3.7 3.5
Total Supranational		**4,530,000.00**	**2.16%**	**4,486,021.05** **4,495,549.91**	**2.61%**	**4,456,901.24** **29,532.52**	**5.08%** **(38,648.67)**	**Aaa / AAA** **AAA**	**2.5** **2.4**
US CORPORATE									
36962G7G3	General Electric Capital Corp Note 2.3% Due 1/14/2019	1,750,000.00	01/08/2014 2.32%	1,748,286.80 1,749,987.81	99.96 3.35%	1,749,315.75 18,671.52	2.00% (672.06)	Baa1 / BBB+ BBB+	0.0 0.0
17275RAR3	Cisco Systems Note 2.125% Due 3/1/2019	1,305,000.00	Various 2.07%	1,308,459.75 1,305,112.17	99.86 2.95%	1,303,163.87 9,243.76	1.49% (1,948.30)	A1 / AA- NR	0.1 0.1
91159HHH6	US Bancorp Callable Note Cont 3/25/2019 2.2% Due 4/25/2019	1,365,000.00	Various 2.18%	1,366,198.85 1,365,036.56	99.78 2.89%	1,362,013.38 5,505.50	1.55% (3,023.18)	A1 / A+ AA-	0.3 0.3
084664CK5	Berkshire Hathaway Note 1.3% Due 8/15/2019	495,000.00	08/08/2016 1.33%	494,519.85 494,900.90	98.95 3.01%	489,803.99 2,431.00	0.56% (5,096.91)	Aa2 / AA A+	0.6 0.6
06406HCW7	Bank of New York Callable Note Cont 8/11/2019 2.3% Due 9/11/2019	1,675,000.00	Various 2.29%	1,675,650.55 1,675,077.31	99.48 3.06%	1,666,293.35 11,771.53	1.90% (8,783.96)	A1 / A AA-	0.7 0.6

Holdings Report

As of December 31, 2018

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturi Duratio
US CORPORATE									
94974BGF1	Wells Fargo Corp Note 2.15% Due 1/30/2020	1,050,000.00	01/26/2015 2.17%	1,048,857.60 1,049,753.10	98.91 3.18%	1,038,581.25 9,468.96	1.19% (11,171.85)	A2 / A- A+	1.0 1.0
22160KAG0	Costco Wholesale Corp Note 1.75% Due 2/15/2020	665,000.00	02/05/2015 1.77%	664,301.75 664,843.05	98.96 2.69%	658,100.63 4,396.39	0.75% (6,742.42)	Aa3 / A+ A+	1.1 1.0
747525AD5	Qualcomm Inc Note 2.25% Due 5/20/2020	980,000.00	06/11/2015 2.49%	969,146.50 976,954.99	98.61 3.28%	966,378.00 2,511.26	1.10% (10,576.99)	A2 / A- NR	1.3 1.3
594918BG8	Microsoft Callable Note Cont. 10/03/20 2% Due 11/3/2020	425,000.00	10/29/2015 2.02%	424,660.00 424,874.94	98.89 2.62%	420,267.20 1,369.44	0.48% (4,607.74)	Aaa / AAA AA+	1.8 1.7
00440EAT4	Chubb INA Holdings Inc Callable Note Cont 10/3/2020 2.3% Due 11/3/2020	1,050,000.00	02/06/2017 2.16%	1,054,945.50 1,052,379.93	98.57 3.10%	1,034,983.95 3,890.83	1.18% (17,395.98)	A3 / A A	1.8 1.7
78012KKU0	Royal Bank of Canada Note 2.5% Due 1/19/2021	1,050,000.00	12/11/2017 2.37%	1,053,979.50 1,052,630.76	98.85 3.08%	1,037,962.80 11,812.50	1.19% (14,667.96)	Aa2 / AA- AA	2.0 1.9
30231GAV4	Exxon Mobil Corp Callable Note Cont 2/1/2021 2.222% Due 3/1/2021	1,160,000.00	Various 1.97%	1,173,322.80 1,166,024.62	98.56 2.91%	1,143,298.32 8,591.74	1.30% (22,726.30)	Aaa / AA+ NR	2.1 2.0
24422ESL4	John Deere Capital Corp Note 2.8% Due 3/4/2021	425,000.00	05/24/2017 2.12%	435,340.25 430,967.84	99.43 3.07%	422,565.18 3,867.50	0.48% (8,402.66)	A2 / A A	2.1 2.0
369550BE7	General Dynamics Corp Note 3% Due 5/11/2021	1,055,000.00	Various 3.25%	1,047,595.75 1,049,155.52	100.08 2.96%	1,055,853.50 4,395.83	1.20% 6,697.98	A2 / A+ NR	2.3 2.2
857477AV5	State Street Bank Note 1.95% Due 5/19/2021	580,000.00	05/16/2016 1.96%	579,698.40 579,856.47	97.19 3.18%	563,715.92 1,319.50	0.64% (16,140.55)	A1 / A AA-	2.3 2.3
594918BP8	Microsoft Callable Note Cont 7/8/21 1.55% Due 8/8/2021	770,000.00	Various 1.57%	769,085.90 769,524.43	97.15 2.69%	748,029.59 4,740.85	0.85% (21,494.84)	Aaa / AAA AA+	2.6 2.5
69371RN44	Paccar Financial Corp Note 1.65% Due 8/11/2021	1,100,000.00	05/23/2018 3.15%	1,050,093.00 1,059,487.76	96.41 3.09%	1,060,474.80 7,058.33	1.21% 987.04	A1 / A+ NR	2.6 2.5
68389XBK0	Oracle Corp Callable Note Cont 8/01/21 1.9% Due 9/15/2021	1,100,000.00	11/29/2016 2.40%	1,075,371.00 1,086,079.26	97.02 3.05%	1,067,227.70 6,153.89	1.22% (18,851.56)	A1 / AA- A	2.7 2.5
89236TDP7	Toyota Motor Credit Corp Note 2.6% Due 1/11/2022	1,000,000.00	06/12/2018 3.25%	978,310.00 981,645.65	98.41 3.16%	984,084.00 12,277.78	1.13% 2,438.35	Aa3 / AA- A+	3.0 2.8
91159HHP8	US Bancorp Callable Cont 12/23/2021 2.625% Due 1/24/2022	515,000.00	01/19/2017 2.66%	514,114.20 514,457.17	98.48 3.15%	507,174.58 5,895.68	0.58% (7,282.59)	A1 / A+ AA-	3.0 2.8

Holdings Report

As of December 31, 2018

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturi Duratio
US CORPORATE									
674599CK9	Occidental Petroleum Callable Note Cont 3/15/2022 2.6% Due 4/15/2022	740,000.00	06/18/2018 3.27%	722,343.60 724,811.70	97.54 3.39%	721,778.98 4,061.78	0.82% (3,032.72)	A3 / A A	3.2 3.1
69353RFE3	PNC Bank Callable Note Cont 6/28/2022 2.45% Due 7/28/2022	1,170,000.00	07/25/2017 2.45%	1,169,894.70 1,169,924.80	96.85 3.39%	1,133,195.31 12,182.63	1.30% (36,729.49)	A2 / A A+	3.5 3.3
44932HAC7	IBM Credit Corp Note 2.2% Due 9/8/2022	1,050,000.00	11/29/2017 2.58%	1,032,234.00 1,036,272.65	95.28 3.58%	1,000,422.15 7,250.83	1.14% (35,850.50)	A1 / A A	3.6 3.4
48128BAB7	JP Morgan Chase & Co Callable Note 1X 1/15/2022 2.972% Due 1/15/2023	950,000.00	02/09/2018 3.19%	940,832.50 942,475.20	97.50 3.64%	926,230.05 13,019.01	1.06% (16,245.15)	A2 / A- AA-	4.0 3.4
24422ETG4	John Deere Capital Corp Note 2.8% Due 3/6/2023	280,000.00	06/13/2018 3.44%	272,213.20 273,116.02	97.77 3.38%	273,760.48 2,504.44	0.31% 644.46	A2 / A A	4.1 3.8
037833AK6	Apple Inc Note 2.4% Due 5/3/2023	715,000.00	11/28/2018 3.54%	681,959.85 682,614.52	96.69 3.22%	691,355.67 2,764.67	0.79% 8,741.15	Aa1 / AA+ NR	4.3 4.0
02665WCJ8	American Honda Finance Note 3.45% Due 7/14/2023	335,000.00	07/11/2018 3.49%	334,420.45 334,474.15	100.03 3.44%	335,095.47 5,297.19	0.39% 621.32	A2 / A+ NR	4.5 4.1
02665WCQ2	American Honda Finance Note 3.625% Due 10/10/2023	835,000.00	10/03/2018 3.64%	834,315.30 834,346.42	100.71 3.46%	840,917.65 6,810.47	0.96% 6,571.23	A2 / A+ NR	4.7 4.3
Total US Corporate		**25,590,000.00**	**2.50%**	**25,420,151.55** **25,446,785.70**	**3.14%**	**25,202,043.52** **189,264.81**	**28.74%** **(244,742.18)**	**A1 / A+** **A+**	**2.1** **1.9**
US TREASURY									
912828VF4	US Treasury Note 1.375% Due 5/31/2020	1,750,000.00	07/10/2015 1.62%	1,730,250.01 1,744,287.56	98.39 2.54%	1,721,767.25 2,115.38	1.95% (22,520.31)	Aaa / AA+ AAA	1.4 1.3
912828L32	US Treasury Note 1.375% Due 8/31/2020	1,650,000.00	Various 1.37%	1,650,064.12 1,650,020.13	98.11 2.54%	1,618,869.45 7,708.73	1.84% (31,150.68)	Aaa / AA+ AAA	1.6 1.6
912828N89	US Treasury Note 1.375% Due 1/31/2021	1,600,000.00	03/09/2016 1.40%	1,598,442.85 1,599,336.88	97.71 2.51%	1,563,312.00 9,206.52	1.78% (36,024.88)	Aaa / AA+ AAA	2.0 2.0
912828B90	US Treasury Note 2% Due 2/28/2021	1,650,000.00	Various 1.55%	1,683,525.06 1,665,332.81	98.96 2.50%	1,632,854.85 11,212.71	1.86% (32,477.96)	Aaa / AA+ AAA	2.1 2.0
912828Q37	US Treasury Note 1.25% Due 3/31/2021	1,700,000.00	Various 1.58%	1,676,910.00 1,687,750.43	97.34 2.47%	1,654,844.60 5,429.26	1.88% (32,905.83)	Aaa / AA+ AAA	2.2 2.1

Holdings Report

As of December 31, 2018

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturi Duratio
US TREASURY									
912828S27	US Treasury Note 1.125% Due 6/30/2021	1,015,000.00	Various 1.91%	980,766.29 996,138.97	96.79 2.46%	982,369.78 31.55	1.11% (13,769.19)	Aaa / AA+ AAA	2.5 2.4
912828T34	US Treasury Note 1.125% Due 9/30/2021	1,700,000.00	11/09/2016 1.48%	1,671,251.79 1,683,846.24	96.45 2.47%	1,639,636.40 4,886.33	1.86% (44,209.84)	Aaa / AA+ AAA	2.7 2.6
912828J43	US Treasury Note 1.75% Due 2/28/2022	1,785,000.00	03/13/2017 2.14%	1,752,722.58 1,764,432.28	97.82 2.47%	1,746,092.36 10,613.85	1.99% (18,339.92)	Aaa / AA+ AAA	3.1 3.0
912828XG0	US Treasury Note 2.125% Due 6/30/2022	1,700,000.00	08/15/2017 1.82%	1,724,111.17 1,717,303.63	98.81 2.48%	1,679,812.50 99.79	1.90% (37,491.13)	Aaa / AA+ AAA	3.5 3.3
912828L57	US Treasury Note 1.75% Due 9/30/2022	1,750,000.00	10/17/2017 1.99%	1,730,585.94 1,735,310.60	97.36 2.49%	1,703,789.50 7,824.52	1.94% (31,521.10)	Aaa / AA+ AAA	3.7 3.5
912828N30	US Treasury Note 2.125% Due 12/31/2022	1,750,000.00	01/25/2018 2.46%	1,722,792.97 1,727,932.08	98.59 2.50%	1,725,321.50 102.73	1.95% (2,610.58)	Aaa / AA+ AAA	4.0 3.8
Total US Treasury		**18,050,000.00**	**1.76%**	**17,921,422.78** **17,971,691.61**	**2.49%**	**17,668,670.19** **59,231.37**	**20.07%** **(303,021.42)**	**Aaa / AA+** **AAA**	**2.6** **2.5**
TOTAL PORTFOLIO		**89,215,210.71**	**2.14%**	**88,817,848.43** **88,944,271.74**	**2.76%**	**87,919,428.75** **417,709.28**	**100.00%** **(1,024,842.99)**	**Aa1 / AA** **AAA**	**2.5** **2.3**
TOTAL MARKET VALUE PLUS ACCRUED						**88,337,138.03**			

Transaction Ledger

As of December 31, 2018

Transaction Type	Settlement Date	CUSIP	Quantity	Security Description	Price	Acq/Disp Yield	Amount	Interest Pur/Sold	Total Amount	Gain/Lo
ACQUISITIONS										
Purchase	12/03/2018	60934N104	3,594.96	Federated Investors Government Obligations Fund	1.000	2.08%	3,594.96	0.00	3,594.96	0.0
Purchase	12/11/2018	60934N104	9,375.00	Federated Investors Government Obligations Fund	1.000	2.08%	9,375.00	0.00	9,375.00	0.0
Purchase	12/13/2018	60934N104	5,313.75	Federated Investors Government Obligations Fund	1.000	2.08%	5,313.75	0.00	5,313.75	0.0
Purchase	12/13/2018	60934N104	545,000.00	Federated Investors Government Obligations Fund	1.000	2.08%	545,000.00	0.00	545,000.00	0.0
Purchase	12/17/2018	60934N104	2,090.83	Federated Investors Government Obligations Fund	1.000	2.08%	2,090.83	0.00	2,090.83	0.0
Purchase	12/17/2018	60934N104	423.33	Federated Investors Government Obligations Fund	1.000	2.08%	423.33	0.00	423.33	0.0
Purchase	12/17/2018	60934N104	1,540.00	Federated Investors Government Obligations Fund	1.000	2.08%	1,540.00	0.00	1,540.00	0.0
Purchase	12/17/2018	60934N104	21,414.42	Federated Investors Government Obligations Fund	1.000	2.08%	21,414.42	0.00	21,414.42	0.0
Purchase	12/17/2018	60934N104	11,417.36	Federated Investors Government Obligations Fund	1.000	2.08%	11,417.36	0.00	11,417.36	0.0
Purchase	12/17/2018	60934N104	257.83	Federated Investors Government Obligations Fund	1.000	2.08%	257.83	0.00	257.83	0.0
Purchase	12/17/2018	60934N104	609.58	Federated Investors Government Obligations Fund	1.000	2.08%	609.58	0.00	609.58	0.0
Purchase	12/17/2018	60934N104	2,245.83	Federated Investors Government Obligations Fund	1.000	2.08%	2,245.83	0.00	2,245.83	0.0
Purchase	12/17/2018	60934N104	27,710.51	Federated Investors Government Obligations Fund	1.000	2.08%	27,710.51	0.00	27,710.51	0.0
Purchase	12/17/2018	60934N104	22,433.56	Federated Investors Government Obligations Fund	1.000	2.08%	22,433.56	0.00	22,433.56	0.0
Purchase	12/17/2018	60934N104	40,147.06	Federated Investors Government Obligations Fund	1.000	2.08%	40,147.06	0.00	40,147.06	0.0
Purchase	12/17/2018	60934N104	53,114.64	Federated Investors Government Obligations Fund	1.000	2.08%	53,114.64	0.00	53,114.64	0.0

Transaction Ledger

As of December 31, 2018

Transaction Type	Settlement Date	CUSIP	Quantity	Security Description	Price	Acq/Disp Yield	Amount	Interest Pur/Sold	Total Amount	Gain/Lo
ACQUISITIONS										
Purchase	12/17/2018	60934N104	82,288.63	Federated Investors Government Obligations Fund	1.000	2.08%	82,288.63	0.00	82,288.63	0.0
Purchase	12/19/2018	60934N104	22,977.78	Federated Investors Government Obligations Fund	1.000	2.08%	22,977.78	0.00	22,977.78	0.0
Purchase	12/21/2018	60934N104	1,843.75	Federated Investors Government Obligations Fund	1.000	2.08%	1,843.75	0.00	1,843.75	0.0
Purchase	12/22/2018	60934N104	25,933.33	Federated Investors Government Obligations Fund	1.000	2.08%	25,933.33	0.00	25,933.33	0.0
Purchase	12/25/2018	60934N104	3,527.00	Federated Investors Government Obligations Fund	1.000	2.08%	3,527.00	0.00	3,527.00	0.0
Purchase	12/26/2018	60934N104	4,413.75	Federated Investors Government Obligations Fund	1.000	2.08%	4,413.75	0.00	4,413.75	0.0
Purchase	12/26/2018	60934N104	1,238.96	Federated Investors Government Obligations Fund	1.000	2.08%	1,238.96	0.00	1,238.96	0.0
Purchase	12/26/2018	60934N104	3,476.25	Federated Investors Government Obligations Fund	1.000	2.08%	3,476.25	0.00	3,476.25	0.0
Purchase	12/31/2018	3137BFDQ1	1,050,000.00	FHLMC K717 A2 2.991% Due 9/25/2021	100.063	2.81%	1,050,656.25	2,617.13	1,053,273.38	0.0
Purchase	12/31/2018	60934N104	42,365.63	Federated Investors Government Obligations Fund	1.000	2.26%	42,365.63	0.00	42,365.63	0.0
Subtotal			**1,984,753.74**				**1,985,409.99**	**2,617.13**	**1,988,027.12**	**0.0**
TOTAL ACQUISITIONS			**1,984,753.74**				**1,985,409.99**	**2,617.13**	**1,988,027.12**	**0.0**
DISPOSITIONS										
Sale	12/31/2018	60934N104	1,053,273.38	Federated Investors Government Obligations Fund	1.000	2.26%	1,053,273.38	0.00	1,053,273.38	0.0
Subtotal			**1,053,273.38**				**1,053,273.38**	**0.00**	**1,053,273.38**	**0.0**

Transaction Ledger

As of December 31, 2018

Transaction Type	Settlement Date	CUSIP	Quantity	Security Description	Price	Acq/Disp Yield	Amount	Interest Pur/Sold	Total Amount	Gain/Lo
DISPOSITIONS										
Paydown	12/17/2018	02587AAJ3	0.00	American Express Credit 2017-1 1.93% Due 9/15/2022	100.000		0.00	2,090.83	2,090.83	0.(
Paydown	12/17/2018	161571HF4	0.00	Chase CHAIT 2016-A5 1.27% Due 7/15/2021	100.000		0.00	423.33	423.33	0.(
Paydown	12/17/2018	43811BAC8	0.00	Honda Auto Receivables 2017-2 A3 1.68% Due 8/16/2021	100.000		0.00	1,540.00	1,540.00	0.(
Paydown	12/17/2018	43814QAC2	21,256.94	Honda Auto Receivables 2016-2 A3 1.39% Due 4/15/2020	100.000		21,256.94	157.48	21,414.42	0.(
Paydown	12/17/2018	47788BAB0	11,313.51	John Deere Owner Trust 2017-B A2A 1.59% Due 4/15/2020	100.000		11,313.51	103.85	11,417.36	0.(
Paydown	12/17/2018	47788BAD6	0.00	John Deere Owner Trust 2017-B A3 1.82% Due 10/15/2021	100.000		0.00	257.83	257.83	0.(
Paydown	12/17/2018	47788CAC6	0.00	John Deere Owner Trust 2016-B A4 2.66% Due 4/18/2022	100.000		0.00	609.58	609.58	0.(
Paydown	12/17/2018	47788EAC2	0.00	John Deere Owner Trust 2018-B A3 3.08% Due 11/15/2022	100.000		0.00	2,245.83	2,245.83	0.(
Paydown	12/17/2018	47788MAC4	27,548.08	John Deere Owner Trust 2016-A A3 1.36% Due 4/15/2020	100.000		27,548.08	162.43	27,710.51	0.(
Paydown	12/17/2018	654747AB0	22,380.92	Nissan Auto Receivables 2017-A A2A 1.47% Due 1/15/2020	100.000		22,380.92	52.64	22,433.56	0.(
Paydown	12/17/2018	89231UAD9	39,866.83	Toyota Auto Receivables 2016-B 1.3% Due 4/15/2020	100.000		39,866.83	280.23	40,147.06	0.(
Paydown	12/17/2018	89237RAB4	52,531.53	Toyota Auto Receivable 2017-C A2A 1.58% Due 7/15/2020	100.000		52,531.53	583.11	53,114.64	0.(
Paydown	12/17/2018	89238BAB8	80,728.39	Toyota Auto Receivables Owner 2018-A A2A 2.1% Due 10/15/2020	100.000		80,728.39	1,560.24	82,288.63	0.(
Paydown	12/21/2018	43815HAC1	0.00	Honda Auto Receivables Owner 2018-3 A3 2.95% Due 8/22/2022	100.000		0.00	1,843.75	1,843.75	0.(
Paydown	12/26/2018	3137B5JM6	0.00	FHLMC K034 A2 3.531% Due 7/25/2023	100.000		0.00	4,413.75	4,413.75	0.(

Transaction Ledger

As of December 31, 2018

Transaction Type	Settlement Date	CUSIP	Quantity	Security Description	Price	Acq/Disp Yield	Amount	Interest Pur/Sold	Total Amount	Gain/Lo
DISPOSITIONS										
Paydown	12/26/2018	3137BDDC7	0.00	FHLMC K716 A2 3.13% Due 6/25/2021	100.000		0.00	1,238.96	1,238.96	0.(
Paydown	12/26/2018	3137BM6P6	0.00	FHLMC K721 A2Due 8/25/2022	100.000		0.00	3,476.25	3,476.25	0.(
Subtotal			**255,626.20**				**255,626.20**	**21,040.09**	**276,666.29**	**0.**
Maturity	12/13/2018	24422ESF7	545,000.00	John Deere Capital Corp Note 1.95% Due 12/13/2018	100.000		545,000.00	0.00	545,000.00	0.(
Subtotal			**545,000.00**				**545,000.00**	**0.00**	**545,000.00**	**0.**
TOTAL DISPOSITIONS			**1,853,899.58**				**1,853,899.58**	**21,040.09**	**1,874,939.67**	**0.**
OTHER TRANSACTIONS										
Interest	12/11/2018	313379RB7	1,000,000.00	FHLB Note 1.875% Due 6/11/2021	0.000		9,375.00	0.00	9,375.00	0.(
Interest	12/13/2018	24422ESF7	545,000.00	John Deere Capital Corp Note 1.95% Due 12/13/2018	0.000		5,313.75	0.00	5,313.75	0.(
Interest	12/19/2018	3137EAEN5	1,600,000.00	FHLMC Note 2.75% Due 6/19/2023	0.000		22,977.78	0.00	22,977.78	0.(
Interest	12/22/2018	3135G0D75	1,655,000.00	FNMA Note 1.5% Due 6/22/2020	0.000		12,412.50	0.00	12,412.50	0.(
Interest	12/22/2018	3135G0U35	1,000,000.00	FNMA Note 2.75% Due 6/22/2021	0.000		13,520.83	0.00	13,520.83	0.(
Interest	12/25/2018	3137B7MZ9	1,200,000.00	FHLMC K036 A2 3.527% Due 10/25/2023	0.000		3,527.00	0.00	3,527.00	0.(
Interest	12/31/2018	912828N30	1,750,000.00	US Treasury Note 2.125% Due 12/31/2022	0.000		18,593.75	0.00	18,593.75	0.(
Interest	12/31/2018	912828S27	1,015,000.00	US Treasury Note 1.125% Due 6/30/2021	0.000		5,709.38	0.00	5,709.38	0.(
Interest	12/31/2018	912828XG0	1,700,000.00	US Treasury Note 2.125% Due 6/30/2022	0.000		18,062.50	0.00	18,062.50	0.(
Subtotal			**11,465,000.00**				**109,492.49**	**0.00**	**109,492.49**	**0.**

Transaction Ledger

As of December 31, 2018

Transaction Type	Settlement Date	CUSIP	Quantity	Security Description	Price	Acq/Disp Yield	Amount	Interest Pur/Sold	Total Amount	Gain/Lo
OTHER TRANSACTIONS										
Dividend	12/03/2018	60934N104	225,630.18	Federated Investors Government Obligations Fund	0.000		3,594.96	0.00	3,594.96	0.
Subtotal			**225,630.18**				**3,594.96**	**0.00**	**3,594.96**	**0.**
TOTAL OTHER TRANSACTIONS			**11,690,630.18**				**113,087.45**	**0.00**	**113,087.45**	**0.**

CITY OF MORENO VALLEY

December 2018

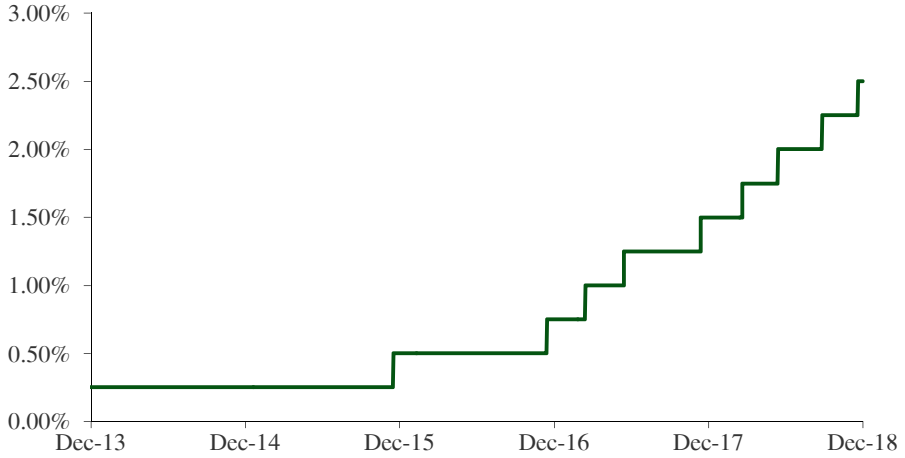
Part of BNY MELLON

Insight INVESTMENT

FIXED INCOME MARKET REVIEW

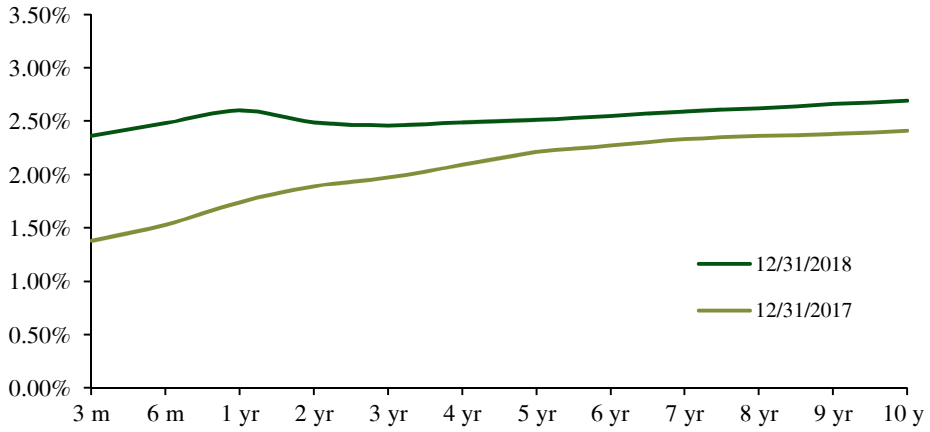
As of December 31, 2018

Chart 1: Fed funds target rate: 12/31/2013—12/31/2018



Source: Bloomberg Finance LP, December 31, 2018.

Chart 2: Treasury yield curve: 12/31/2017 and 12/31/2018



Source: Bloomberg Finance LP, December 31, 2018.

Economic Indicators and Monetary Policy

After reaching cyclical highs on November 8, 2-year US Treasury yields continued to decrease during December and the yield curve flattened further. The 2-year US Treasury note reached a peak yield of 2.97% in November and closed 2018 at a yield of 2.49%. Despite the recent downtrend in rates, the yield on the 2-year US Treasury note increased 60 basis points during 2018, from a yield of 1.89% on December 31, 2017. Lower rates over the past months were supported by continuing trade tensions and political discord, tightening financial conditions, volatile equity markets and softening in some economic releases.

On December 19 the Federal Open Market Committee (FOMC) increased the federal funds target rate 25 basis points to a range of 2.25% to 2.50% in a unanimous vote. (See Chart 1). The economic assessment presented by the FOMC was largely unchanged from the prior meeting and described a strong economy and near target level inflation conditions. The statement noted that the FOMC will monitor the risks to the current outlook posed by global economic and financial developments. Rate guidance indicated that two increases were likely in 2019.

On December 7 the payroll report was released, showing that 155,000 jobs were added in November, below expectations of 198,000, and the prior month job gains were revised downward to 237,000 from 250,000. The unemployment rate was unchanged at 3.7% and the underemployment rate increased to 7.6% from 7.4%. Wage growth was firm at 3.1% which is the fastest pace since spring 2009.

On December 11 the Producer Price Index (PPI) was released. The report showed year-over-year price increases of 2.5% at the headline level which includes food and energy and 2.7% when these volatile components are excluded. The next day the Consumer Price Index (CPI) report was published and it showed 2.2% year-over-year price increases for both the headline and core levels.

Interest Rate Summary

At the end of December, the 3-month US Treasury bill yielded 2.36%, the 6-month US Treasury bill yielded 2.48%, the 2-year US Treasury note yielded 2.49%, the 5-year US Treasury note yielded 2.51% and the 10-year US Treasury note yielded 2.69%. (See Chart 2).

ACTIVITY AND PERFORMANCE SUMMARY

For the period December 1, 2018 - December 31, 2018

Amortized Cost Basis Activity Summary

Opening balance		56,433,897.35
Income received	72,479.80	
Total receipts		72,479.80
Total disbursements		0.00
Interportfolio transfers	0.00	
Total Interportfolio transfers		0.00
Realized gain (loss)		0.00
Total amortization expense		(4,731.25)
Total OID/MKT accretion income		16,865.52
Return of capital		0.00
Closing balance		56,518,511.42
Ending fair value		56,150,974.68
Unrealized gain (loss)		(367,536.74)

Detail of Amortized Cost Basis Return

	Interest earned	Accretion (amortization)	Realized gain (loss)	Total income
Cash and Cash Equivalents	134.58	0.00	0.00	134.58
Corporate Bonds	26,051.82	1,323.42	0.00	27,375.24
Government Agencies	41,133.33	9,347.12	0.00	50,480.45
Government Bonds	11,328.37	1,463.73	0.00	12,792.10
Total	**78,648.10**	**12,134.27**	**0.00**	**90,782.37**

Comparative Rates of Return (%)

	* Twelve month trailing	* Six month trailing	* One month
Fed Funds	1.83	1.04	0.19
Overnight Repo	1.90	1.09	0.22
Merrill Lynch 3m US Treas Bill	1.92	1.08	0.20
Merrill Lynch 6m US Treas Bill	2.07	1.16	0.21
ML 1 Year US Treasury Note	2.33	1.29	0.22
ML 2 Year US Treasury Note	2.53	1.37	0.22
ML 5 Year US Treasury Note	2.75	1.42	0.23

* rates reflected are cumulative

Summary of Amortized Cost Basis Return for the Period

	Total portfolio
Interest earned	78,648.10
Accretion (amortization)	12,134.27
Realized gain (loss) on sales	0.00
Total income on portfolio	90,782.37
Average daily amortized cost	56,468,326.19
Period return (%)	0.16
YTD return (%)	1.68
Weighted average final maturity in days	343

ACTIVITY AND PERFORMANCE SUMMARY

For the period December 1, 2018 - December 31, 2018

Fair Value Basis Activity Summary

Opening balance		55,922,223.26
Income received	72,479.80	
Total receipts		72,479.80
Total disbursements		0.00
Interportfolio transfers	0.00	
Total Interportfolio transfers		0.00
Unrealized gain (loss) on security movements		0.00
Return of capital		0.00
Change in fair value for the period		156,271.62
Ending fair value		56,150,974.68

Detail of Fair Value Basis Return

	Interest earned	Change in fair value	Total income
Cash and Cash Equivalents	134.58	0.00	134.58
Corporate Bonds	26,051.82	33,886.55	59,938.37
Government Agencies	41,133.33	99,424.57	140,557.90
Government Bonds	11,328.37	22,960.50	34,288.87
Total	**78,648.10**	**156,271.62**	**234,919.72**

Comparative Rates of Return (%)

	* Twelve month trailing	* Six month trailing	* One month
Fed Funds	1.83	1.04	0.19
Overnight Repo	1.90	1.09	0.22
ICE ML 3m US Treas Bill	1.87	1.06	0.18
ICE ML 6m US Treas Bill	1.92	1.11	0.22
ICE ML 1 Year US Treasury Note	1.86	1.20	0.36
ICE ML US Treasury 1-3	1.58	1.49	0.79
ICE ML US Treasury 1-5	1.52	1.77	1.11

* rates reflected are cumulative

Summary of Fair Value Basis Return for the Period

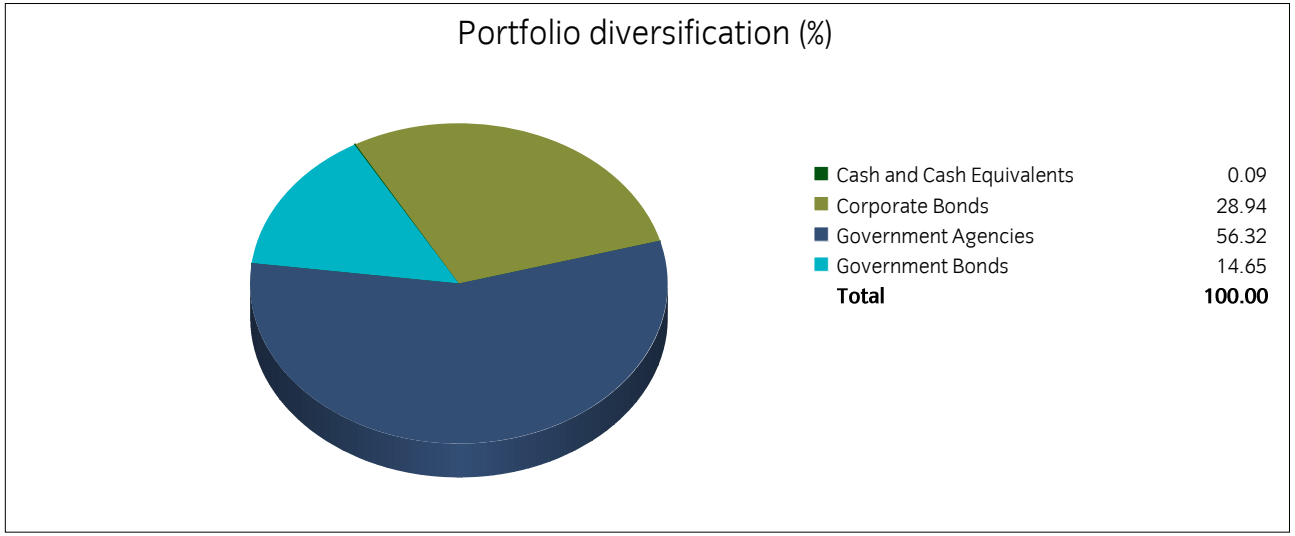
	Total portfolio
Interest earned	78,648.10
Change in fair value	156,271.62
Total income on portfolio	234,919.72
Average daily total value *	56,250,111.10
Period return (%)	0.42
YTD return (%)	1.62
Weighted average final maturity in days	343

* Total value equals market value and accrued interest

RECAP OF SECURITIES HELD

As of December 31, 2018

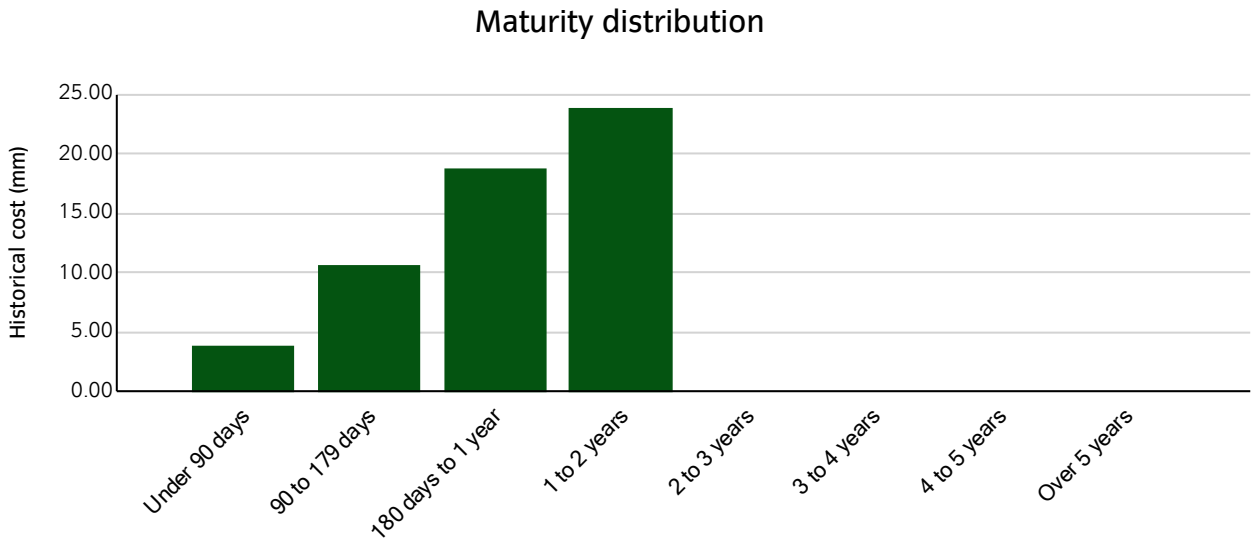
	Historical cost	Amortized cost	Fair value	Unrealized gain (loss)	Weighted average final maturity (days)	Percent of portfolio	Weighted average effective duration (years)
Cash and Cash Equivalents	52,250.46	52,250.46	52,250.46	0.00	1	0.09	0.00
Corporate Bonds	16,355,413.63	16,328,958.10	16,213,918.87	(115,039.23)	272	28.94	0.72
Government Agencies	31,823,273.83	31,855,534.42	31,647,239.20	(208,295.22)	389	56.32	1.04
Government Bonds	8,278,076.17	8,281,768.44	8,237,566.15	(44,202.29)	309	14.65	0.82
Total	56,509,014.09	56,518,511.42	56,150,974.68	(367,536.74)	343	100.00	0.91



MATURITY DISTRIBUTION OF SECURITIES HELD

As of December 31, 2018

Maturity	Historic cost	Percent
Under 90 days	3,713,230.52	6.57
90 to 179 days	10,464,487.13	18.52
180 days to 1 year	18,604,403.97	32.92
1 to 2 years	23,726,892.47	41.99
2 to 3 years	0.00	0.00
3 to 4 years	0.00	0.00
4 to 5 years	0.00	0.00
Over 5 years	0.00	0.00
	56,509,014.09	100.00



SECURITIES HELD

As of December 31, 2018

Cusip/ Description	Coupon	Maturity/ Call date	Par value or shares	Historical cost/ Accrued interest purchased	Amortized cost/ Accretion (amortization)	Fair value/ Change in fair value	Unrealized gain (loss)	Interest received	Interest earned	Total accrued interest	% Port cost
Cash and Cash Equivalents											
Cash and Cash Equivalents	0.000		52,250.46	52,250.46 0.00	52,250.46 0.00	52,250.46 0.00	0.00	0.00	0.00	0.00	0.09
Total Cash and Cash Equivalents			**52,250.46**	**52,250.46** **0.00**	**52,250.46** **0.00**	**52,250.46** **0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.09**
Corporate Bonds											
68389XAQ8 ORACLE CORP 2.375% 15JAN2019	2.375	01/15/2019	1,000,000.00	1,002,870.00 0.00	1,000,125.15 (250.29)	999,764.00 314.00	(361.15)	0.00	2,045.14	10,951.39	1.77
17275RBB7 CISCO SYSTEMS INC 1.6% 28FEB2019	1.600	02/28/2019	700,000.00	702,331.00 0.00	700,128.55 (64.27)	698,562.20 616.00	(1,566.35)	0.00	964.45	3,826.67	1.24
17275RAR3 CISCO SYSTEMS INC 2.125% 01MAR2019	2.125	03/01/2019	500,000.00	503,740.00 0.00	500,126.39 (62.16)	499,296.50 81.50	(829.89)	0.00	914.93	3,541.67	0.89
89236TDE2 TOYOTA MOTOR CREDIT CORP 1.4% 20MAY2019	1.400	05/20/2019	1,500,000.00	1,504,395.00 0.00	1,500,585.44 (125.45)	1,491,529.50 1,176.00	(9,055.94)	0.00	1,808.34	2,391.67	2.66
94988J5D5 WELLS FARGO BANK NA 1.75% 24MAY2019	1.750	05/24/2019	1,200,000.00	1,196,316.00 0.00	1,199,354.63 134.45	1,193,901.60 933.60	(5,453.03)	0.00	1,808.33	2,158.33	2.12
02665WAH4 AMERICAN HONDA FINANCE 2.25% 15AUG2019	2.250	08/15/2019	1,500,000.00	1,541,520.00 0.00	1,507,984.62 (1,064.61)	1,492,951.50 8,343.00	(15,033.12)	0.00	2,906.25	12,750.00	2.73
084664CK5 BERKSHIRE HATHAWAY FIN 1.3% 15AUG2019	1.300	08/15/2019	1,000,000.00	988,300.00 0.00	992,070.78 1,057.23	989,503.00 513.00	(2,567.78)	0.00	1,119.44	4,911.11	1.75
713448DJ4 PEPSICO INC 1.35% 04OCT2019	1.350	10/04/2019	1,500,000.00	1,487,931.00 0.00	1,496,257.61 409.76	1,482,070.50 1,917.00	(14,187.11)	0.00	1,743.75	4,893.75	2.63

SECURITIES HELD

As of December 31, 2018

Cusip/ Description	Coupon	Maturity/ Call date	Par value or shares	Historical cost/ Accrued interest purchased	Amortized cost/ Accretion (amortization)	Fair value/ Change in fair value	Unrealized gain (loss)	Interest received	Interest earned	Total accrued interest	% Port cost
Corporate Bonds											
24422ETJ8	1.250	10/09/2019	1,000,000.00	979,508.26	990,004.91	986,172.00	(3,832.91)	0.00	1,076.39	2,847.22	1.73
JOHN DEERE CAPITAL CORP 1.25% 09OCT2019				0.00	1,074.75	1,895.00					
69353RDZ8	2.400	10/18/2019	1,000,000.00	994,960.00	997,360.87	994,093.00	(3,267.87)	0.00	2,066.67	4,866.67	1.76
PNC BANK NA 2.4% 18OCT2019 (CALLABLE 18SEP19)		09/18/2019		0.00	274.91	(88.00)					
037833DH0	1.800	11/13/2019	989,000.00	977,874.87	981,812.61	980,919.87	(892.74)	0.00	1,532.95	2,373.60	1.73
APPLE INC 1.8% 13NOV2019				0.00	688.89	1,955.25					
594918AY0	1.850	02/12/2020	1,000,000.00	1,004,330.00	1,001,696.55	991,493.00	(10,203.55)	0.00	1,593.06	7,143.06	1.78
MICROSOFT CORP 1.85% 12FEB2020 (CALLABLE 12JAN20)		01/12/2020		0.00	(126.61)	3,408.00					
166764AR1	1.961	03/03/2020	1,000,000.00	1,003,180.00	1,001,560.49	989,960.00	(11,600.49)	0.00	1,688.64	6,427.72	1.78
CHEVRON CORP 1.961% 03MAR2020 (CALLABLE 03FEB20)		02/03/2020		0.00	(110.67)	4,424.00					
25468PDP8	1.950	03/04/2020	1,000,000.00	1,003,140.00	1,001,311.68	990,318.00	(10,993.68)	0.00	1,679.17	6,337.50	1.78
WALT DISNEY COMPANY/THE 1.95% 04MAR2020				0.00	(92.81)	4,197.00					
69353REP9	2.300	06/01/2020	550,000.00	550,104.50	550,060.07	542,594.80	(7,465.27)	6,325.00	1,089.31	1,054.17	0.97
PNC BANK NA 2.3% 01JUN2020 (CALLABLE 02MAY20)		05/02/2020		0.00	(3.52)	950.40					
0258M0DX4	2.600	09/14/2020	900,000.00	914,913.00	908,517.75	890,789.40	(17,728.35)	0.00	2,015.00	6,955.00	1.62
AMERICAN EXPRESS CREDIT 2.6% 14SEP2020 (CALLABLE 14AUG20)		08/13/2020		0.00	(416.18)	3,250.80					
Total Corporate Bonds			**16,339,000.00**	**16,355,413.63**	**16,328,958.10**	**16,213,918.87**	**(115,039.23)**	**6,325.00**	**26,051.82**	**83,429.53**	**28.94**
				0.00	**1,323.42**	**33,886.55**					

SECURITIES HELD

As of December 31, 2018

Cusip/ Description	Coupon	Maturity/ Call date	Par value or shares	Historical cost/ Accrued interest purchased	Amortized cost/ Accretion (amortization)	Fair value/ Change in fair value	Unrealized gain (loss)	Interest received	Interest earned	Total accrued interest	% Port cost
Government Agencies											
3137EADZ9	1.125	04/15/2019	2,000,000.00	2,000,040.00	2,000,003.83	1,992,544.00	(7,459.83)	0.00	1,937.50	4,750.00	3.54
FREDDIE MAC 1.125% 15APR2019				0.00	(1.09)	2,454.00					
3134GBRH7	1.400	06/14/2019	1,500,000.00	1,499,100.00	1,499,791.23	1,492,140.00	(7,651.23)	10,500.00	1,808.34	991.67	2.65
FREDDIE MAC 1.4% 14JUN2019 CALLABLE				0.00	38.19	1,695.00					
3134G44Y1	1.250	06/24/2019	2,100,000.00	2,075,808.00	2,091,212.09	2,086,518.00	(4,694.09)	13,125.00	2,260.42	510.42	3.67
FREDDIE MAC 1.25% 24JUN2019 CALLABLE				0.00	1,515.15	2,541.00					
3133ECW83	2.060	08/01/2019	1,500,000.00	1,526,550.00	1,505,817.29	1,495,650.00	(10,167.29)	0.00	2,660.83	12,875.00	2.70
FEDERAL FARM CREDIT BANK 2.06% 01AUG2019				0.00	(827.10)	1,395.00					
3135G0P49	1.000	08/28/2019	1,100,000.00	1,079,969.00	1,089,590.88	1,088,278.40	(1,312.48)	0.00	947.22	3,758.33	1.91
FANNIE MAE 1% 28AUG2019				0.00	1,312.08	1,710.50					
313380FB8	1.375	09/13/2019	1,000,000.00	1,016,632.00	1,003,636.90	991,010.00	(12,626.90)	0.00	1,184.03	4,125.00	1.80
FEDERAL HOME LOAN BANK 1.375% 13SEP2019				0.00	(431.26)	1,550.00					
3130ACM92	1.500	10/21/2019	1,500,000.00	1,486,380.00	1,493,565.88	1,486,027.50	(7,538.38)	0.00	1,937.50	4,375.00	2.63
FEDERAL HOME LOAN BANK 1.5% 21OCT2019				0.00	663.32	2,713.50					
3135G0R39	1.000	10/24/2019	3,790,000.00	3,731,290.53	3,737,881.81	3,739,763.55	1,881.74	0.00	2,450.83	7,053.61	6.60
FANNIE MAE 1% 24OCT2019				(2,902.78)	4,150.45	6,723.72					
3130AA2H0	1.125	11/29/2019	1,700,000.00	1,684,980.50	1,695,428.85	1,677,322.00	(18,106.85)	0.00	1,646.87	1,700.00	2.98
FEDERAL HOME LOAN BANK 1.125% 29NOV2019				0.00	416.82	4,471.00					
3137EAEE5	1.500	01/17/2020	1,000,000.00	990,460.00	995,146.32	988,783.00	(6,363.32)	0.00	1,291.66	6,833.33	1.75
FREDDIE MAC 1.5% 17JAN2020				0.00	386.24	2,647.00					

SECURITIES HELD

As of December 31, 2018

Cusip/ Description	Coupon	Maturity/ Call date	Par value or shares	Historical cost/ Accrued interest purchased	Amortized cost/ Accretion (amortization)	Fair value/ Change in fair value	Unrealized gain (loss)	Interest received	Interest earned	Total accrued interest	% Port cost
Government Agencies											
3133ECEY6	1.450	02/11/2020	1,000,000.00	999,000.00	999,652.21	988,340.00	(11,312.21)	0.00	1,248.61	5,638.89	1.77
FEDERAL FARM CREDIT BANK 1.45% 11FEB2020				0.00	26.02	4,010.00					
3134G96L6	1.300	02/25/2020	1,000,000.00	1,000,000.00	1,000,000.00	985,350.00	(14,650.00)	0.00	1,119.44	4,550.00	1.77
FREDDIE MAC 1.3% 25FEB2020 (CALLABLE 25FEB19)		02/25/2019		0.00	0.00	3,320.00					
3135G0T29	1.500	02/28/2020	1,100,000.00	1,082,587.00	1,083,932.38	1,087,479.80	3,547.42	0.00	1,420.83	5,637.50	1.92
FANNIE MAE 1.5% 28FEB2020				0.00	1,153.18	4,720.10					
3136G3UB9	1.200	03/30/2020	1,300,000.00	1,299,025.00	1,299,665.84	1,279,278.00	(20,387.84)	0.00	1,300.00	3,900.00	2.30
FANNIE MAE 1.2% 30MAR2020 CALLABLE				0.00	22.28	6,097.00					
3133EJNW5	2.550	05/15/2020	1,250,000.00	1,249,450.00	1,249,610.52	1,250,181.25	570.73	0.00	2,744.79	4,072.92	2.21
FEDERAL FARM CREDIT BANK 2.55% 15MAY2020				0.00	23.61	4,818.75					
3135G0D75	1.500	06/22/2020	1,300,000.00	1,272,349.00	1,276,979.14	1,280,982.30	4,003.16	9,750.00	1,679.17	487.50	2.25
FANNIE MAE 1.5% 22JUN2020				0.00	1,298.17	6,528.60					
3130AB6A9	1.650	07/20/2020	1,000,000.00	999,910.00	999,956.21	986,480.00	(13,476.21)	0.00	1,420.84	7,379.17	1.77
FEDERAL HOME LOAN BANK 1.65% 20JUL2020				0.00	2.34	5,110.00					
3130ACBY9	1.680	08/28/2020	1,600,000.00	1,600,000.00	1,600,000.00	1,577,312.00	(22,688.00)	0.00	2,240.00	8,960.00	2.83
FEDERAL HOME LOAN BANK 1.68% 28AUG2020 (CALLABLE 28FEB19)		02/28/2019		0.00	0.00	8,496.00					
3133EHYM9	1.500	09/14/2020	1,500,000.00	1,495,110.00	1,497,207.01	1,472,805.00	(24,402.01)	0.00	1,937.50	6,687.50	2.65
FEDERAL FARM CREDIT BANK 1.5% 14SEP2020				0.00	136.46	7,650.00					
3133EDWV0	2.140	10/06/2020	1,860,000.00	1,860,855.60	1,860,551.33	1,845,603.60	(14,947.73)	0.00	3,427.57	9,398.17	3.29
FEDERAL FARM CREDIT BANK 2.14% 06OCT2020				0.00	(26.00)	9,132.60					

SECURITIES HELD

As of December 31, 2018

Cusip/ Description	Coupon	Maturity/ Call date	Par value or shares	Historical cost/ Accrued interest purchased	Amortized cost/ Accretion (amortization)	Fair value/ Change in fair value	Unrealized gain (loss)	Interest received	Interest earned	Total accrued interest	% Port cost
Government Agencies											
3133EG2L8 FEDERAL FARM CREDIT BANK 1.92% 28DEC2020	1.920	12/28/2020	1,880,000.00	1,873,777.20 0.00	1,875,904.70 171.11	1,855,390.80 11,298.80	(20,513.90)	18,048.00	3,108.27	300.80	3.32
Total Government Agencies			**31,980,000.00**	**31,823,273.83** **(2,902.78)**	**31,855,534.42** **10,029.97**	**31,647,239.20** **99,082.57**	**(208,295.22)**	**51,423.00**	**39,772.22**	**103,984.81**	**56.32**
Government Bonds											
912828B33 USA TREASURY 1.5% 31JAN2019	1.500	01/31/2019	1,450,000.00	1,452,039.06 0.00	1,450,129.00 (129.00)	1,449,037.20 964.25	(1,091.80)	0.00	1,832.20	9,042.80	2.57
912828C65 USA TREASURY 1.625% 31MAR2019	1.625	03/31/2019	2,200,000.00	2,188,828.13 0.00	2,197,230.11 954.07	2,195,690.20 2,222.00	(1,539.91)	0.00	3,044.64	9,035.71	3.87
912828F39 USA TREASURY 1.75% 30SEP2019	1.750	09/30/2019	1,100,000.00	1,108,507.81 0.00	1,102,794.98 (317.38)	1,092,867.60 1,460.80	(9,927.38)	0.00	1,639.43	4,865.39	1.96
912828X21 USA TREASURY 1.5% 15APR2020	1.500	04/15/2020	1,500,000.00	1,498,652.34 0.00	1,499,317.48 44.93	1,480,020.00 6,153.00	(19,297.48)	0.00	1,916.21	4,759.62	2.65
9128282Q2 USA TREASURY 1.5% 15AUG2020	1.500	08/15/2020	750,000.00	733,857.42 0.00	734,683.92 800.67	737,724.75 3,984.75	3,040.83	0.00	947.69	4,218.75	1.30
912828WC0 USA TREASURY 1.75% 31OCT2020	1.750	10/31/2020	1,300,000.00	1,296,191.41 0.00	1,297,612.95 110.44	1,282,226.40 8,175.70	(15,386.55)	0.00	1,948.20	3,833.56	2.29
Total Government Bonds			**8,300,000.00**	**8,278,076.17** **0.00**	**8,281,768.44** **1,463.73**	**8,237,566.15** **22,960.50**	**(44,202.29)**	**0.00**	**11,328.37**	**35,755.83**	**14.65**
Grand total			56,671,250.46	56,509,014.09 (2,902.78)	56,518,511.42 12,817.12	56,150,974.68 155,929.62	(367,536.74)	57,748.00	77,152.41	223,170.17	100.00

SECURITIES PURCHASED

For the period December 1, 2018 - December 31, 2018

Cusip / Description / Broker	Trade date Settle date	Coupon	Maturity/ Call date	Par value or shares	Unit cost	Principal cost	Accrue interest purchase
Government Agencies							
3135G0R39	12/12/2018	1.000	10/24/2019	2,090,000.00	98.53	(2,059,241.93)	(2,902.7
FANNIE MAE 1% 24OCT2019	12/14/2018						
WELLS FARGO SECURITIES INTL LTD							
Total Government Agencies				**2,090,000.00**		**(2,059,241.93)**	**(2,902.7**
Grand total				2,090,000.00		(2,059,241.93)	(2,902.7

SECURITIES SOLD AND MATURED

For the period December 1, 2018 - December 31, 2018

Cusip/ Description/ Broker	Trade date Settle date	Coupon	Maturity/ Call date	Par value or shares	Historical cost	Amortized cost at sale or maturity /Accr (amort)	Price	Fair value at sale or maturity / Chg.in fair value	Realized gain (loss)	Accrued interest sold	Interest received	Int e	t d
Government Agencies													
313376BR5 FEDERAL HOME LN BKS CONS BD 1.75 DUE 12-14-2018	12/14/2018 12/14/2018	1.750		(2,000,000.00)	2,043,800.00	2,000,000.00 (682.85)	0.00	2,000,000.00 342.00	0.00	0.00	17,500.00	1,3	1
Total (Government Agencies)				(2,000,000.00)	2,043,800.00	2,000,000.00 (682.85)		2,000,000.00 342.00	0.00	0.00	17,500.00	1,3	1
Grand total				(2,000,000.00)	2,043,800.00	2,000,000.00 (682.85)		2,000,000.00 342.00	0.00	0.00	17,500.00	1,3	1

TRANSACTION REPORT

For the period December 1, 2018 - December 31, 2018

Trade date Settle date	Cusip	Transaction	Sec type	Description	Maturity	Par value or shares	Realized gain(loss)	Principal	Interest	Transactior	al
12/01/2018 12/01/2018	69353REP9	Income	Corporate Bonds	PNC BANK NA 2.3% 01JUN2020	06/01/2020	550,000.00	0.00	0.00	6,325.00	6,3	0
12/12/2018 12/14/2018	3135G0R39	Bought	Government Agencies	FANNIE MAE 1% 24OCT2019	10/24/2019	2,090,000.00	0.00	(2,059,241.93)	(2,902.78)	(2,062,1	l)
12/14/2018 12/14/2018	313376BR5	Income	Government Agencies	FEDERAL HOME LN BKS CONS	12/14/2018	2,000,000.00	0.00	0.00	17,500.00	17,5	0
12/14/2018 12/14/2018	313376BR5	Capital Change	Government Agencies	FEDERAL HOME LN BKS CONS	12/14/2018	(2,000,000.00)	0.00	2,000,000.00	0.00	2,000,0	0
12/14/2018 12/14/2018	3134GBRH7	Income	Government Agencies	FREDDIE MAC 1.4% 14JUN2019	06/14/2019	1,500,000.00	0.00	0.00	10,500.00	10,5	0
12/22/2018 12/22/2018	3135G0D75	Income	Government Agencies	FANNIE MAE 1.5% 22JUN2020	06/22/2020	1,300,000.00	0.00	0.00	9,750.00	9,7	0
12/24/2018 12/24/2018	3134G44Y1	Income	Government Agencies	FREDDIE MAC 1.25%	06/24/2019	2,100,000.00	0.00	0.00	13,125.00	13,1	0
12/28/2018 12/28/2018	3133EG2L8	Income	Government Agencies	FEDERAL FARM CREDIT BANK	12/28/2020	1,880,000.00	0.00	0.00	18,048.00	18,0	0
12/31/2018		Income	Cash and Cash Equivalents	Cash		0.00	0.00	0.00	134.58	1	8

CHANDLER ASSET MANAGEMENT

BOND MARKET REVIEW

A Monthly Review of Fixed Income Markets

JANUARY 2019

IN THIS ISSUE:

Since 1988, Chandler Asset Management has specialized in the management of fixed income portfolios. Chandler's mission is to provide fully customizable, client-centered portfolio management that preserves principal, manages risk and generates income in our clients' portfolios.

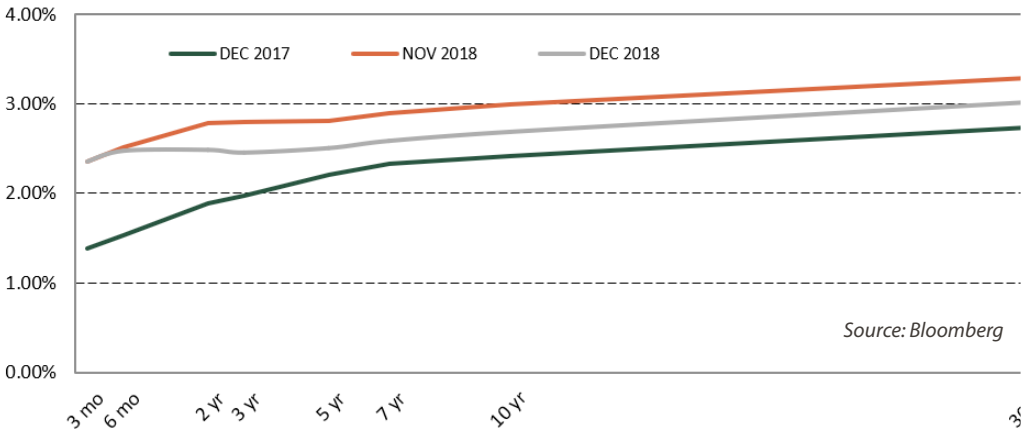
Market Summary

The Federal Open Market Committee (FOMC) raised the fed funds target rate by 25 basis points December to a range of 2.25%-2.50%. Although recent economic data has softened, the rate hike w widely expected. The Fed's long run fed funds rate target was lowered to 2.8% from the previous estim of 3.0%. However, the Fed did little to acknowledge the changing market dynamics and tighteni financial conditions, reaffirming their strong economic forecast for 2019 and emphasizing the balar sheet reduction strategy remains on track. Although the modest adjustment in the Fed's projections w a step in the right direction, some market participants were expecting a more dovish tone from the F Chair. More recently, the Fed Chair and other members of the FOMC have begun to sound more dovish. continue to believe the terminal fed funds rate will be below 3.0% and believe the Fed is at risk of maki a policy error if monetary policy continues to tighten at the same quarterly pace of 2018. We believe th is a high probability that the Fed will keep monetary policy on pause at least through the first quarter.

Interest rate sensitive sectors such as housing and autos have softened, and financial conditions ha tightened in recent months as equity prices have declined, borrowing costs have increased, and the dollar has strengthened. Global economic growth has slowed, even as many other global central bar remain accommodative. Although US labor market conditions remain tight, we expect the pace of j growth is likely to slow as the economy is at or near full employment. Meanwhile, inflation pressu remain subdued, particularly as oil prices have declined meaningfully over the past three months. Thou we don't foresee a recession in the near-term, economic growth has eased. The consensus forecast c for GDP growth of 2.6% this year versus 2.9% in 2018.

Treasury yields declined in December and a portion of the Treasury yield curve inverted with the yi on 5-year Treasuries falling below the yield on 2-year Treasuries. Notably, the yield on 5-year Treasur temporarily fell below the yield on 3-month T-bills last week. Although the yield curve hasn't complet inverted, we believe the current flatness of the curve reflects a high level of market participa nervousness about the outlook for economic growth. At December month-end, the 2-year Treasury yi was down nearly 30 basis points to 2.49%, while the 10-year Treasury yield was down slightly more th 30 basis points to 2.68%. The spread between 2- and 10-year Treasury yields was just 20 basis points year-end.

The Treasury Yield Curve Has Flattened



On a year-over-year basis, Treasury yields increased, and the Treasury yield curve flattened. The spr between 2-Year and 10-year Treasury yields narrowed from 52 basis points to 20 basis points in 2018. R hikes by the Federal Reserve have put upward pressure on rates, while supply and demand imbalan technical factors, weakening global economic growth, and subdued inflation expectations have contribu to the curve flattening.

TREASURY YIELDS	Trend (▲/▼)	12/31/2018	11/30/2018	Change
3-Month	▲	2.36	2.35	0.01
2-Year	▼	2.49	2.79	(0.30)
3-Year	▼	2.46	2.80	(0.34)
5-Year	▼	2.51	2.81	(0.30)
7-Year	▼	2.59	2.90	(0.31)
10-Year	▼	2.69	2.99	(0.30)
30-Year	▼	3.02	3.29	(0.27)

Source: Bloomberg

Market Data

World Indices
data as of 12/31/2018

	Diff (11/30/18)	% Change
S&P 500		
2,506.85	253.32	9.18%
NASDAQ		
6,635.28	695.26	9.48%
DOW JONES		
23,327.46	2,211.00	8.66%
FTSE (UK)		
6,728.13	252.11	3.61%
DAX (Germany)		
10,558.96	698.28	6.20%
Hang Seng (Hong Kong)		
25,845.70	661.05	2.49%
Nikkei (Japan)		
20,014.77	2,336.29	10.45%

Source: Bloomberg

Economic Roundup

Consumer Prices

The Consumer Price Index (CPI) was up just 2.2% year-over-year in November, versus up 2.5% year-over-year in October. Cor CPI (CPI less food and energy) was also up 2.2% year-over-year in November, versus up 2.1% year-over-year in October. Th Personal Consumption Expenditures (PCE) index was up 1.8% year-over-year in November, versus up 2.0% year-over-year i October. Core PCE (excluding food and energy) was up 1.9% on a year-over-year basis in November, versus up 1.8% in Octobe Core PCE inflation, which is the Fed's primary inflation gauge remains below the Fed's 2.0% target.

Retail Sales

On a year-over-year basis, retail sales were up 4.2% in November, versus up 4.8% year-over-year in October. On a month-ove month basis, retail sales increased 0.2% in November, above expectations for a 0.1% increase, following growth of 1.1% i October. October sales were likely boosted in part by a hurricane-related rebound in auto sales and building materials. Lowe gas prices held back monthly retail sales growth in November, but sales growth excluding autos and gas was solid.

Labor Market

U.S. payrolls rose by 312,000 in December, well above the consensus forecast of 184,000. October and November payrol were revised up by a total of 58,000. On a trailing 3-month and 6-month basis payrolls increased by an average of 254,00 and 222,000 per month, respectively, more than enough to absorb new entrants into the labor market. The unemploymer rate increased to 3.9% in December from 3.7% in November as the labor participation rate increased to 63.1% from 62.9%. broader measure of unemployment called the U-6, which includes those who are marginally attached to the labor force an employed part time for economic reasons, was unchanged at 7.6%. Wages jumped 0.4% in December on a month-over-mont basis, exceeding expectations of 0.3%. Wages were up 3.2% on a year-over-year basis in December, versus up 3.1% year-ove year in November. The average workweek increased to 34.5 hours in December from 34.4 hours in November.

Housing Starts

Total housing starts were stronger than expected in November, up 3.2% to a 1.256 million annualized rate. However, th growth was driven by multi-family starts which rose 22.4%. Single-family starts declined 4.6% in November. Permits rose 5.0 in the month.

Credit Spreads Widened Further in December

CREDIT SPREADS	Spread to Treasuries (%)	One Month Ago (%)	Change
3-month top rated commercial paper	0.35	0.30	0.05
2-year A corporate note	0.67	0.58	0.09
5-year A corporate note	0.91	0.85	0.06
5-year Agency note	0.15	0.18	(0.03)

Source: Bloomberg

Data as of 12/31/2018

Economic Growth Has Moderated

ECONOMIC INDICATOR	Current Release	Prior Release	One Year Ago
Trade Balance	(55.5) $Bln OCT 18	(54.6) $Bln SEP 18	(47.0) $Bln OCT 17
GDP	3.4% SEP 18	4.2% JUN 18	2.8% SEP 17
Unemployment Rate	3.9% DEC 18	3.7% NOV 18	4.1% DEC 17
Prime Rate	5.50% DEC 18	5.25% NOV 18	4.50% DEC 17
CRB Index	169.80 DEC 18	181.74 NOV 18	193.86 DEC 17
Oil (West Texas Int.)	$45.41 DEC 18	$50.93 NOV 18	$60.42 DEC 17
Consumer Price Index (y/o/y)	2.2% NOV 18	2.5% OCT 18	2.2% NOV 17
Producer Price Index (y/o/y)	1.6% NOV 18	3.4% OCT 18	4.2% NOV 17
Dollar/Euro	1.15 DEC 18	1.13 NOV 18	1.20 DEC 17

Source: Bloomberg

CHANDLER ASSET MANAGEMENT
Toll Free: 800.317.4747
info@chandlerasset.com
chandlerasset.com

Report to City Council

TO:	Mayor and City Council Acting in its Capacity as Chairman and Members of the Board of Directors of the Moreno Valley Public Financing Authority (MVPFA)
FROM:	Pat Jacquez-Nares, City Clerk
AGENDA DATE:	March 5, 2019
TITLE:	CONSIDER A RESOLUTION OF THE PUBLIC FINANCING AUTHORITY SETTING THE REGULAR MEETING DATES

RECOMMENDED ACTION

Recommendation: That the Public Finance Authority

Adopt a Resolution of the Moreno Valley Public Financing Authority Establishing New Regular Meeting Dates.

SUMMARY/DISCUSSION

The City of Moreno Valley Public Finance Authority has one regular meeting per year in January. Staff recommends that the Authority set their regular meetings the same dates on which the City Council holds its regular meetings, at 6:00 p.m.; provided however, that if there are no Authority items on the agenda, such regular meeting shall be deemed cancelled. Each such regular meeting of the Board of Directors shall be held at the same location as the regular meeting of the City Council held on the same date.

This change is recommended to accommodate the bond refinancing schedule which requires the Authority to act at regular meetings. Therefore, Authority Board is asked to adopt the attached resolution setting their meetings to correspond with the City Council meetings.

FISCAL IMPACT

Adoption of the Resolution will have a positive fiscal impact to the City, as it will simplify necessary bond refinancing procedures and avoid the necessity of special meeting for the Board.

NOTIFICATION

Posting of the agenda as required by the Brown Act.

PREPARATION OF STAFF REPORT

Prepared By:
Name: Pat Jacquez-Nares
Title City Clerk

Department Head Approval:
Name: Pat Jacquez-Nares
Title: City Clerk

CITY COUNCIL GOALS

None

CITY COUNCIL STRATEGIC PRIORITIES

1. **Economic Development**
2. **Public Safety**
3. **Library**
4. **Infrastructure**
5. **Beautification, Community Engagement, and Quality of Life**
6. **Youth Programs**

ATTACHMENTS

1. JPA Resolution Regular Meeting schedule final1

APPROVALS

Budget Officer Approval	✓ Approved	2/27/19 1:34 PM
City Attorney Approval	✓ Approved	2/26/19 4:47 PM
City Manager Approval	✓ Approved	2/27/19 1:36 PM

MORENO VALLEY PUBLIC FINANCING AUTHORITY
RESOLUTION NO. ____ REVISING REGULAR MEETING SCHEDULE

WHEREAS, the City of Moreno Valley (the "City") and the former Community Redevelopment Agency of the City of Moreno Valley (the "Agency") have heretofore executed a Joint Exercise of Powers Agreement, dated as of October 28, 1997 (the "Joint Powers Agreement"), by and between the City and the Agency, which Joint Powers Agreement creates and establishes the Moreno Valley Public Financing Authority (the "Authority") and provides that regular meetings of the Board of Directors of the Authority (the "Board of Directors") shall be held at such time as the Board of Directors may fix by resolution from time to time;

WHEREAS, Government Code Section 6592.1 act requires resolutions authorizing bonds or any issuance of bonds or accepting the benefit of any bonds or the proceeds of bonds be adopted by a joint powers authority at a regular meeting held pursuant to Government Code Section 54954; and

WHEREAS, the Board of Directors desires to establish a new schedule of regular meetings of the Board of Directors;

NOW THEREFORE, THE BOARD OF DIRECTORS OF THE MORENO VALLEY PUBLIC FINANCING AUTHORITY HEREBY FINDS, DETERMINES, DECLARES AND RESOLVES, AS FOLLOWS:

Section 1. The foregoing recitals are true and correct and the Authority hereby so finds and determines.

Section 2. The Board of Directors hereby fixes the dates and time for the regular meetings of the Board of Directors as the same dates on which the City Council of the City (the "City Council") holds its regular meetings, at 6:00 p.m.; provided, however, that if an agenda (containing a brief general description of each item of business to be transacted or discussed) for any such regular meeting of the Board of Directors is not posted at least 72 hours before any such regular meeting, such regular meeting shall be deemed cancelled. Each such regular meeting of the Board of Directors shall be held at the same location as the regular meeting of the City Council held on the same date.

Section 3. The Chairman, Vice Chairman, Executive Director, Treasurer and Secretary of the Authority are hereby authorized and directed, jointly and severally, to do any and all things which they may deem necessary or advisable in order to effectuate the purposes of this Resolution, and such actions previously taken by such officers are hereby ratified and confirmed.

Section 4. This Resolution shall take effect upon its adoption.

APPROVED AND ADOPTED this _____ __, 2019.

_____
Chairman

APPROVED AS TO FORM:

_____
Authority General Counsel

ATTEST:

_____
Authority Secretary

SECRETARY'S CERTIFICATE

The undersigned, Secretary of the Moreno Valley Public Financing Authority, does hereby certify as follows:

The foregoing resolution is a full, true and correct copy of a resolution duly adopted by a vote of a majority of the members of the Board of Directors of said Authority at a special meeting of the Board of Directors of said Authority duly and legally held at Council Chambers of the City Council, City Hall, 14177 Frederick Street, Moreno Valley, California, on _____ __, 2019, of which meeting all of such members had due notice, as follows:

AYES:

NOES:

ABSTAIN:

ABSENT:

An agenda of said meeting was posted at least 24 hours before said meeting at 14177 Frederick Street, Moreno Valley, California, a location freely accessible to members of the public, and a brief description of said resolution appeared on said agenda.

I have carefully compared the foregoing with the original minutes of said meeting on file and of record in my office, and the foregoing is a full, true and correct copy of the original resolution adopted at said meeting and entered in said minutes.

Said resolution has not been amended, modified or rescinded since the date of its adoption and the same is now in full force and effect.

Dated: _____, 2019

_____
Secretary of the
Moreno Valley Public Financing Authority

Report to City Council

TO:	Mayor and City Council
FROM:	Richard J. Sandzimier, Community Development Director Richard J. Sandzimier, Community Development Director
AGENDA DATE:	March 5, 2019
TITLE:	PROPOSED GENERAL PLAN AMENDMENT, SPECIFIC PLAN AMENDMENT, CHANGE OF ZONE, PLOT PLAN FOR 112 RESIDENTIAL UNITS, AND A TENTATIVE PARCEL MAP 37514 FOR PROPERTY AT NORTHEAST CORNER KRAMERIA AVENUE AND LASSELLE STREET

RECOMMENDED ACTION

Recommendations: That the City Council:

1. **ADOPT** Resolution 2019-XX: A Resolution of the City Council of the City of Moreno Valley **CERTIFYING** that the Addendum to EIR 190 prepared for General Plan Amendment PEN18-0119, Specific Plan Amendment PEN18-0120, Zone Change PEN18-0121, Parcel Map PEN18-0090 and Plot Plan PEN18-0107 on file with the Community Development Department, incorporated herein by this reference, has been completed in compliance with the California Environmental Quality Act, that the City Council reviewed and considered the information contained in the Addendum and that the document reflects the City's independent judgment and analysis and **ADOPTING** the Mitigation Monitoring Program prepared for Parcel Map PEN18-0090 and Plot Plan PEN18-0107; and

2. **ADOPT** Resolution 2019-XX: A Resolution of the City Council of the City of Moreno Valley approving General Plan Amendment application PEN18-0119 to change the land use designation for a portion of the site from Residential 20 to Commercial; and

3. **INTRODUCE** and conduct the first reading by title only of Ordinance No. 2019-XX, approving a Specific Plan Amendment (PEN18-0120) from High Density Residential to Neighborhood Commercial and Medium High Density Residential for the areas described in the Ordinance, based on the findings contained in the Ordinance, and as shown on the attachment included as Exhibit A; and

4. **INTRODUCE** and conduct the first reading by title only of Ordinance No. 2019-XX, approving a Zone Change (PEN18-0121) from High Density Residential to Neighborhood Commercial and Medium High Density Residential for the areas described in the Ordinance, based on the findings contained in the Ordinance, and the revised Zoning Atlas; and

5. **ADOPT** Resolution No. 2019-XX, A Resolution of the City Council of the City of Moreno Valley approving Tentative Parcel Map application PEN18-0090 based on the findings contained in this resolution, and subject to the conditions of approval included as Exhibit A; and

6. **ADOPT** Resolution No. 2019-XX, A Resolution of the City Council of the City of Moreno Valley approving Plot Plan application PEN18-0107 based on the findings contained in this resolution, and subject to the conditions of approval included as Exhibit A; and

7. **SCHEDULE** the second reading and adoption of Ordinance ___ and Ordinance ___ for the next regular City Council meeting.

SUMMARY

The City Council is being requested to convene a Public Hearing to a approve multiple development applications for a project site located at the northeast corner of Lasalle Street and Krameria Avenue, within the Moreno Valley Ranch Specific Plan. The project applications include: A General Plan Amendment to change the land use designation for a portion of the site from Residential 20 to Commercial; a Specific Plan Amendment and a Zone Change to change the zoning on portions of the project site from High Density Residential to Medium High Density Residential, and High Density Residential to Neighborhood Commercial; a Tentative Parcel Map (TPM) 37514 to subdivide the approximately 19 acre project area into three parcels; and a Plot Plan to develop a portion of the project area with a 112-unit multiple family apartment project that includes 96 apartment units in six two-story buildings, and 16 units in eight two-story duplex-style buildings.

DISCUSSION

Advisory Board/Commission Recommendation

The Planning Commission, at its January 24, 2019 meeting, held a public hearing on the proposed project and its multiple applications. The Planning Commission recommended the City Council certify the Addendum to Environmental Impact Report (EIR) 190, adopt a Mitigation Monitoring Reporting Program, approve the General Plan Amendment, Specific Plan Amendment and Change of Zone, and to approve the related Tentative Parcel Map and Plot Plan.

Project

The applicant, Continental East Fund III, LLC, is seeking approval of the Continental East Phase II project. This proposal would modify the previously approved Continental Villages project by subdividing the approximate 19-acre project site into three parcels, establishes land use and zoning designations for Medium High Density Residential (Parcel 1 and 3) and Commercial (Parcel 2); and replaces the previously approved entitlement for detached dwelling units with a 112-unit multi-family apartment project.

Tentative Parcel Map

Tentative Parcel Map 37514 would subdivide the approximately 19-acre project area into three parcels.

Parcel 1 is approximately 7.2 acres in area and is currently under construction for 125 multifamily dwelling units (Phase I of the Continental East apartment project).

Parcel 2 is approximately 2.84 acres and would be the site for a future neighborhood commercial center, subject to approval of related applications for a General Plan Amendment, Specific Plan Amendment and Zone Change.

Parcel 3 is approximately 8.80 acres in area and would be the site for development of 112 multiple family dwelling units as Phase II of the Continental East apartment project. Development of this site with apartments is subject to approval of related applications for a General Plan Amendment, Specific Plan Amendment, Zone Change and Plot Plan.

General Plan Amendment

The project site is located within Planning Area 21 of the Moreno Valley Ranch Specific Plan (SP 193) which was approved on August 13, 1985. The General Plan land use designations for the project site were Commercial and High Density Residential.

In 2001, the City of Moreno Valley approved Amendment No. 6 to Specific Plan 193, which modified the land use designation from Commercial to High Density Residential for the entire site.

The General Plan designation for the site is currently R20, allowing for a maximum of 20 dwelling units per acre. The proposed General Plan Amendment would change the land use designation on an approximate 2.8-acre parcel located at the corner of Lasselle Street and Krameria Avenue from R20 to Commercial. The balance of the project site would remain designated R20.

Specific Plan Amendment

The proposed Specific Plan Amendment would result in the following modifications to the Moreno Valley Ranch Specific Plan (SP 193):

- Change the Specific Plan land use designation on 2.8 acres at the corner of Lasselle Street and Krameria Avenue from High Density Residential to Neighborhood Commercial;

- Change the proposed Specific Plan land use designation for Phase II (8.8 acres) from High Density Residential to Medium High Density Residential, which is less intense than the existing High Density Residential designation.

Zone Change

The project site is currently zoned SP 193 H (High Density Residential) with a build out density requirement of 17-20 dwelling units per acre. The proposed Zone Change would change the zoning district on an approximately 2.8 acre parcel located at the corner of Lasselle Street and Krameria Avenue from R20 to Neighborhood Commercial. The balance of the project site would change to Medium High Density Residential (MHR) with a build out density requirement of 13-17 dwelling units per acre.

Plot Plan

The Plot Plan will establish a 112-unit multiple family development that will include 96 apartment units in six two-story buildings, and 16 units in eight two-story duplex-style buildings. The duplexes are designed with a single-family appearance, and are located along the Krameria Avenue frontage to provide compatibility with the existing single-family homes across the street.

The project includes common passive recreation areas throughout the project, basins for water quality treatment, and a 3,836 square foot recreation building, which includes a fitness room, offices, a community room and a pool.

Site

The project is located at the northeast corner of Lasselle Street and Krameria Avenue within Planning Area 21 of the Moreno Valley Ranch Specific Plan. The site contains a significant slope and cross fall and unique pie shaped boundary.

The 7.2-acre parcel (Parcel 1) located in the western portion of the original 19.4-acre project area near the intersection of Lasselle Street and Cahuilla Drive, has been graded and is currently under construction. Building foundations have been poured and vertical construction has begun on a 125-unit apartment complex.

The remaining 11.64-acre project site (Parcels 2 and 3) has been rough graded twice from previous projects, before the property was obtained by the current project applicant. Several Best Management Practices (BMPs) to control soil erosion and runoff have been installed and are operational. Most notably, an improved detention basin was previously constructed in the southwestern portion of the Project site to capture runoff from the adjacent Lasselle Elementary School storm drain system.

Additional BMPs include sandbags, silt fencing, and straw waddle. The Project site is entirely fenced.

Surrounding Area

The project site is bounded by Lasselle Street along its western property line and Krameria along its eastern and southern property line. Beyond the contiguous streets, land uses surrounding the project site are primarily single-family residences in the Low and Medium-low Density Residential zones. Moreno Valley Community College is located directly north of Cahuilla Drive. Lasselle Elementary School is located northeast of the Project site and contiguous to the project site on two sides.

Overall, the proposed multifamily residential development is compatible with objectives outlined in the City's General Plan as well as with existing and planned land uses in the project area.

Access/Parking

The main entrance to the development is proposed along Lasselle Street, which is via a driveway onto Street A, which aligns with Colt Way. This will be a shared driveway with the apartment project currently under construction. Secondary principal access drives are also planned at two locations on Krameria Avenue. All entrances to the project will be gated.

The driveways and interior drive aisles within the site have been reviewed and approved by the Fire Prevention Bureau for fire truck access. The site design has been evaluated to ensure for adequate truck maneuvering for delivery trucks and trash pick-up.

Design/Landscaping

The proposed architectural styles are consistent with the design guidelines of the Moreno Valley Ranch Specific Plan with all buildings designed in the Spanish Colonial or Monterey Spanish styles.

The design of the proposed plot plan conforms to all development standards of the Medium High Density Residential (MHR) zone as required within the Moreno Valley Ranch Specific plan and the City's Municipal Code.

The project has been designed to meet required landscape standards and objectives set forth in the City's Municipal Code Chapter 9.17 and the Landscape Guidelines of the Moreno Valley Ranch Specific Plan. The landscape elements of the project include the landscape setback areas along Lasselle Street and Krameria Avenue, parking lot landscape, street trees and landscape treatments around the perimeter of the site, buildings and outdoor recreation areas.

ENVIRONMENTAL

The project site is located within Planning Area 21 of the Moreno Valley Ranch Specific Plan. In 1985, the City certified Environmental Impact Report No. 190 for the Moreno Valley Ranch Specific Plan No. 193 (SCH No. 84050907).

On November 5, 2012, the Continental Villages project was approved which permitted 217 dwelling units on 19.4 acres. The Negative Declaration tiered off the prior environmental documentation for the project.

Carlson Strategic Land Solutions prepared an Initial Study and Addendum for the project in compliance with California Environmental Quality Act (CEQA) Guidelines and coordinated the preparation of technical studies as part of the analysis. Studies prepared for this project included a traffic study, an air quality study/greenhouse gas analysis, a traffic study, a cultural resource assessment, a preliminary hydrology study, a geotechnical study, a general biological assessment and MSHCP consistency determination, a Phase I Environmental Assessment, a noise study, a burrowing owl study, and a Preliminary Water Quality Management Plan.

The Initial Study examined the potential of the proposed project to have an impact on the environment. Project impacts will remain less than significant with the implementation of standard conditions of approval and project design features for air quality, cultural resources, geotechnical, noise and traffic. Based on a thorough review of the environmental documentation provided, the City has determined that the modified project would not result in any new or more significant environmental impacts, and thus qualifies for an Addendum.

A Mitigation Monitoring Program has been prepared for this project to ensure implementation of the mitigation measures identified in the original Moreno Ranch Specific Plan Environmental Impact Report (see Attachment 4).

ALTERNATIVES

1. Conduct a public hearing on this project, and take actions to certify the Addendum and Mitigation Monitoring and Reporting Program, and approve the General Plan Amendment, Specific Plan Amendment, Change of Zone, Tentative Parcel Map and Plot Plan applications, consistent with the recommendations of the Planning Commission. *Staff recommends this alternative.*

2. Conduct a public hearing on this project, and do not approve the applications for this project. This action would retain the existing Residential 20 land use designation and the existing High Density Residential zone for the project site, and would not certify the Addendum, or approve the Tentative Parcel Map or Plot Plan applications. *Staff does not recommend this alternative.*

NOTIFICATION

The public notice for this project was mailed on February 21, 2019 to all property owners of record within 300' of the project site and other individuals or agencies that

requested this information. The public hearing notice for the project was also posted on the project site on February 21, 2019 and a notice was published in the Press Enterprise on February 22, 2019. Staff has received no public inquiries in response to the noticing efforts.

Prepared By:
Jeff Bradshaw
Associate Planner

Department Head Approval:
Richard Sandzimier
Community Development Director

CITY COUNCIL GOALS

Positive Environment. Create a positive environment for the development of Moreno Valley's future.

Community Image, Neighborhood Pride and Cleanliness. Promote a sense of community pride and foster an excellent image about our City by developing and executing programs which will result in quality development, enhanced neighborhood preservation efforts, including home rehabilitation and neighborhood restoration.

CITY COUNCIL STRATEGIC PRIORITIES

1. **Economic Development**
2. **Public Safety**
3. **Library**
4. **Infrastructure**
5. **Beautification, Community Engagement, and Quality of Life**
6. **Youth Programs**

Objective 1.1: Proactively attract high-quality businesses.

Objective 1.3: Promote local hiring through the expansion of local, quality, high paying jobs, and workforce development efforts.

Objective 1.5: Showcase Moreno Valley's unique assets.

Objective 1.9: Ensure the City's General Plan articulates the vision for how Moreno Valley wants to evolve over time, and provides an orderly and predictable process through which this vision is developed and implemented, including new attention to economic development, sustainability, public health, and innovation.

ATTACHMENTS

1. Public Hearing Notice
2. Radius Map
3. Resolution 2019-XX - CEQA Documentation
4. Exhibit A to Resolution 2019-XX - Addendum
5. Exhibit B to Resolution 2019-XX - Mitigation Monitoring and Reporting Program
6. Resolution 2019-XX - General Plan Amendment
7. Exhibit A to Resolution 2019-XX - General Plan Amendment
8. Ordinance 2019-__ - Specific Plan Amendment
9. Exhibit A to Ordinance 2019-__ - Specific Plan Amendment
10. Ordinance 2019-XX - Zone Change
11. Exhibit A to Ordinance 2019-XX - Zone Change
12. Resolution 2019-__ - Parcel Map
13. Exhibit A to Resolution 2019-XX - TPM Conditions of Approval
14. Resolution 2019-__ - Plot Plan
15. Exhibit A to Resolution 2019-XX - Plot Plan Conditions of Approval
16. Project Location Map
17. Aerial Map
18. Tentative Parcel Map 37514
19. Project Site Plan
20. Project Plans - Apartments
21. Project Plans - Duplexes
22. Project Plans - Recreation Building
23. Air Quality Report (Nov 2018)
24. Biological Technical Report (Nov 2018)
25. MSHCP Consistency Determination (Nov 2018)
26. Cultural Report (July 2018)
27. Preliminary Geotechnical Evaluation (March 2018)
28. Greenhouse Gas Report (Nov 2018)
29. Phase I Environmental Site Assessment (March 2018)
30. Noise Assessment (Nov 2018)
31. Traffic Assessment (Nov 2018)
32. Traffic Assessment Appendices
33. Draft Planning Commission Meeting Minutes - January 24, 2019

APPROVALS

Budget Officer Approval	✓ Approved	2/22/19 4:34 PM
City Attorney Approval	✓ Approved	2/26/19 3:12 PM
City Manager Approval	✓ Approved	2/26/19 6:16 PM

Notice of PUBLIC HEARING

This may affect your property. Please read.

Notice is hereby given that a Public Hearing will be held by the City Council of the City of Moreno Valley on the following item(s):

PROJECT:
PEN18-0119 – General Plan Amendment
PEN18-0120 – Specific Plan Amendment
PEN18-0121 – Change of Zone
PEN18-0107 – Plot Plan for a 112 unit apartment project
PEN18-0090 – Tentative Parcel Map 37514

APPLICANT/OWNER: Continental East Fund III, LLC

REPRESENTATIVE: Andrew Spousta

LOCATION: Northeast corner of Lasselle Street and Krameria Avenue

PROPOSAL: The Project Applicant proposes to modify the previous development approvals to the 11.64-acre site by: 1) Amending the land use designation for 2.84 acres (Parcel 2) from High Density Residential to Neighborhood Commercial; and 2) Amending the land use designation for 8.80 acres (Parcel 3) from High Density Residential to Medium Density Residential to construct multi-family housing. This proposal requires a General Plan Amendment, Zone Change, Specific Plan Amendment, Plot Plan, Parcel Map and environmental documentation pursuant to CEQA.

ENVIRONMENTAL DETERMINATION: An Addendum has been prepared pursuant to California Environmental Quality Act (CEQA) Guidelines. The findings made in the Addendum are consistent with the findings made in the Initial Study and previously approved Negative Declaration and Moreno Valley Ranch Specific Plan Environmental Impact Report.

COUNCIL DISTRICT: 4

Any person interested in any listed proposal can contact the Community Development Department, Planning Division, at 14177 Frederick St., Moreno Valley, California, during normal business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday and Fridays from 7:30 a.m. to 4:30 p.m.), or may telephone (951) 413-3206 for further information. The associated documents will be available for public inspection at the above address.

In the case of Public Hearing items, any person may also appear and be heard in support of or opposition to the project or recommendation of adoption of the Environmental Determination at the time of the Hearing.

The City Council, at the Hearing or during deliberations, could approve changes or alternatives to the proposal.

If you challenge any of these items in court, you may be limited to raising only those items you or someone else raised at the Public Hearing described in this notice, or in written correspondence delivered to the City Council at, or prior to, the Public Hearing.

LOCATION N ↑

CITY COUNCIL HEARING

City Council Chamber, City Hall
14177 Frederick Street
Moreno Valley, Calif. 92553

DATE AND TIME: March 5, 2019 at 6:00 PM
CONTACT PLANNER: Jeff Bradshaw
PHONE: (951) 413-3224

Upon request and in compliance with the Americans with Disabilities Act of 1990, any person with a disability who requires a modification or accommodation in order to participate in a meeting should direct such request to Guy Pegan, ADA Coordinator, at 951.413.3120 at least 48 hours before the meeting. The 48-hour notification will enable the City to make reasonable arrangements to ensure accessibility to this meeting.

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN. ASSESSOR'S PARCEL MAY NOT COMPLY WITH LOCAL LOT-SPLIT OR BUILDING SITE ORDINANCES.

POR. PROTRACTED SEC. 28 T.3S.,R.3W

CITY OF MORENO VALLEY

TRA 021-400

308-04

301-71

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1 " = 200 '

Legend
- Lot Lines
- Right-Of-Way
- Old Lot Lines
- Reference R.O.W
- Other Easements
- Lease Area
- Subdivision Tic Mark

N76-00-25W LOT A PM 243/027 346.04

PM 159/003

573.68

61.50

L=466.78

R=1861.50

N26-35-36E

PAR 1

52

6.86 AC NT

POR PAR 9

49 EX

13.54 AC GR

(SCHOOL SITE)

832.67

410.16

519.52

44

POR PAR 9

51 EX

L=130.19

PM 243/027

98.92

R=533.00

L=418.31

PM 159/003

L=373.92

PAR 2

53

6.84 AC

PAR 3

54

5.14 AC

141.79

95.04

95.00

106.91

KRAMERIA ST

Map Reference

PM 159/3-14 PARCEL MAP NO 22701

PM 243/27-29 PARCEL MAP NO 36468

Dec 2017

Date	Old Number	New Number
5/13/2003	7	16,17
5/13/2003	8	18,19
5/13/2003	14	20,21
5/13/2003	11	22,23
5/13/2003	12	24,25
5/13/2003	6,16	26
5/13/2003	5,9,18,23	27
5/13/2003	10,25	28
6/18/2003	13,22	29
6/18/2003	15,24	30
10/9/2003	1,3,4	31
10/9/2003	31	32,33
10/9/2003	32	PG.39,40
1/8/2004	33	34-35
3/4/2004	35	36-37
3/8/2004	34,36	38
3/8/2004	38	PG.43
4/3/2004	1	PGS.45-47
4/16/2004	17,29	39
4/23/2004	39,26	40
4/23/2004	19,27	41
4/23/2004	30	42-44
4/23/2004	40	45-46
4/29/2004	28,44	47
4/29/2004	47	PG.48
4/29/2004	41	PG.48-51
4/29/2004	46	PG.50-51
6/24/2004	43	PG.3
6/24/2004	42,45	PG.52
4/13/2005	2	48-49
11/8/2006	48	50,51
11/22/2017	50	52-54

Bk 486 Pg 44

Bk 486 Pg 45

Pg 03

Pg 41

Pg 42

Bk 312 Pg 22

Pg 39

Pg 43

ASSESSOR'S MAP BK308 PG.04
Riverside County, Calif.

BDiaz

CITY COUNCIL RESOLUTION NO. 2019-XX

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY CERTIFYING THE ADDENDUM PREPARED FOR THIS PROJECT AND APPROVE THE MITIGATION MONITORING AND REPORTING PROGRAM FOR THE CONTINENTAL EAST PHASE II PROJECT AT THE NORTHEAST CORNER OF LASSELLE STREET AND KRAMERIA AVENUE

WHEREAS, the applicant, Continental East Fund III, LLC, filed applications for the Continental East Phase II Project ("Project"), which proposes to amend the original Continental Villages residential project. Current applications include Expanded Initial Study application, PEN19-0009, General Plan Amendment application PEN18-0119, Specific Plan Amendment application PEN18-0120, Zone Change application PEN18-0121, Tentative Parcel Map 37514 (PEN18-0090) and Plot Plan application PEN18-0107. The Project shall not be approved unless the Addendum (PEN19-0009) is certified and approved; and

WHEREAS, the applications for the Project have been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, the Project is located at the northeast corner of Lasselle Street and Krameria Avenue, within Planning Area 21 of the Moreno Valley Ranch Specific Plan; and

WHEREAS, an Environmental Impact Report was originally adopted for the Moreno Valley Ranch Specific Plan (SP 193) on August 13, 1985; and

WHEREAS, a Negative Declaration was adopted by the Planning Commission on November 29, 2012, for the original Continental Villages residential project; and

WHEREAS, an Initial Study, supporting technical studies, and Addendum to the previously approved Negative Declaration and Moreno Valley Ranch Specific Plan Environmental Impact Report were prepared, consistent with the California Environmental Quality Act (CEQA); and

WHEREAS, the City, in conducting its own independent analysis of the Addendum, determined that there is substantial evidence that demonstrates the Project with design features and compliance with previously adopted mitigation measures would not result in any significant environmental impacts; and

WHEREAS, a Mitigation Monitoring and Reporting Program (MMRP) has been prepared in accordance with CEQA Guidelines, and is designed to ensure compliance

with the identified mitigation measures outlined in the Moreno Valley Ranch Specific Plan Environmental Impact Report through Project implementation; and

WHEREAS, The City of Moreno Valley, Community Development Department, located at 14177 Frederick Street, Moreno Valley, California 92552 is the custodian of documents and other materials that constitute the record of proceedings upon which the decision to certify the Addendum is based; and

WHEREAS, the Planning Commission of the City of Moreno Valley held a public hearing on January 24, 2019 to consider the subject application and all environmental documentation prepared for the project and recommended approval of the project by the City Council; and

WHEREAS**,** the public hearing notice for this project was published in the local newspaper on February 22, 2019. Public notice was sent to all property owners of record within 300 feet of the project site on February 21, 2019. The public hearing notice for this project was also posted on the project site on February 21, 2019;

WHEREAS, the City Council of the City of Moreno Valley considered the Project, including all environmental documentation, at a public hearing held on March 5, 2019; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, the City Council considered the Addendum prepared for the Project for the purpose of compliance with the California Environmental Quality Act (CEQA). Based on the Addendum including all supporting technical evidence, it was determined that the project impacts are expected to remain less than significant with implementation of project design features and compliance with mitigation measures outlined in the Moreno Valley Ranch Specific Plan Environmental Impact Report, and therefore, certification of an Addendum is an appropriate action for the Project.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

A. This City Council specifically finds that all of the facts set forth above in this Resolution are true and correct.

B. Based upon substantial evidence presented to this City Council during the above-referenced meeting on January 24, 2019, including written and oral staff reports, and the record from the public hearing, this Planning Commission finds as follows:

1. Independent Judgment and Analysis - City staff coordinated the preparation of the Addendum/Initial Study and related technical studies with Carlson Strategic Land Solutions for the Continental East Phase II project. The Addendum/Initial Study has been completed along with the Mitigation

Monitoring and Reporting Program (MMRP) to ensure compliance with all mitigation through project implementation. All environmental documents that comprise the Addendum, including all technical studies, were independently reviewed by the City. On the basis of the whole record, there is no substantial evidence that the Project as designed, conditioned and mitigated, will have a significant effect on the environment. The Addendum was prepared and completed in accordance with the CEQA Guidelines reflects the independent judgment and analysis of the City.

BE IT FURTHER RESOLVED that the City Council APPROVES Resolution No. 2019-XX, and:

1. CERTIFY that the Addendum to a previously adopted Negative Declaration and the Moreno Valley Ranch Specific Plan Environmental Impact Report prepared for Plot Plan PEN18-0107 on file with the Community Development Department, incorporated herein by this reference, has been completed in compliance with the California Environmental Quality Act, that the Planning Commission reviewed and considered the information contained in the Addendum and that the document reflects the City's independent judgment and analysis; attached hereto as Exhibit A and

2. APPROVES the Mitigation Monitoring Program prepared for Plot Plan PEN18-0107, attached hereto as Exhibit B.

APPROVED AND ADOPTED this 5th day of March, 2019.

_____
Mayor of the City of Moreno Valley

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

_____
City Attorney

RESOLUTION JURAT

STATE OF CALIFORNIA)

COUNTY OF RIVERSIDE) ss.

CITY OF MORENO VALLEY)

I, Pat Jacquez-Nares, City Clerk of the City of Moreno Valley, California, do hereby certify that Resolution No. 2019-XX was duly and regularly adopted by the City Council of the City of Moreno Valley at a regular meeting thereof held on the 5th day of March, 2019 by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Council Members, Mayor Pro Tem and Mayor)

_____

CITY CLERK

(SEAL)

Moreno Valley Ranch Specific Plan No. 193 Amendment No. 10

DRAFT ENVIRONMENTAL IMPACT REPORT ADDENDUM

Prepared for:
City of Moreno Valley
14177 Frederick St.
Moreno Valley, California 92553

Prepared by:
Carlson Strategic Land Solutions, Inc.
27134A Paseo Espada, Suite 323
San Juan Capistrano, California 92675

January 2019

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TABLES

FIGURES

APPENDICES

SECTION 1.0 INTRODUCTION

1.1 Background

In 1985, the Moreno Valley City Council adopted Specific Plan 193 and EIR 190, creating the Moreno Valley Ranch Specific Plan. Specific Plan 193 was initially approved for 12,703 residential units encompassing 3,959 acres. During the intervening years Specific Plan 193 has been amended 9 times, as summarized below.

Amendment 1 (1987) added the Moreno Valley campus of the Riverside Community College to the Specific Plan 193. The addition of the college campus rearranged land uses in other Planning Areas resulting in a net reduction of 8 dwelling units.

Amendment 2 (1987) incorporated the 27-hole golf course into the Specific Plan. The effect of that change was a reduction of 642 residential units.

Amendment No. 3 (1988) changed land use designations in Planning Areas 18, 19, and 23, resulting in an increase in public parkland by 1.3 acres and a reduction in dwelling units by approximately 54 single family dwellings.

Amendment No. 4 (1990) changed land uses among Planning Areas, most notably resulting in the construction of a 10-acre sports complex in Planning Area 4. The other land uses changes resulted in an increased in the maximum number of residential development units by approximately 137 dwelling units.

Amendment No. 5 (1998) amended the Specific Plan to modify eight planning areas of the Specific Plan generally modifying residential categories that allow for higher density to Medium Low Residential (4-8 dwelling units per acre) and Medium Residential (8-13 dwelling units per acre). The approval decreased the potential build-out within these Planning Areas of the Specific Plan by 1,160 dwelling units.

Amendment No. 6 (2001) modified uses in fourteen Planning Areas on 227 acres, resulting in a 1,221 dwelling unit reduction.

Amendment No. 7 modified the Specific Plan to allow for a maximum of 176 additional dwelling units.

Amendment No. 8 modified the Specific Plan to allow for condominiums, increasing the number of dwelling units by 135.

Amendment No. 9 (2018) amended land use designations, including the conversion of nine holes of the golf course known as the Lakes 9 to passive park and open space. Amendment No. 9 added 439 dwelling units.

The prior nine Specific Plan Amendments reduced the total number of permitted dwelling units within the Moreno Valley Ranch Specific Plan from 12,703 to approximately 10,505[1] dwelling units.

The Project Site is located in Planning Areas 21 and 21A of the Moreno Valley Ranch Specific Plan, which have been previously amended by Specific Plan Amendment Nos. 1 and 6.

Specific Plan 193 originally designated Planning Area 21 (50 acres) for Medium Low density residential. Assuming 6 dwelling units per acre, Planning Area 21 could accommodate approximately 300 dwelling units.

In 1987, the City of Moreno Valley approved Amendment No. 1 to Specific Plan 193 to permit the Riverside Community College campus within Planning Area 22 and a portion of Planning Area 21. Amendment No. 1 reconfigured the Planning Area boundaries, leaving Planning Area 21 (15 acres) designated as Commercial and created Planning Area 21A (18 acres) designated as High Density Residential (333 dwelling units).

In 2001, the City of Moreno Valley approved Amendment No. 6 to Specific Plan 193, which amended the land use designations for Planning Areas 21 and 21A. Specific Plan Amendment No. 6 eliminated the Commercial designation and designated both Planning Areas as High Density Residential (32.19 acres).

In 2004, approximately 13.35 acres of Planning Areas 21 and 21A became an elementary school. The Lasselle Elementary School is primarily situated in Planning Area 21A, but a portion crosses into Planning Area 21, leaving the remaining 18.84 acres designed High Density Residential.

In 2012, the City of Moreno Valley approved a subdivision on the remaining 18.84 acres (PA 11-0026) to build three types of residential products for a total of 216 dwelling units. Conditional Use Permit (CUP) PA11-0027 provided for 36 detached single family and 55 cluster residential units. A CUP was required because the housing was less than the minimum density established for the property's land use and zoning designations. Plot Plan PA11-0025 provided for a 125-unit multi-family apartment project with a recreation building on approximately 7.20 acres. A variance was also approved to allow for parking to encroach into street side setbacks given the site's unique constraints.

While the City approved a CUP and Plot Plan, an Amendment to Specific Plan 193 was not approved. Therefore, the underlying zoning for the 18.84 acres remains High Density Residential as established in Specific Plan Amendment No. 6.

As a result of the City's action in 2012, approximately 7.20 acres of the Planning Area is currently being constructed with 125 apartments. The remaining 11.64 acres is subject to the current planning application and referred to as the Project site, as well as the Modified Project.

[1] Specific Plan Amendment No. 9 concluded the prior nine Specific Plan Amendments result in 10,439 dwelling units permitted within the Specific Plan area. The difference between 10,505 and 10,439 is due to several planning areas that permit a range of densities that could alter the total number of permitted dwelling units.

The following table summarizes the progression of land use designations over the 11.64-acre Project site from original Specific Plan through Specific Plan Amendment No. 6.

Table 1. History of Land Use Designations

Land Use	Original SP 193	SPA #1	SPA #6
Medium Low Density Residential	11.64 acres (69 dus)	-	-
High Density Residential	-	7.07 acres (130 du)	11.64 (215 dus)
Commercial	-	4.57 acres (119,442 sq. ft.)	-
Total	11.64 acres	11.64 acres	11.64 acres

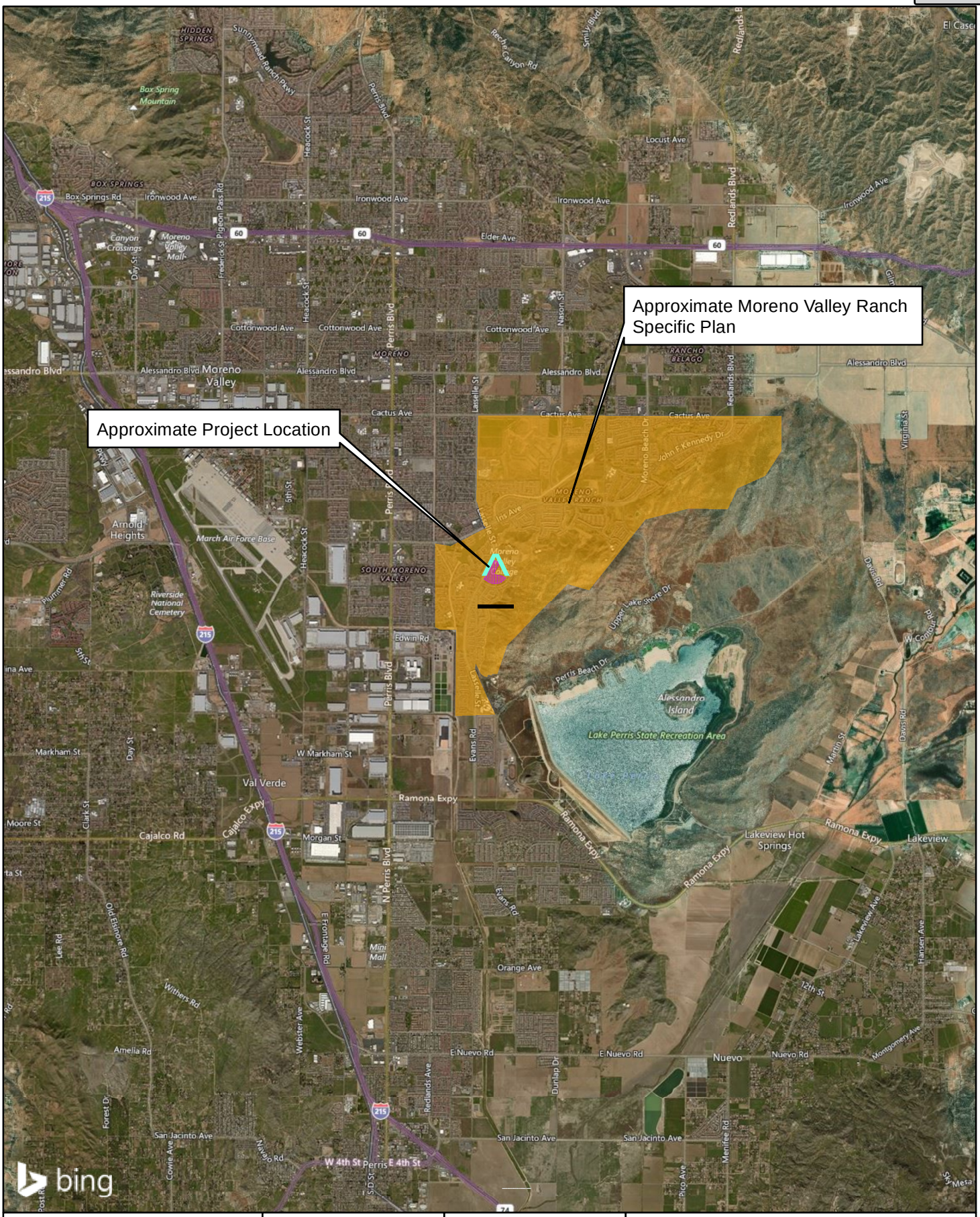
1.2 Location and Surrounding Land Uses

The 3,959-acre Moreno Valley Ranch is located in the southern portion of the Moreno Valley, east of March Air Force Base and south of State Route 60. The southern boundary of the Moreno Valley Ranch Specific Plan is also the northern boundary of the Lake Perris State Recreational Area. (Figure 1)

The Project site is more specifically bound on the west by Lasselle Street, on the north by Cahuilla Drive, and on the south by Krameria Avenue. (Figure 2)

Beyond the contiguous streets, land uses surrounding the Project site are primarily single-family residences in the Low and Medium-low Density Residential zones. Moreno Valley Community College is located directly north of Cahuilla Drive. Lasselle Elementary School is located northeast of the Project site and contiguous to the Project site on two sides.

The Project site assessor parcel number's (APN) are 308-040-053 and 308-040-054. The Project site is located in Riverside County, and within the United States Geological Survey (USGS) 7.5-Minute Topographic Map *Sunnymead* Quadrangle. The Project site is located within the boundaries of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP).



GIS Prepared By: Carlson SLS Created: November 19, 2018	0 2,000 4,000 8,000 Feet 1 inch = 8,000 feet	Data Sources: Bing Maps	***Moreno Valley Ranch EIR #190*** ***Addendum No. 2*** Regional and Project Location

GIS Prepared By:
Carlson SLS

Created: March 12, 2018

0 50 100 200 300 400 Feet
1 inch = 200 feet

Data Source: Bing Map
Anderson Consltinig Engineers, Inc (03/XX/2018)

Moreno Valley Ranch EIR #190
Addendum No. 1

Aerial of Project Site

FIGURE 2

1.3 Project Site Existing Conditions

The 7.20-acre parcel (Parcel 1) located in the western portion of the original 18.84 acres, near the intersection of Lasselle Street and Cahuilla Drive, has been graded and is currently under construction. Building foundations have been poured and vertical construction has begun on a 125-unit apartment complex.

The remaining 11.64-acre Project site (Parcels 2 and 3) has been rough graded twice from previous projects, before the property was obtained by the current project Applicant. Several Best Management Practices (BMPs) to control soil erosion and runoff have been installed and are operational. Most notably, an improved detention basin, was previously constructed in the southwestern portion of the Project site to capture runoff from the adjacent Lasselle Elementary School storm drain system. Additional BMPs include sandbags, silt fencing, and straw waddle. The Project site is entirely fenced.

Other Conditions

The Project site also contains a significant slope and cross fall, and unique pie shaped boundary. The future Water Quality Management Practices for the Project site play a key role in the design process. While underground infiltration basins were approved on Parcel 1, the Project site does not provide sufficient percolation rates to rely on percolation as a water quality solution. Therefore, surface treatment is the only viable option which requires a substantial area of the Project site.

Previously referenced Figures 1 and 2 provide a visual depiction of the project location and existing conditions.

1.4 Modified Project

The Applicant proposes to modify the previous development approvals to 1) Revert the approved land use on 2.84 acres (Parcel 2) from High Density Residential back to Neighborhood Commercial; and 2) Construct multi-family housing on 8.80 acres (Parcel 3), at a lower density than the existing zoning requirements allow. This proposal requires a General Plan Amendment, Zone Change, Specific Plan Amendment, Tentative Parcel Map, Plot Plan, and environmental documentation pursuant to CEQA. The following describes the Modified Project through the requested discretionary actions:

General Plan Amendment

The Project site currently has a General Plan land use designation of "R-20 Residential: Max 20 du/ac." The proposed General Plan Amendment would revert the land use designation on Parcel 2, a 2.84-acre parcel located at the corner of Lasselle Street and Krameria Avenue, from R-20 to Neighborhood Commercial, consistent with the commercial land use designation specified in Specific Plan Amendment No. 1. Additionally, the proposal includes a change of the land use designation on Parcel 3, 8.80 acres, from R-20 to R-15 Residential: Max 15 du/ac to accommodate lower density residential housing.

Zone Change

The Project site currently has a zoning designation of "Multi-family." The proposed Zone Change would amend the City's Zoning Map to change the zoning designation on Parcel 2, a 2.84-acre parcel located at the corner of Lasselle Street and Krameria Avenue, from Multi-family to Neighborhood Commercial. Parcel 3, a 8.80-acre parcel, would remain zoned Multi-family, however the Specific Plan would designate Parcel 3 for a maximum of 15 du/ac. Additionally, the Zoning Map would be amended to include reference to Specific Plan 193 over the entire Tentative Parcel Map area.

Specific Plan Amendment

The proposed Specific Plan Amendment would make the following changes to the Moreno Valley Ranch Specific Plan No. 193.

- Revert the currently approved land use on Parcel 2, 2.84 acres, at the corner of Lasselle Street and Krameria Avenue, from High Density Residential back to Neighborhood Commercial as designated by Specific Plan Amendment No. 1.

- Change the designation of High Density Residential on Parcel 3, 8.80 acers, to Medium-High Density, to accommodate lower density residential housing more consistent with the surrounding land uses.

- The development standards for the multi-family land use shall be consistent with the R-15 zoning standards, except where modified per Specific Plan No. 193. Additionally, the SPA shall include a provision in the multi-family development standards that building separations of 15 feet shall be permitted for buildings two-stories and less, and buildings with 8 or less units in each building.

- The development standards for the Neighborhood Commercial land use shall be consistent with the Neighborhood Commercial zoning standards.

- Parcel 3, 8.80 acres, is the area subject to the proposed General Plan Amendment, Zone Change, Specific Plan Amendment, and Plot Plan, to reduce the density from R-20 to R-15 for the construction of multi-family residential apartments.

Tentative Parcel Map

Tentative Parcel Map (TPM) No. 37514 includes the 11.64-acre project site (Parcels 2 and 3) and the 7.20-acre (Parcel 1), which is currently under construction with apartments. The TPM would subdivide the approximately 18.84-acre area into three parcels.

- Parcel 1, approximately 7.20 acres, is the area currently under construction. This parcel is included in the Tentative Parcel Map in order to slightly adjust the boundary between Parcel 1 and Parcel 2.

- Parcel 2, approximately 2.84 acres, is the area subject to the proposed General Plan Amendment, Zone Change, and Specific Plan Amendment, to change the land use from High Density Residential to Neighborhood Commercial.

- Parcel 3, approximately 8.80 acres, is the area subject to the proposed General Plan Amendment, Zone Change, Specific Plan Amendment, and Plot Plan, to reduce the density from R-20 to R-15 for the construction of multi-family residential apartments.

TPM No. 37514 also includes Street A, which is aligned between Parcels 1, 2, and 3. Street A connects to Krameria Avenue directly across from Colt Way. Street A connects to Lasselle Street between Parcels 1 and 2, north of Krameria Avenue.

The approval of TPM No. 37514 would supersede the prior approval of Tentative Tract Map No. 36401.

Plot Plan

A Plot Plan is required for the multi-family development and for the neighborhood commercial development proposed for the Project site. However, at this time, the Applicant is only seeking approval of a Plot Plan for the multi-family development. An application for a Plot Plan for the neighborhood commercial development will be submitted separately at a later date.

The proposed Plot Plan pertains to the construction of 112 multi-family dwelling units on 8.8 acres, shown as Parcel 3 on TPM No. 37514. Access to the multi-family units on Parcel 3 would occur from the newly planned Street A, across from Colt Way, and a connection to the existing service road servicing Lasselle Elementary School across from Quarter Horse Road. All access points the multi-family development would be gated, with Knox Box equipment fitted for first responder access.

The multi-family development includes 96 apartment units provided in six, 16-unit buildings. Each building is approximately 16,148 square feet and will be similar in layout to the product on Parcel 1. The remaining 16 apartment units are provided in lower density 8 duplex-style (2-unit) apartment buildings, with each building measuring approximately 4,448 square feet. All buildings proposed are two story structures.

Parking for the 96 apartment units will be provided by surface parking, covered by carports and solar panels. A total of 203 surface parking spaces are provided, which exceeds the 186 parking spaces required by code. The duplex apartment buildings provide 2 enclosed garage spaces for each unit, totaling 32 spaces.

The apartment complex also includes a Recreation Center (3,836 square feet), which includes a fitness room, offices, and a community room.

Grading Plan

Total earthwork is estimated to be approximately 50,000 cubic yards (CYs) for Parcel 2 (neighborhood commercial), Parcel 3 (multi-family residential), and Street A. All rough grading earthwork will be balanced on site, with no mass import or export. The site will be left slightly low

to accommodate spoils from foundations, utility trenches, and Street A. However, the last phase of residential construction may require the export of up to approximately 3,000 CYs of dirt, depending on soil parameters.

Infrastructure Improvements

Storm runoff from the Project site will be collected and routed through bioretention basins to treat the initial runoff and detain peak storm flows. Existing runoff from the Lasselle Elementary School storm drain will continued to be captured, but not treated. Porous pavers will also be used to treat the runoff emanating from the Project's Street A.

A reclaimed water line from Eastern Municipal Water District will be constructed in Cahuilla Drive, adjacent to Parcel 1. Connection to a future water line in Cahuilla Drive will be constructed to bring domestic water to the Project site. Additional utility connections for sewer, domestic water, reclaimed water, and storm drain will be made to existing facilities in Lasselle Street and Krameria Avenue.

1.5 Prior Environmental Documentation

In 1985, the City certified Environmental Impact Report No. 190 for the Moreno Valley Ranch Specific Plan No. 193 (SCH No. 84050907). On November 25, 1986, the City adopted Resolution No. 86-163 certifying Addendum No. 1 to EIR 190 in conjunction with the adoption of Amendment No. 1 to Specific Plan 193.

Amendment No. 6 to Specific Plan 193, which pertains to the Project site, was found consistent with EIR 190 and Addendum No. 1 to EIR 190.

On November 5, 2012, the City adopted a Negative Declaration for PA11-0025 – Plot Plan, PA11-0026 – Tentative Tract Map No. 36401, PA11-0027 – Conditional Use Permit, PA12-114 – Variance, which permitted 216 dwelling units on 19.4 acres. The Negative Declaration was tiered off EIR 190 Addendum No. 1, relying on the technical studies presented in the prior EIR.

The City has determined, for reasons specified below, that the revisions proposed as part of the Modified Project are minor, would not result in any new or more significant environmental impacts, and thus qualify for an Addendum. The prior environmental documentation is collectively referred to as "prior CEQA documents."

1.6 Basis for an Addendum

Prior to approval of subsequent actions that constitute a "project" under CEQA, such as amendments to the Specific Plan, the City is required to determine whether the environmental effects of such actions are within the scope of prior environmental analysis, or whether additional environmental analysis is required. That decision is influenced by whether the subsequent actions result in new significant impacts or increase the severity of previously identified significant impacts.

The City has evaluated the potential environmental impacts of the proposed Modified Project against the criteria set forth in CEQA Guidelines§§ 15162, 15163, and 15164. The City, acting as the Lead Agency, has determined that none of the conditions specified in those CEQA Guidelines sections apply and that an Addendum to EIR No. 190 (SCH No. 84050907) and EIR No. 190 Addendum No. 1, and the 2012 Negative Declaration are appropriate for the proposed Specific Plan 193 Amendment No. 10 and related entitlements, and fully complies with CEQA, as described in the *CEQA Guidelines*.

Under CEQA, the lead agency, or a responsible agency, shall prepare an addendum to a previously-certified EIR if some changes or additions are necessary to the prior EIR, but none of the conditions calling for preparation of a subsequent or supplemental EIR have occurred (CEQA Guidelines §§15162, 15163, 15164). Once an EIR has been certified, a supplement or subsequent EIR is only required when the lead agency or responsible agency determines that one of the following conditions has been met:

(1) Substantial changes are proposed in the project, or substantial changes occur with respect to the circumstances under which the project is undertaken, which require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects [*CEQA Guidelines* §15162(a)(1)&(2)];

(2) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete, shows any of the following:

   a) The project will have one or more significant effects not discussed in the previous EIR;

   b) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

   c) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

   d) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative [*CEQA Guidelines* §15162(a)(3)].

Pursuant to *CEQA Guidelines* §15164, the lead agency shall prepare an addendum to a previously certified EIR "if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred [*CEQA Guidelines* §15164(a)]." Furthermore, an addendum to an adopted negative declaration may be prepared if "only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or negative declaration have occurred [*CEQA Guidelines* §15164(b)]."

The Modified Project consists of a reversion to land use designations approved for the Project site by Specific Plan Amendment No. 1 and Specific Plan Amendment No. 6. Specific Plan Amendment No. 1 permitted 4.57 acres of Commercial on the Project site, which would permit up to 119,442 square feet of development. The Modified Project proposes 21,000 square feet of commercial development on 2.84 acres. Both Specific Plan Amendment Nos. 1 and 6 permitted High Density Residential, up to 130 dwelling units, on the remaining 8.8 acres. The Modified Project proposes 112 Medium High Density Residential on the remaining 8.8 acres, which constitutes a lower intensity land use.

CEQA Guidelines Appendix G includes issue areas that can generally be categorized as physical issues (such as biological resources, cultural resources, geology and soils, hazards and hazardous materials, etc.) and operational issues (such as air quality, greenhouse gas, noise, traffic, etc.). The physical issues potentially affecting the Project site were analyzed in the original EIR, Addendum No. 1 and the Negative Declaration approved in 2012. Neither the physical boundaries nor conditions have changed from those prior reports. Additional technical studies have been prepared and document that no new or more intense significant impacts would occur. The operational issues were also analyzed in all three prior CEQA documents. Addendum No. 1 to EIR 190 analyzed a much more intense project (130 dwelling units and up to 119,442 square feet of commercial) than what is proposed. The Negative Declaration then analyzed a less intensive project than what is proposed with no commercial and lower density residential. The proposed Project fits in between the two studies. Intensive development has always been contemplated and analyzed on the Project site. The proposed Project represents a reversion back to the originally contemplated and analyzed land uses, which represents a minor change in proposed development. New technical studies have been prepared for all operational issue areas, which have confirmed that all impacts for the Modified Project would be less than significant; therefore, no new or more intense significant impacts have been identified. Therefore, none of the conditions specified in CEQA Guidelines §15162 occur and an Addendum to the prior CEQA documents is appropriate.

An addendum does not need to be circulated for public review, but rather can be attached to the prior EIRs (*CEQA Guidelines* §15164(c)). Prior to initiating the Modified Project, the City will consider this Addendum together with the prior CEQA documents and will make a decision regarding the Modified Project [*CEQA Guidelines* §15164(d)].

1.7 Prior Mitigation Measures and Conditions of Approval

In accordance with *CEQA Guidelines* §§15162 through 15164, the City has determined the changes associated with the Modified Project are minor and no new mitigation measures are required, as documented in detail in Section 2.0 below. The prior CEQA documents included mitigation measures and conditions of approval affecting development of the Modified Project site. Many of the measures listed below no longer apply to the Modified Project site. Those measures that no longer apply have been screened back in a grey font. The measures listed below in black font remain applicable to the Modified Project.

Table 2: Mitigation Monitoring and Reporting Checklist	
Aesthetics	
EIR #190 pg. 173	The applicant intends that the proposed development complement the natural character of the area. Grading will be minimized to maintain the natural topographic profile, where possible, and manufactured slopes will be contoured so that they conform to the natural shape of the land. No significant recontouring is proposed. Also, approximately 1500 acres of hillsides will re-main in their natural state, minimizing not only aesthetic impacts but biological, archaeological and landform impacts as well.
EIR #190 pg. 173	As noted under Impacts Aesthetics, Visual Analysis, the overall design concepts allowed by the utilization of this large scale Specific Plan are intended to mitigate aesthetic and visual impacts. It is anticipated that landscaping will be utilized, as required, to shield views of the Sunnymead RWRF. EMWD has also offered the use of a 25' strip of land on their property for landscaping which could be used to increase the amount and depth of landscaping to ultimately be provided.
Air Quality	
EIR #190 pg. 116	The quantity of particulate matter emitted during the grading and construction phase of the project may be reduced through watering graded surfaces and planting groundcover as dust palliatives.
EIR #190 pg. 116	Modes of transportation other than the automobile (bicycles, pedestrian, equestrian, etc.) should be encouraged as a strategy in reducing pollution from mobile sources. The proposed network of pedestrian trails providing access to residential, commercial, recreational and indus-trial areas should assist to reduce residents' reliance on the automobile. These routes should be widely publicized.
EIR #190 pg. 116	Additionally, the design of efficient and direct traffic flow patterns on the project site can help reduce the quantity of air pollutants generated, by minimizing the places in the roadway system where automobiles would be idling unnecessarily Extension of public transit routes to serve the property would also assist in this regard.
EIR #190 pg. 117	The SCAQMD's Regional Air Quality Strategy proposes measures to reduce' pollutants from mobile sources. These include: 1) expansion of ride-sharing efforts; 2) expansion of transit systems; 3) encouragement of increased bicycle travel; 4) improvements in traffic flows; 5) encouragement of pedestrian travel; 6) expansion of interurban bus and rail systems and 7) freeway ramp metering. These tactics are noted above.
EIR #190 pg. 117	Reduction of stationary source air pollution emissions may be achieved by incorporating energy-saving devices and additional insulation into the proposed homes as discussed in Section IV.A.7, Energy Conservation.
EIR #190 pg. 117	The Environmental Hazards and Resources Element of the Comprehensive. General Plan sets forth Land Use Standards - Air Quality Impact Mitigations, stating that major development proposals which may create a significant new source of air pollutant emissions must contribute to the mitigation of adverse air quality impacts. Air quality mitigation measures to reduce automobile use include the following: - Bicycle facilities, such as bike lanes, racks and lockers - Transit facilities such as benches, shelters and turnouts - Park and Ride facilities - Energy efficient buildings - Solar access orientation of structures - Solar heated and cooled structures and swimming pools
COA 58	The project shall conform to the requirements specified in Title 24 as well as solar water heating requirements of Condition #77.

Biological Resources	
EIR #190 pg. 90	The Moreno Valley Specific Plan preserves approximately 1500 acres of natural open space, encompassing essentially all existing coastal sage scrub on-site. The natural open space area also includes those areas on-site which are reported to serve as concentrated roosting habi-tat for birds of prey. Approximately 60 acres of the suitable habitat for Stephen's kangaroo rat is also planned to be preserved. The preservation of this area as open space partially alleviates the significant adverse impacts discussed in the preceding section.
EIR #190 pg. 90	The topography of project site is such that the hills in the southern and eastern portion act as a buffer between the proposed urban development and the San Jacinto Wildlife Area. Also, as shown on Figure IV-10, Land Use Plan, only Very Low Density (0-2 units/acre) is planned in the eastern portion of the site, thereby severely reducing the amount of urban development adja-cent to the Wildlife Area. Also, the phasing plan designates the eastern areas as the final development phases. Considering a twenty-year build-out, any impacts to the San Jacinto Wildlife area will be considerably delayed.
EIR #190 pg. 91	The following measures are recommended by the Biological Consultant to minimize project impacts: • Access to the natural open space area should be limited to designated trails • Revegetation of cut and fill slopes, and other graded areas should be accomplished with plant palettes containing predominantly native species. Steeper slopes should be revegetated with genera or species of native perennial grasses including Stipa sp., Poa sp. and others. • Possibly in conjunction with fuel modification zones, dense brush should be cleared from lower, more gentle slopes of hillsides to re-place bird of prey foraging habitat lost.
COA 70	In accordance with natural open space condition #72, below, NOS Area B, as shown on the land use map, Exhibit C, Amended No. 1 Land Use Plan, which area has been identified as potential Stephens Kangaroo Rat Habitat, shall be offered for dedication to the California Department of Fish and Game or such other agency as is identified in the above referenced condition #72. Prior to any development within a Phase identified as containing suitable Stephens Kangaroo Rat Habitat, a trapping and relocation program, approved by the California Department of Fish and Game, shall be conducted to determine the presence of this species, and specimens as collected through this trapping program shall be relocated in accordance with Fish and Game direction.
COA 71	All project related lighting shall be hooded or otherwise directed in a manner which will prevent or reduce direct lighting and glare on the adjacent hillsides.
COA 72	1685 acres of natural open space as shown on the Land Use Plan, Exhibit C - Amended No. 1 Land Use Plan, shall be excluded from development except for two proposed water reservoir sites required by the Eastern Municipal Water District. These natural open space areas are shown on the referenced Exhibit as NOS Areas A, B, and C and the specific condition related to each area as noted below. These areas shall be protected against any construction activity occurring as a consequence of adjacent development. <u>Area A</u> Dedication Timing: Prior to the development within any development phase as shown on Phasing Exhibit D 7/25/85 Revision the NOS area within this phase shall be offered for dedication to those agencies listed below.

	Area A shall be offered for dedication to the California Department of Parks and Recreation. If this agency does not accept the property as offered, it shall then be offered to each of the agencies listed below in the order noted: 1. The California Department of Fish and Game. 2. The City of Moreno Valley 3. Such other public or private entity as may be approved by the City Council of the City of Moreno Valley. Area B The developer shall deed Area B to the California State Department of Fish and Game or California Department of Parks and Recreation or other appropriate agency as approved by the City Council in conjunction with San Gorgonio chapter of the Sierra Club. The deed transaction shall be completed by December 31, 1986. During the interim time period (January 1, 1986) - December 31, 1986) the area shall be leased to the Department of Fish and Game for use and management by that agency. Area C Area C shall remain undeveloped and in a natural state. The area shall be owned and managed by the Riverside Community College District. Title to this area shall be transferred from the developer to the District prior to any development within Phase II as shown on the Phasing Plan - Exhibit D 7/25/85 Revision.
Cultural, Historical Resources	
EIR #190 pg. 99	Alternate 1 - Preservation and Surface Documentation A. Preserve and protect the four significant sites located at the base of the Mount Russell Hills by: 1. Donating the entire Mount Russell Hills and lower flanks to the Perris Reservoir State Park to be annexed within the Park System and, therefore protected by their rangers, or 2. Fence off the four site areas and deed the land to the San Bernardino Museum Association on either a long term or renewable lease basis. The Museum Association would then be responsible for this protection, or 3. A combination of 1 and 2 above.
EIR #190 pg. 100	B. Surface documentation is necessary on two additional occupation sites, the 21 processing sites, the one historic site and the 20 isolated milling slicks. Alternative 2 - Surface Documentation, Protective Filling, Rock Art Fencing Because of the large acreage covered by these sites, Alternative 2 is costlier than Alternative 1. A. Surface documentation of the four significant sites located at the base of the Mount Russell Hills, including: 1. Locating all sites on blueline 2. Photographing, measuring and drawing of all surface features, and 3. Collecting all surface artifacts B. Protective Filling and Rock Art. Fencing of the four significant sites is also necessary, due to the presence of sub-surface deposits at occupations sites. In order to eliminate natural surface erosion and subsequent exposure, it is necessary to cover these sites with sterile fill. For rock art sites, in addition to covering all flat areas with 3 to 5 feet to sterile fill, a 6-foot high cyclone fence should be constructed, with a metal roof attached from the edge of fence to the boulder with rock art. Finally, a bulletproof clear plastic shield should be attached to protect the art, or shrubbery should be planted to obscure visibility of the rock art panels.

EIR #190 pg. 101	C. Surface documentation is, again, necessary on the two additional occupation sites, the 21 processing sites, the one historic site and the 20 isolated milling slicks. Cultural Resources - Direct Impact Mitigations Necessary procedures to mitigate the direct impacts of construction on any site include: 1. Surface documentation as described for "Indirect Impact Mitigations. 2. In the area (s) of direct impact, a series of 1x2 meter excavation units must be dug by hand to gain a scientifically controlled sample of areas to be destroyed. This sampling could be from a 1%-5% sample of the processing sites, and includes processing through screen mesh, C14 dating, laboratory processing and analysis, and report preparation. 3. Any area (s) containing archaeological sites must be monitored during the grading process; The monitor will be empowered to temporarily halt, divert or redirect the mechanical- equipment to document any feature(s) uncovered.
EIR #190 pg. 102	Paleontological Resources For deep excavations (over 10 feet), a paleontologist should evaluate the subsurface material and determine its potential for containing fossils. If it has a moderate possibility of containing such remains then the following mitigations for the alluvial deposits are recommended. 1. A qualified paleontologist should be present at pre-grade meeting to consult with the grading and excavation contractor and should be present during earthmoving. 2. The paleontologist should be empowered to temporarily direct, divert or halt grading to allow for the recovery of fossil remains. 3. Remains collected from the subject property, with the owner's permission, should be deposited in an institution such as the San Bernardino County Museum, which has an ongoing paleontological programs and collectors from this area.
Addendum 1 pg. IV-1	All natural open space areas will be owned and managed by public agencies.
COA 75	Prior to grading operations in any area containing an identified archaeological site, an archaeological recovery program or other mitigation as recommended by the project archaeologist shall be completed. Caretaker Facilities shall be required at the approximate locations indicated below subject to the following terms and conditions: The developer shall provide trailer pad and utilities to the two proposed caretaker quarters located near Riv-11 and Riv-419/421. The developer shall extend utilities and construct trailer pads in conjunction with nearby development. The facilities for Riv-11 would be made available prior to occupancy of any units in Planning areas 5 or 6; and for Riv-419/421 prior to occupancy of any units in any units in Planning Area 74, 80, or 81. If it is determined by the Department of Fish and Game, or Department of Parks and Recreation, whichever agency is managing NOS-B, that this area is in need of additional protection, the developer will provide a pad and utilities for caretaker facilities, or protective fencing, as required by the appropriate agency.
Geology, Seismicity, Soil Agriculture	
EIR #190 pg. 55	Prior to site planning, seismic refraction surveys should be conducted in those areas to obtain reasonable approximations of the depths to boundaries of rippable, marginally rippable and non-rippable rock.
EIR #190 pg. 55	Slope stability constraints on the proposed development are expected to be minimal. Some precautions, such as providing green belt areas or building setbacks, below natural slopes may

	be necessary to ensure protection from the haz-ard of rockfall. Cut slopes less than 20 feet in height in non-highly jointed weathered bed-rock are expected to be grossly stable against deep-seated failure. The project as currently designed avoids development where boulder rolling is expected to occur.
EIR #190 pg. 55	Cut slopes in alluvium should be no more than 30 feet in height. All artificial slopes will require measures to minimize surficial degradation.
EIR #190 pg. 55	To provide for surficial stability, and to prevent piecemeal sloughing, cut slopes in alluvium, weathered bedrock, and/or highly jointed bedrock will perform best if designed at an angle no steeper than 2:1. It will also be more feasible to establish vegetation on slopes if they are not steeper than 2:1. The stability of any 2:1 cut slopes in bedrock units higher than 20 feet should be individually evaluated once a tentative design is established. All cut slopes should be inspected for adverse conditions during grading by a qualified engineering geologist.
EIR #190 pg. 56	Incorporation of appropriate parameters for the design of one and two-story buildings and conformity with the latest Uniform Building Code, the Environmental Hazards and Resources Element of the Comprehensive General Plan, and other County ordinances can be expected to satisfactorily mitigate the effects of seismic ground shaking.
EIR #190 pg. 56	Secondary earthquake hazards, such as liquefaction, flow landsliding, seismically induced settlement and ground lurching or cracking, are generally associated with relatively high intensities of ground shaking, shallow ground water conditions and the presence of loose sandy soils or alluvial deposits. Although these secondary hazards appear unlikely, additional geotechnical investigation, including soil sampling and testing is required to adequately assess these constraints. At this time, it is expected that foundation designs incorporating appropriate engineering recommendations will be adequate to mitigate any of these kinds of constraints.
Addendum 1 pg. IV-14	First, all structures and ancillary uses shall be restricted to areas having a slope range of less than 24%. All streets shall be aligned through slope having a gradient of no more than 16%. By restricting development to the flatter areas, the site will be less susceptible to falling rock resulting from unstabilizing hillside cuts, measures for mitigating biological impacts will remain intact, the potential for unsightly hillside scarring will be eliminated.
Addendum 1 pg. IV-14	Secondly, a detailed geotechnical investigation shall be conducted for the site to further analyze the thickness of colluvium and the degree of rock decomposition as they relate to the proposed development plan. The study shall include recommendations for appropriate cut and fill slope grades, degree of rippability of the soil, and methods to protect future structures from damage caused by falling rock.
Addendum 1 pg. IV-14	Embedded rock outcroppings shall be included as part of future landscaping plans for the purpose of economic as well as aesthetic enhancement of site development.
COA 73	A soils Engineering report including but not limited to a statement regarding the potential of ground settlement, shall be completed prior to the issuance of the grading permit.
COA 74	Potential rockfall and rollout zones shall be identified and restricted from development. These zones shall be preserved as part of the natural open space areas as shown on Exhibit "C" Amended No. 1 Land Use Plan.
Hydrology, Flooding, Drainage	
EIR #190 pg. 68	Implementation of the Moreno Valley Ranch Specific Plan will eliminate the floodplain hazards of the site. Major features of the flood control system include a trapezoidal channel and possibly the lake system, as shown on Figure IV-19, Master Drainage Plan. All facilities will be constructed in accordance with the standards of the Riverside County Flood Control District and will implement the Sunnymead and Moreno Area Master Plans.
EIR #190 pg. 69	The Flood Control District assesses fees for the support of drainage improvements within the boundaries of adopted Area Drainage Plans, which will be applicable to the developer of the Moreno Valley Ranch. These fees will mitigate any financial impacts.

EIR #190 pg. 69	The improvements proposed by the Moreno Valley Ranch Master Drainage Plan respond to the Flooding Land Use Standards of the Environmental Hazards and Resources Element of the Comprehensive General Plan through mitigation of the existing floodplain condition and by payment of fees set forth by the Master Drainage Plans. All applicable Flooding Land Use Standards will be satisfied by the proposed project.
EIR #190 pg. 69	Erosion control devices will be utilized in hillside development areas to mitigate the effect of increased runoff at points of discharge. Devices may include temporary berms, culverts, sandbagging or desilting basins.
EIR #190 pg. 69	A lake consultant has been retained to advise regarding the lake system design and construc-tion, in order to ensure that water quality in the lake meets all applicable standards. The water level of the lakes will be maintained on a year-round basis, and a water circulation system will be utilized to prevent water stagnation.
EIR #190 pg. 69	A water quality maintenance program can be implemented to mitigate the impact of urban runoff on surface water quality over the long term. A suitable program is outlined in Water Pollution Aspects of Street Surface Contaminants (prepared by the U.S. Environmental Protection Agency). This program provides recommendations for street cleaning and prevention of pollutant generation. Its implementation rests with local agencies, the project Homeowners Association and individual residents
COA 65	The existing drainage courses shall be developed in accordance with conditions and standards set by the Riverside County Flood Control and Water Conservation District and the City Engineer. Where possible within District guidelines, drainage courses shall be left in a natural state. Riparian areas shall be maintained by the master property owner's association, or as otherwise approved by the Flood Control District and the City Engineer.
COA 66	Retention basins or other facilities shall be developed as required and approved by the Riverside County Flood Control District and the City Engineer to ensure that drainage flow velocities onto adjacent properties do not exceed those experienced under existing conditions.
COA 67	The developer shall participate in the fee mitigation program of the Master Drainage Plans for this area.
Landform/Topography	
EIR #190 pg. 41	All grading will be performed in accordance with the Riverside County Grading Policies. Measures to reduce soil erosion, such as performing grading operations during dry (summer) months, keeping the soil mantle moist during grading and providing erosion control facilities should be implemented. Soil erosion potential will be further reduced through implementation of the Riverside County Flood Control District's Master Plan for the site as proposed by the project. Landscaping all cut and fill slopes will protect the slopes from erosion and minimize the visual impacts of grading operations. As previously mentioned, grading will occur in phases, minimizing the areal extent of exposed soils, thereby reducing erosion.
Addendum 1 pg. IV-11	In conformance with the Hillside Development Standards, providing erosion control facilities as required by the City Public Works Department, and landscaping all manufactured slopes in accordance with City Standards. The proposed amendment will not create any greater impacts.
COA 68	The common boundary between the U.C. Riverside Experimental Farm and the specific plan shall be planted with high, middle and low canopy foliage to form a dense barrier. The use of berms and walls in conjunction with this barrier can be used to increase noise at-tenuation. The developer shall meet with the appropriate staff of the University of California at Riverside to develop a buffering program and to provide adequate security provision for this area. Such program shall be submitted to the Moreno Valley Planning Commission for approval prior to approval of any tract map in Phase I.

COA 69	The common boundary between the EMWD wastewater treatment plant and the specific plan shall be planted to form a buffer for noise reduction purposes. Berms and walls may be used in conjunction with this barrier to enhance noise reduction.
Land Use	
COA 15	The total specific plan shall be developed with maximum 12,695 dwelling units on 1620 acres pursuant to Exhibit "C" - Amended No. 1 Land Use Plan. Final development densities for each phase shown in Exhibit "D" 7/25/85 Revision shall be determined through the appropriate tract application, up to the maximum density identified for the planning unit in question, based upon, but not limited to the following: A. adequate availability of services; B. adequate access and circulation; C. sensitivity to land forms; D. innovation in housing types, design, conservation, or opportunities E. adequate provision of recreational open space within planned residential developments (PRD 1 s); F. sensitivity to neighborhood design through appropriate lot and street layouts; G. compatibility with surrounding off-site development land uses and densities; H. adequate mitigation of all school impacts identified by the affected school district;
COA 16	Lots created pursuant to this specific plan shall be in conformance with the development standards of the zones ultimately applied to the property.
COA 17	A change of zone application may be required, as determined by the Planning Department, with each subsequent development application.
COA 18	Flag lots shall not be permitted.
COA 19	All utilities shall be placed underground.
COA 20	All landscaped common greenbelt, park, improved open space, and linear park areas within the specific plan shall include automatic irrigation systems.
COA 21	Prior to the recordation of any final subdivision, improvement plans for developed common park, landscaped areas, and parkway areas for that subdivision or to mitigate an environmental impact for that stage of development shall be submitted to the Planning Commission for approval. The improvement plans shall include, but not be limited to the following: A. Final grading plan. B. Irrigation plans certified by a landscape architect. C. A landscaping plan with seed mixes for mulching and staking methods. Locations, type, size and quantity of plantings. D. A Hardscaping plan with location and type and quantity of recreational amenities/facilities.
COA 22	The 26 acre area designated for commercial development located at the intersection of Iris Avenue and Lasselle Street as shown on Exhibit "C", Amended No. 1 Land Use Plan shall be developed pursuant to Commercial Specific Plan or an alternate development procedure adopted by the city.
COA 23	The proposed neighborhood commercial areas, other than that described in Condition No. 22 above, shall be subject to Plot Plan review submitted under provision of Section 18.12 and 18.30 of Ordinance 348. Architectural compatibility with surrounding development shall be maintained.
COA 24	The area designated as Light Industrial as shown on Exhibit "C" - Amended No. 1 Land Use Plan shall be subject to Plot Plan review submitted under provision of Section 18.12 and 18.30 of Ordinance 348. Architectural compatibility with surrounding development shall be maintained.

COA 25	At the time of recordation of any tentative final subdivision which contains a common greenbelt, park, and/or linear park areas, the subdivision shall have those common areas conveyed to the master property owners association or appropriate public maintenance agency.
Noise	
EIR #190 pg. 75	Construction activities should be limited, especially during the later phases of development, to maintain quiet during evening hours and weekends. In addition, construction equipment should be equipped with effective muffling devices.
EIR #190 pg. 75	In residential areas which lie within the 65 CNEL zone due to traffic noise, noise barriers will be required. An earthern berm or non-porous wall can result in significant and adequate noise reduction, if interposed between source and receiver. The barrier should effectively block the line of sight from the noise source. The required height of these barriers is directly dependent upon precise elevation differentials between the source and receiver. As a result, these barriers will be designed at subsequent, more detailed stages of project design. Special construction techniques can be used to maintain interior noise levels at acceptable standards. Measures such as the use of double- pane windows, additional insulation, weather-stripped doors and windows and baffled vent openings can be incorporated into the building design, if needed.
EIR #190 pg. 76	Noise - Land Use Standards as set forth by the Environmental Hazards and Resources Element will be satisfied by the Moreno Valley Ranch Specific Plan, including attainment of 45 dBA and 65 dBA for interior and exterior noise levels respectively.
COA 57	Prior to the issuance of building permits an acoustical study shall be performed by an engineer to establish appropriate mitigation measures for on-site impacts and to buffer the UCR Farm. This mitigation shall be applied to individual dwelling units within implementing subdivisions located adjacent to collector and larger roadways as well as providing noise attenuation between on-site uses adjacent to the UCR Farm, and to reduce noise ambient interior noise levels to 45 db(a). The required acoustical studies shall be subject to Planning Commission approval and review by the appropriate staff of UCR and any mitigation measures recommended in the reports shall be incorporated into the design of the specific plan and construction of residential units.
Public Services	
EIR #190 pg. 144	As the EMWD has indicated their ability to provide water and sewer service to the project, no mitigations are needed. The use of reclaimed water for landscape irrigation is being considered and may also be used in the proposed lakes. Water and sewer district annexation fees, per unit fees for capacity in the sewage treatment plant, and per unit water service connection fees will prevent any negative financial impacts to the District. As discussed above, water demand can be partially reduced by utilizing reclaimed water.
EIR #190 pg. 148	The project applicant should study the possibility of including trash compactors as a standard feature in the new homes as well as the feasibility of installing recycling bins on the site for residents' use and convenience to reduce solid waste generation.
EIR #190 pg. 156	The project applicant will work with the County of Riverside Fire Department in order to insure the adequacy of the location and size of the presently proposed fire station sites. A fee of $600 per unit is assessed by the "Public Facilities Plan for the Moreno Valley". A portion of this will be allocated to the Fire Department to cover costs of constructing the stations. A number of measures to reduce the potential for fire occurring have been incorporated into the project design.
EIR #190 pg. 159	The applicant will also cooperate with the Sheriff's Department to insure that adequate police protection is provided.
EIR #190 pg. 159	The proposed ten-acre civic center site could, if deemed necessary, serve as a location for a police sub-station.
EIR #190 pg. 164	A number of natural gas and electricity conserving techniques have been incorporated into the project design, as described in the Specific Plan.

EIR #190 pg. 169	The project proponent will continue working with the four affected school districts to insure adequate facilities are provided. Payment of District(s) development fees will help mitigate financial impacts.
COA 59	The following fire impact mitigation measures shall be required: A. Fire protection shall be provided in accordance with Schedule "A" of Ordinance 460 and/or 546. B. All dwelling units and structures must have built-in smoke detectors and alarm systems. C. Buildings should be designed and constructed to be fire resistant through following: 1) Adequate spacing between buildings to allow the movement of fire equipment around the inner portions of the project. 2) All buildings within the project shall have Class A roofing material. 3) Overhead decking for multiple story structures should be designed to preclude a fire from burning under it and up through it. 4) Exterior spark arrestors on chimneys shall be provided. A sample shall be submitted to the County Fire Department for inspection and approval prior to installation. D. Site specific project design should include the following: 1) A circulation pattern that has roadways which are of sufficient width to be easily traveled by fire vehicles, cul-de-sacs less than 1320 feet, and multiple access points into residential neighborhoods through loop streets and throughways.
COA 60	The project sponsor shall participate in the Public Facilities Fee Program for Moreno Valley.
COA 61	Fuel modification zones constructed to the standards of the County Fire Department will be provided for each subdivision or development plan as required by the County Fire Department. Fuel modification features (e.g. dirt roads) shall be outside the natural open space areas offered for dedication to the appropriate public agencies.
COA 62	Each subdivision within the specific plan shall provide school impact mitigation measures as determined by the Moreno Valley Unified, Val Verde Elementary, Perris Union, and NuView Union Elementary School districts through the dedication of sites and through developer fees.
COA 63	Ultimate phases which contain a proposed school site shall provide improvements which shall include, but not be limited to, utilities and street improvements to the site at no cost to the school districts.
COA 64	The developer shall mitigate potential safety and security impacts in the following manner: A. Prior to recordation of the implementing tract maps the following action shall occur: 1) An application shall be submitted to the City of Moreno Valley for the formation of a street lighting district, or annexation to an existing light district. 2) This application shall be filed concurrently with the submittal of street improvement plans to the Riverside County Road Commissioner. B. The project design shall incorporate security hardware as recommended by law enforcement agencies on all structures, and an emphasis on visibility through location and landscaping of structures.
Traffic, Circulation, Scenic Highway	
EIR #190 pg. 134	Those portions of the following roadways should be re-designated on the County Master Plan of Highways as "Specific Plan Roads" and be classified as six lane divided arterials: - Perris Blvd., - Alessandro Blvd., - Moreno Beach Dr., and

	- Iris Ave. In order to avoid off-site impacts to the area circulation system, the county of Riverside should insure the orderly implementation of their Master Plan of Highways, with the amendments described above.
EIR #190 pg. 135	To provide for adequate internal roadway circulation, the Traffic. Engineer, Kunzman Associates, has recommended guidelines. for the development of the project. These recommendations are included in their entirety as Section VI.D., Technical Appendices - Traffic Analysis. Briefly, these mitigations deal with: 1) Internal Design Guidelines for Residential Development 2) Residential Design Guidelines for Fire Safety and Emergency Access. 3) Internal Design Guidelines for Commercial Development 4) Commercial Access Design Guidelines 5) Internal Design Guidelines for Industrial park development
EIR #190 pg. 135	In addition, the circulation system proposed by Moreno Valley Ranch Specific Plan has been designed in accordance with the County policies for the Moreno Valley Community Policy area as follows: 1) The project implements the County Master Plan of Street and Highways. 2) Heavy through traffic has been eliminated from residential neighborhoods. 3) Pedestrian traffic has been separated from vehicular traffic, particularly in commercial and high density areas. As described in Section IV.E.5 Open Space and Recreation Plan - Trails, a pedestrian trails system is proposed. A community trail system is planned that will provide pedestrian and bicycle access throughout the Moreno Valley Ranch, linking the project with adjacent residential areas, the State Recreation Area, as well as internally with parks, schools, recreation facilities, the lakes, civic center and a vista point near the western village core.
EIR #190 pg. 136	In regards to non-peak hour congestion problems at the Lake Perris State Recreation Area entrance, the project applicant should work with the State and the County to find solutions. A number can be considered, including: 1) Implementing the Davis Road entrance, in accordance with· the State's Master Plan for the Lake Perris Recreation Area 2) Altering the present system for admitting visitors so that those hoping to get into the park later in the day do not wait in vehicle queues. 3) Changing and augmenting the current park signage program to clarify park operations, procedures, and hours to reduce vehicle congestion by information seekers and potential park users.
COA 40	All road improvements within the project boundaries shall be constructed to ultimate City standards in accordance with Ordinance No. 460 and 461 as a requirement of the implementing subdivisions for this project and shall be subject to approval by the City Engineer.
COA 41	The applicant shall submit for Planning Commission approval, a composite circulation plan prior to the issuance of grading permits for each stage of development in question which combines and defines the type and extent of pedestrian, equestrian and vehicular circulation modes identified in the Specific Plan and EIR. The composite circulation plan shall establish the development standards, phasing and maintenance responsibilities for the various circulation components, public and private streets, sidewalks, streetscapes, trails and bridges.
COA 42	The subdivider shall comply with the following street improvement recommendations: A. The master circulation plan shall be revised to designate Iris Avenue/Moreno Beach Drive as a six-lane arterial within the project boundaries. B. The applicant/developer of any subdivision within Specific Plan 193 shall participate

	on a fair share basis in any mitigation and/or fee program designed to alleviate off site roadway and freeway interchange deficiencies.
COA 43	Road improvements shall be provided in accordance with the requirements of the implementing subdivision for this project and/or as recommended by the City Engineer.
COA 44	The basic circulation system shall be developed substantially in accordance with the Specific Plan, EIR and Read Engineering Department conditions as contained herein.
COA 45	Collector roadways shall minimize the use of reverse frontage walls by such treatments as increased setbacks, landscaping, and berming or other techniques which will allow individual residential developments to have frontage on the collector roadways without the use of masonry walls or fences.
COA 46	The project proponent shall participate in the Traffic Signal Mitigation Program as adopted by the City of Moreno Valley.
COA 47	All proposed school bus stop locations and turnouts shall be subject to approval by the school districts prior to the approval of any subdivisions within each Phase.
COA 48	Concrete sidewalks shall be constructed throughout this development
COA 49	Handicapped/bicycle ramps shall be incorporated into all curb and sidewalk designs.
COA 50	A sufficient quantity of bicycle racks shall be provided by the developer at the neighborhood commercial center.
COA 51	Prior to any residential or commercial development within Phase II, Iris Avenue shall be completed to Moreno Beach Drive or another secondary access shall be provided as approved by the Read Engineering Department.
COA 52	Prior to the recordation of any subdivision or development plan within Phase II of this specific plan the project sponsor will submit to the Read Engineering Department and Planning Commission a circulation plan designed to mitigate traffic impacts resulting from the use of Moreno Beach Drive as the main access to the Lake Perris State Recreation Area. Upon approval this circulation plan will become a condition of approval for any or all development within Phase III as deemed appropriate by the Road Department. This circulation plan shall evaluate the proposed commercial and residential land uses interfacing with the Moreno Beach Drive intersection/Lake Perris entry to insure that these uses have adequate access which will not impact area residents and park users.
General Conditions	
COA 1	The specific plan approval shall consist of the following: Exhibit "A" Specific Plan Text - Amended 10/23/86 Exhibit "B" Specific Plan Conditions - Amended 10/23/86 Exhibit "C" Land Use Plan - Amended No. 1 10/23/86 Exhibit "D" Phasing Plan -7/25/85 Revision Exhibit "E" Circulation Exhibit "F" Project Circulation Exhibit "G" Biological Constraints Exhibit "H" Project Design Manuel
COA 2	If any of the following conditions of approval differ from the commitment made by the developer in the specific plan text or map exhibits, the conditions enumerated herein shall take precedence.
COA 3	The development of the property shall be in accordance with the mandatory requirements of all City of Moreno Valley Ordinances and State Laws and shall conform substantially with approved Specific Plan No. 193 as filed in the offices of the City of Moreno Valley unless otherwise amended.
COA 4	No portion of the specific plan which purports or proposes to change, waive or modify any ordinance or other legal requirement in effect at time of final approval for the development

	shall be considered to be a part of the adopted specific plan.
COA 5	Water and sewage disposal facilities shall be installed in accordance with the requirements and specifications of the Riverside County Health Department. Such requirements will be applied at the subdivision or plot plan stage.
COA 6	Drainage and flood control facilities and improvements shall be provided in accordance with Riverside County Flood Control and Water Conservation District and City Engineer's requirements. Such requirements will be applied at the subdivision and plot plan stage. a. All proposed improvements and construction shall be in conformance with the City of Moreno Valley Flood Prevention Ordinance.
COA 7	Prior to issuance of a building permit for construction of any use contemplated by this approval, the applicant shall first obtain clearance from the City of Moreno Valley Planning Department that all pertinent conditions of approval have been satisfied with the' specific plan for the phase of development or planning unit in question.
COA 8	An environmental assessment shall be conducted with each filing for tentative tract map, change of zone, plot plan, specific plan amendment or any other discretionary permit application required to implement the specific plan. At a minimum, the environmental assessments shall utilize the evaluation of impacts addressed in the EIR prepared for Specific Plan No. 193 and Addendum No. 1 to the EIR, prepared for Specific Plan No. 193 Amendment No. 1.
COA 9	All future development shall be subject to and in accordance with the applicable ordinances of the City of Moreno Valley in effect at the time of application as contained in those County Ordinances (including Ordinances 348 and 460) that were adopted by the City following incorporation. Any future revisions to these City Ordinances shall be effective against all development phases for which Tentative Tract Maps have not been approved, as of the date of the revision.
COA 10	A master property owners association or appropriate public maintenance agency shall be established by the developer encompassing the entire specific plan for the ownership, maintenance and management of lakes, parks, irrigation systems, landscaping along the public roads, major project entry point facilities, and, signing and lighting responsibilities as necessary as defined through the specific plan conditions of approval and its subsequent amendments.
COA 11	Where applicable by ordinance or required by adoption of a condition of approval relating to the underlying tentative tract proposal, a neighborhood owners association shall be established prior to the recordation of the final tract map for each residential development. The neighborhood owners association shall be responsible for any common area improvements that are unique to that neighborhood/sub-community and other responsibilities as necessary as defined through the specific plan conditions of approval.
COA 12	A commercial property owners association shall be established for the commercial area as shown in Exhibit "C" - Amended No. 1 Land Use Plan. The commercial property owners association will be developed prior to the issuance of any building permits within the first phase of the commercial center. The commercial property owners association shall be responsible for private roads, parking, signing, landscaped areas, irrigation, common areas and other responsibilities as necessary and as defined through the specific plan conditions of approval.
COA 13	An industrial property owners association shall be established for the industrial area as shown in Exhibit "C" - Amended No. 1 Lands Use Plan. The industrial property owners association will be developed prior to the issuance of any building permits within the first phase of the industrial center. The industrial property owners association shall be responsible for private roads, parking, signing, landscaped areas, irrigation, common areas and other responsibilities as necessary and as defined through the specific plan conditions of approval.

COA 14	Prior to the recordation of any final subdivision map, or building permits being issued for conditional use permits and plot plans, the applicant shall submit to the Planning Commission the following documents which shall demonstrate to the satisfaction of the City that the individual appropriate owners associations will be established and will operate in accordance with the intent and purpose of the specific plan. A. The document to convey title. B. Covenants, Conditions and Restrictions to be recorded. C. Management and Maintenance agreements to be entered into with the unit/lot owners of the Project. The master property owners association, neighborhood owners association, commercial and industrial owners associations shall be charged with the unqualified right to assess their own individual owners who own individual units for reasonable maintenance and management costs which shall be established and continuously maintained. The individual owners associations shall have the right to lien the property. of any owners who default in payment of their assessment fees. Such a lien shall not be subordinate to any encumbrance other than a first deed of trust, provided such deed of trust is made in good faith and for good value and is of record prior to the lien of the individual owners association.
Planning Area Conditions	
COA 26	Specific Plan 193 shall be developed in accordance with the conditions of approval, Exhibit "C" - Amended No. 1 Land Use Plan and the following specific development criteria for each individual identified planning unit. A. All areas designated as landscape spaces and parks on the development plan shall be subject to the following development criteria: 1. Areas designated as Planning Area 7,8,16,18,19, 28,38,45,46,54,63,68, and 79 shall be owned and managed by the Master Property Owners Association or appropriate public maintenance agency. 2. Planning unit 27 shall be developed as ci vie center for government and public offices or as a professional business complex. A fire station shall also be placed in this location if deemed appropriate by the County Fire Department and/or the City of Moreno Valley. Architectural compatibility with surrounding development shall be maintained. 3. Detailed development plans, including facilities, landscaping and irrigation shall be for submitted Planning Department approval concurrently with the submittal of the tentative tract maps which include these areas.
	B. Planning area 4 shall be developed as a Industrial Center in the following manner. 1. The Industrial Center shall be developed subject to a plot plan to be submitted under provisions of Section 18.12 and 18. 30 of Ordinance 348. This plot plan shall include detailed building sizes elevations, parking, roof treatment, landscaping and circulation design. 2. The Industrial Center shall be designed and developed in a manner which is compatible in all respects with residential development proposed within Specific Plan 193. 3. Energy considerations shall be incorporated into the design of industrial areas. Parking areas shall be heavily landscaped to reduce heat gain. Passive and active solar systems should be considered in structural designs. 4. All signs shall be in compliance with Section 1,9.4 of Ordinance 348.
	C. Planning areas 3, 21, 57, 59, and 75 shall be developed as neighborhood commercial centers in the following manner: 1. The Commercial Centers shall be developed subject to a plot plan to be submitted

	under the provisions 6f Sections 18.12 and 18.30 of Ordinance 348. This plot plan shall include detailed building sizes, elevations, parking, roof treatment, landscaping and circulation designs, and will designate the major uses proposed on each site. 2. The Commercial Center shall be developed in a manner that is architecturally harmonious with its own defined identity incorporating development criteria from the defined theme of Specific Plan 193. 3. The Commercial Center all incorporate efficient pedestrian, bikeway, auto, and public transportation systems. Development details shall be provided concurrently with the plot plan which will be evaluated by the Planning Commission and other affected agencies. 4. Energy considerations shall be incorporated into the design of commercial areas. Parking areas shall be heavily landscaped to reduce heat gain. Passive and active solar systems shall be considered in structural designs. 5. All signs shall be in compliance with Section 19.4 of Ordinance 148.
	D. Planning Areas 19 and 79 shall be developed as Community Recreational Centers as described in Exhibit "A" - Amended 9/86 and in accordance with the following: 1. The centers shall be owned and managed by the Mas-ter Horne Owners Association or other appropriate public agency. 2. Detailed development plans, including facilities, landscaping, and irrigation shall be submitted for Planning Department approval concurrently with the submittal of the tentative tract maps which include this area.
	E. Planning Areas 9, 13, 33, 37, 53, 65 and 70 shall be developed in accordance with Exhibit "C" - Amended No. 1 Land Use Plan and the following criteria. 1. The Master Home Owners Association or the developer shall manage the site until such time as the appropriate School District assumes title to the property. 2. The site shall be maintained in a manner which is aesthetically pleasing and does not present a hazard to health and safety. 3. If the appropriate School District determines that a site is not required or desirable as a future school facility, that site shall be developed as a maintained park. If development other than that above is proposed, such development shall be approved by the Planning Commission and may require a Specific Plan Amendment.
	F. Flood Control facilities within each phase will be constructed prior to or concurrently with the initial development within that phase.
	G. Prior to the issuance of grading permits for the construction of the lake system the developer shall submit a plot plan application to the Planning Commission for approval. The development of the lake system shall occur in the following manner: 1. The construction and maintenance program of the lake system shall be certified by a limnologist. 2. Any stocking and fishing program of the lake system will require clearance from the California State Department of Fish and Game. 3. If boating is proposed, the rules and regulations which will affect the equipping and/or operations of the vessels on the lake system shall be submitted to the California State Department of Boating and Waterways for clearance. 4. A temporary graded maintenance/emergency road shall be provided around the lake system until such time that the area around the lake is fully developed.
	H. Planning Area 2 shall be developed to (1) equestrian/recreational uses as described in the required "Design Handbook" and, (2) such other related commercial uses as may be approved by the City through public hearing. procedures. Approved

	equestrian/recreational related uses may be owned and managed by the Master Homeowners Association or the Commercial Property Owners Association. The additional commercial uses as may be approved by the City Council through the public hearing process required above shall be maintained by the Commercial Property Owners Association. In either situation, Planning Area 2 shall be subject to the following: 1. Detailed development plans including facilities, landscaping, and irrigation shall be submitted for Planning Commission approval concurrently with the submittal of the tentative tract maps which include this area.
Phasing Conditions	
COA 27	Construction of the development permitted hereby, including recordation of final subdivision maps, may be done progressively in stages, provided adequate vehicular access is constructed for all dwelling units in each stage of development and further provided that each phase of development conforms substantially with the intent and purpose of the Specific Plan Master Phasing Program. Any proposed variation to the Master Phasing Plan shall be reviewed by the Planning Commission for determination of substantial conformance to the Specific Plan.
COA 28	Development applications may be filed out of the numerical sequence of the Master Phasing Plan, provided that the development application complies with all conditions, including requirements for public facilities, infrastructure and recreational amenities, for the phase and planning unit in which it is located and all intervening phases and planning units.
COA 29	Area and density transfers between Master Phases shall be prohibited.
COA 30	A. Phase One 1. Infrastructure 2. 3282 Residential units 3. 12 acres of commercial development 4. 34 acres for School sites 5. 35 acres of parks and recreational areas 6. 27 acres of lakes 7. 225 acres of natural open space (NOS "B") to be dedicated to the Department of Fish and Game pursuant to Condition #72.
	B. Phase Two 1. Infrastructure 2. 3296 Residential units 3. 29 acres of commercial development 4. 10 acres of civic center or professional offices 5. 1 acres for fire station 6. 8 acres for school sites 7. 420 acres of natural open space 8. 15 acres of parks and recreational areas 9. 8 acres of lake 10. 76 acres of community college campus that includes related uses.
	C. Phase Three 1. Infrastructure 2. 912 dwelling units 3. 14 acres of commercial development 4. 7 acres for school sites 5. 152 acres of natural open space 6. 15 acres of parks and recreational areas 7. 5 acres for park sites

	D. Phase Four 1. Infrastructure 2. 2407 dwelling units 3. 2 acres of commercial development 4. 28 acres of light industrial development 5. 40 acres for school sites 6. 103 acres of natural open space 7. 14 acres of parks and recreational areas 8. 47 acres of equestrian recreation facilities
	E. Phase Five 1. Infrastructure 2. 1730 dwelling units 3. 10 acres of commercial development 4. 1 acres for a fire station site 5. 25 acres for school sites 6. 85 acres of natural open space 7. 20 acres of park and community recreational areas 8. 20 acres of lake
	F. Phase Six 1. Infrastructure 2. 1068 dwelling units 3. 700 acres of natural open space
COA 31	Each planning phase as identified in Exhibit "D" 7/25/85 Revised shall incorporate internal pedestrian access to common landscaped spaces and recreation areas. No direct pedestrian access shall be provided to the natural open space areas.
COA 32	Within eight (8) and sixteen (16) years of City Council's adoption of the Resolution for the specific plan, any portion of this specific plan, that has not been developed or for which an implementation development plan has not been approved by the City Council, the City Council may review and may require an amended specific plan at the developer's expense prior to further development.
COA 33	Construction of the lakes in Phases I, II and V shall commence prior to or concurrently with the initial development in each applicable phase.
COA 34	Construction of parks, community and equestrian recreational areas shall commence prior to, or concurrently with adjoining development in each applicable phase.
COA 35	Any area within Specific Plan No. 193 which is designated as a school site, is exempt from the provisions of the Master Phasing program. Sites designated for schools may be developed at such time the applicable school districts deem appropriate provided adequate water, sewer and other necessary services are available to the site.
Grading Conditions	
COA 36	No grading shall be permitted for any development area prior to tentative map or plot plan approval and issuance of grading permits for the area of development in question, excluding stock pile plans or as approved by the City Engineer.
COA 37	All grading within the specific plan shall comply with City Ordinance No. 45 and the following conditions and development criteria: A. All grading shall be in accordance with the County's Hillside Grading Policies, as adopted by the City.
	B. Where cut and fill slopes are created in excess of 10 feet in vertical height, detailed landscaping and irrigation plans shall be submitted to the Planning Department and Engineering Department prior to approval of grading plans. The plans will be reviewed for type and density of ground cover, seed mix, plant sizes and irrigation systems.

	C. Gradients of all driveways and private roadways shall not exceed 15% percent.
	D. All manufactured slopes shall be contour-graded incorporating the following grading techniques: 1. The angle of the graded slope shall be gradually adjusted to the angle of the natural terrain. 2. The toes and tops of all slopes in excess of 10 feet in vertical height shall be rounded with curves with radii designed in proportion to the total height of the slope where drainage and stability permit such rounding. 3. Where cut and fill slopes exceed 150 feet in horizontal length, the horizontal contours of the slopes shall be curved in a continuous, undulating fashion.
	E. Natural features such as trees with four inch or larger trunk diameters and significant rock outcrops shall be protected to the greatest extent feasible in the siting of individual lots and building pads. These features shall be shown on the grading plan with appropriate protection and relocation notes.
	F. All dwellings shall be located a minimum of 10 feet from the toes and tops of all slopes over 10 feet in vertical height unless otherwise approved by the City Engineer.
	G. Natural drainage courses shall be retained in their natural state wherever possible.
	H. All brow ditches, terrace drains and other minor swales where required shall be lined with natural erosion control materials or concrete, as approved by the Planning Director and City Engineer.
	I. All grading work shall be balanced within the limits the phase boundary, eliminating any off-site transport of materials.
	J. All graded but undeveloped land shall be maintained in a weed-free condition and planted with interim landscaping.
	K. The applicant and/or developer shall be responsible for the maintenance and upkeep of all slope planting and irrigation systems until such time as those operations are the responsibility of other parties.
COA 38	All tentative tract map submittals shall include and overall conceptual grading plan for the stage of development in question. The grading plans shall include but not be limited to the following: A. Preliminary quantity estimates for grading.
	B. Areas of temporary borrowing or depositing of material.
	C. Techniques which will be utilized to prevent erosion and sedimentation during and after the grading process.
	D. Approximate time frames for grading including identification of areas which may be graded during the higher probability rain months of January through March.
	E. Preliminary pad and roadway elevations.
	F. Hydrology and hydraulic concerns and mitigation measures.
COA 39	Any trees with four inch or larger trunk diameters which are removed shall be replaced with native specimen trees on a three to one basis, as approved by the Planning Director. Trees which are to be removed shall be indicated on the proposed grading plan.
Parks and Recreation Area Conditions	
COA 53	The parks and recreation areas shown on Exhibit "C" - Amended No. 1 Land Use Plan shall be developed in accordance with the requirements and standards of the R-5 zone as follows: A. Maintenance of the landscaped spaces, park areas and recreation areas shall be the developer's responsibility until such time as operation and maintenance is assumed by a county service areas, community services district, or other appropriate public agency.
	B. Bike lanes and equestrian trails shall be constructed in accordance with Exhibit II A", these conditions and the · "Design Manual II referenced in Condition #79 as approved by the City Parks Department and the Planning Department.

	C. Park areas shall be equipped with play and picnic facilities and landscaping with automatic irrigation. These facilities shall be Provided to the satisfaction of the Planning Departments.
	D. Permanent automatic irrigation system shall also be installed on all other landscaped areas requiring irrigation. Landscaping and irrigation plans shall be prepared and certified by a qualified landscape architect and submitted for Planning Department approval.
	E. Native specimen trees and shrubs shall be utilized wherever possible, as approved by the Planning Department.
	F. Landscape screening shall be designed to be opaque up to a minimum height of six (6) feet at maturity.
	G. All utility service areas and enclosures shall be screened from view with landscaping and decorative barriers or baffle treatments, as approved by the Planning Department.
	H. All landscaping and irrigation shall be installed in accordance with approved plans prior to the issuance of occupancy permits. If seasonal conditions do not permit planting, interim landscaping erosion control measure shall be utilized as approved by the Planning Department.
	I. Landscaping maintenance and upkeep, shall be the responsibility of the applicant and developer until such time as those functions become the responsibility of the master property owner's association or appropriate public agency.
COA 54	Prior to the issuance of building and grading permits, landscaping, irrigation, and improvement plans for landscaped areas and recreation areas shall be submitted to the Planning Commission and approved for the stage and area of development in question. Improvement plans shall conform to concepts, features and standards established in the specific plan and these conditions.
COA 55	An equestrian-trail system shall be constructed along the alignments shown on Land Use Plan Exhibit C Amended No 1 Land Use Plan. The trail system, except for that portion along Davis Road, shall be improved in accordance with details illustrated in the "Design Handbook" prepared for the Moreno Valley Ranch project as approved by the Planning Commission and shall be offered· for dedication to. the Riverside County Parks Department, or other public agency as appropriate, when tentative tract maps adjacent to this system are being processed. If the system is not accepted for maintenance by the County Parks Department, or other appropriate public agency, it shall be owned and maintained by the Master Homeowners Association or other entity as approved by the City. The Davis Road section of the system shall be improved and offered for dedication as provided for above at the time the adjacent natural open space Area "B" as shown on Exhibit C - Amended No. 1 Land Use Plan, is conveyed to the appropriate agency as required by Condition 72. The system shall also incorporate ± 1 acre trail head or staging area, if appropriate, in the vicinity of the Wilmont or Davis Road entrance to the project site. Any staging area or trailhead located along Davis Road within or adjacent to NOS-B as shown on Exhibit "C" - 7/25/85 Revision shall be reviewed by the Department of Fish and Game prior to approval by the City. Until such time as the permanent system is completed, usable existing equestrian access shall not be curtailed.
Impact Mitigation Conditions	
COA 56	The developer shall incorporate all special impact mitigation plans, findings, and recommendations into the design of all applicable development plans including subdivision, grading, and building plans.

COA 76	The developer shall provide within one of the commercial components of the development an improved park and ride facility or participate towards contributions for the purchase of and improvement to an off-site facility if recommended by Caltrans at the development stage.
COA 77	The developer shall provide solar water heating systems as the primary source of water heating in all residential units designated medium, medium high and high density. The credit allowable to satisfy the Title 24 requirements shall be limited to the points allowed for the gas water heater. Also, any group swimming pools planned for the three major community recreation facilities, as well as the group swimming pools planned in residential areas designated medium, medium-high and high density shall use solar water heating as the primary method of heating the swimming pools. The Planning Department shall verify that these requirements have been satisfied prior to that issuance of building permits.
COA 78	A land division map may be filed on a portion of or the entire project site for the purpose of financing, and to delineate the planning areas in accordance with Exhibit C - Amended No. 1. Land Use Plan prior to the implementation of the first tentative tract map. This land division map shall provide for the establishment of the Master Home Owners Association and the appropriate division, development and management of landscaped areas, dedication of access routes and shall be exempt from those Specific Plan conditions of approval which refer to the tentative tract maps which will implement the development of the numbered planning areas.
COA 79	The applicant shall prepare a "Design Handbook" to be submitted to the City of Moreno Valley Planning Commission for review and approval prior to the approval of any tract map in Phase I. This handbook will contain information pertinent to the design of residential, commercial and recreation product types and facilities. The handbook shall be submitted to the appropriate staff of the University of California Riverside, for review and comment with respect to the project interface with the UCR Farm.
COA 80	The Riverside Community College facility (Planning Area 22) shall be exempt from the City's public use permit process. However, the hospital site shall be required to file an application for a public use permit with the City of Moreno Valley.
COA 81	Planning Unit 26 shall be developed as a recreational center owned and operated by the Riverside Community College District and available to the public through a joint use agreement.
COA 82	Detailed design standards shall be submitted to the Planning Department for review at the time an application is filed for development within Planning Areas 21 and 21A. Information submitted shall include the following: a. Plan showing the placement of buildings, location of usable open space, and delineating proposed setbacks; b. Building design and architecture; c. Elevations· including examples of proposed materials for exteriors and heights of buildings; d. Fencing plan including height and details of proposed materials to be used. e. Conceptual landscaping and irrigation plan; f. Parking design; g. conceptual grading plan.
COA 83	A cross-sectional rendering, illustrating land use relationships between Planning Areas 21A and 22A, shall be submitted for Planning Department review concurrently with the initial development request.
COA 84	Should public transportation (bus) service be available at the time of development request submittal for uses within Planning Areas 26, 27, 21, and 22, a bus turn out facility shall be incorporated in implementing site plans to the satisfaction of the Planning Department and the

	Riverside Transit Agency.
COA 85	Tentative tract maps implementing the development of Planning Areas 49 and 50 shall show the proposed alignment of the 66 foot collection road bisecting NOS "A" and NOS C".
COA 86	Concurrently with the submittal of any implementing subdivisions, the project sponsor shall submit a schedule for traffic control facility installations based on traffic studies contained within EIR 190 and subsequent plan amendments. The schedule shall include signalization, stop signs, and other required traffic controls.
COA 87	a. All structures and ancillary uses shall be restricted to areas having a slope range of less than 24%. b. All streets shall be aligned through slope having a gradient of more than 16%.
COA 88	A detailed geotechnical investigation shall be conducted. for the site to further analyze the thickness of colluvium and the degree of rock decomposition as they relate to the proposed development plan. The study shall include recommendations for appropriate cut and fill slope grades, degree of rippability of the soil, and methods to protect future structures from damage caused by falling rock.
COA 89	Embedded rock outcroppings shall be included as part of future landscaping plans for the purpose of economic as well as aesthetic enhancement of site development.
Source: *Moreno Valley Ranch Specific Plan/ Environmental Impact Report No. 190. August 13, 1985.* *Addendum No. 1 to Environmental Impact Report No. 190. November 25, 1986.* *Specific Plan 193 (Moreno Valley Ranch) Final Conditions of Approval. July 25, 1985, Amended 10-23-86.*	

1.8 Project Design Features and Standard Conditions of Approval

The Modified Project includes several Project Design Features (PDFs) and Standard Conditions of Approval, which represent elements of the project design that have been included proactively either in response to prior mitigation measures/conditions or approval or in order to comply with City ordinances or State regulations. The following provides a summary of PDFs and Standard Conditions applicable to the Modified Project.

1.8.1 Air Quality

The following PDFs and Standard Conditions of Approval have been applied to the Modified Project to conform to standard rules applied by the South Coast Air Quality Management District and current technology for grading equipment.

PDF AQ-1: During the site preparation phase, construction equipment greater than 150 horsepower (>150 HP), the Construction Contractor shall use off-road diesel construction equipment that complies with EPA/CARB Tier 3 emissions standards and will ensure that all construction equipment be tuned and maintained in accordance with the manufacturer's specifications.

SC AQ-1: The following measures shall be incorporated into Project plans and specifications as implementation of Rule 403.

- All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 25 mph per SCAQMD guidelines in order to limit fugitive dust emissions.

- The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the Project are watered at least three (3) times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day.

- The contractor shall ensure that traffic speeds on unpaved roads and Project site areas are reduced to 15 miles per hour or less.

SC AQ-2: Only "Low-Volatile Organic Compounds" paints (no more than 50 gram/liter of VOC) and/or High- Pressure Low Volume (HPLV) applications consistent with South Coast Air Quality Management District Rule 1113 shall be used.

1.8.2 Cultural

The City of Moreno Valley has worked with local Native American tribes to streamline the consultation process on new development projects. As a result, the City applies the following standard conditions to new development projects.

SC CR-1: Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the Project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

a. Project grading and development scheduling;

b. The Project archeologist and the Consulting Tribes(s) as defined in CR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;

c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

SC CR-2: Prior to the issuance of a grading permit, the Developer shall secure agreements with the Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians for tribal monitoring. The Project Applicant is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2.

SC CR-3: In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

a) One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department:

i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.

ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CR-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CR-1.

SC CR-4: The City shall verify that the following note is included on the Grading Plan:

"If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."

SC CR-5: If potential historic or cultural resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person meeting the Secretary of the Interior's standards (36 CFR 61), Tribal Representatives, and all site monitors per the Standard Conditions above, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in CR-1 before any further work commences in the affected area.

SC CR-6: If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 5-days of the published finding to be given a reasonable opportunity to identify the "most likely descendant". The "most likely descendant" shall then make recommendations and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

EIR 190 on Page 102 included a mitigation measure requiring paleontological monitoring during grading in areas with the potential to produce paleontological resources. The potential for paleontological resources was evaluated and presented in the *Cultural and Paleontological Resources Assessment* prepared by Duke CRM, July 2018, and included in Appendix C. Given the potential for paleontological resources to be present on the Project site, the following PDF has been added to provide more clarity and definition to the original mitigation measures.

PDF CR-1: A paleontological monitor shall be present to observe ground disturbing activities within the Project property. The monitor shall work under the direct supervision of a qualified paleontologist (B.S. /B.A. in geology, or related discipline with an emphasis in paleontology and demonstrated experience and competence in paleontological research, fieldwork, reporting, and curation).

1. The qualified paleontologist shall be on-site at the pre-construction meeting to discuss monitoring protocols.

2. Paleontological monitoring shall start at part-time. If no paleontological resources are discovered after half of the ground disturbance has occurred, monitoring can be reduced to spot-checking.

3. The monitor shall be empowered to temporarily halt or redirect grading efforts if paleontological resources are discovered.

4. In the event of a paleontological discovery the monitor shall flag the area and notify the construction crew immediately. No further disturbance in the flagged area shall occur until the qualified paleontologist has cleared the area.

5. In consultation with the qualified paleontologist the monitor shall quickly assess the nature and significance of the find. If the specimen is not significant it shall be quickly removed, and the area cleared.

6. If the discovery is significant the qualified paleontologist shall notify the applicant and the City immediately.

7. In consultation with the applicant, the qualified paleontologist shall develop a plan which will likely include salvage excavation and removal of the find, removal of sediment from around the specimen (in the laboratory), research to identify and categorize the find, curation of the find in a local qualified repository, and preparation of a report summarizing the find.

1.8.3 Geotechnical

Conditional of Approval 88 from EIR 190 Addendum No. 1 and SPA Amendment No. 1 requires a detailed geotechnical investigation and incorporation of recommendations presented in the study. Included in Appendix D is a *Geotechnical Investigation Update* prepared by GeoCon West Inc. dated March 2018. The following Standard Condition is included to require implementation of the recommendations included in the geotechnical report, consistent with Condition of Approval 88 from EIR 190 Addendum No. 1.

SC GEO-1: Prior to the issuance of a grading permit, the recommendations presented in the *Geotechnical Investigation Update* shall be incorporated into the final geotechnical report and on the grading plans.

1.8.4 Noise

EIR 190 Page 76 requires attainment of 45 dBA interior noise levels and EIR 190 on Page 75 includes a mitigation measure, "special construction techniques can be used to maintain interior noise levels at acceptable standards." In compliance with those measures and to provide greater specificity to the Modified Project, the following PDF is incorporated.

PDF NO-1: To meet the City of Moreno Valley 45 dBA CNEL interior noise standards the following on-site standard construction measures are required:

• Windows/Glass Doors: All units require windows and sliding glass doors that have well-fitted, well-weather-stripped assemblies, and minimum sound transmission class (STC) ratings of 27.

• Exterior Doors (Non-Glass): All exterior doors shall be well weather-stripped and have well-sealed perimeter gaps to achieve minimum sound transmission class (STC) ratings of 27.

• Exterior Walls: At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal.

• Roof: Roof sheathing of wood construction shall be per manufacturer's specification or caulked plywood of at least one-half inch thick. Ceilings shall be per manufacturer's specification or well sealed gypsum board of at least one-half inch thick. Insulation with at least a rating of R-19 shall be used in the attic space.

• Ventilation: Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g. air conditioning) or active ventilation system (e.g. fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.

EIR 190 Page 75 also requires attenuation of construction noise. In addition to requiring compliance with established construction hours, EIR 190 also included noise reduction in the form of berms and walls. In compliance with those measures and to provide greater specificity to the Modified Project, the following PDF is incorporated.

PDF NO-2: The following PDFs are included in the Project design to reduce construction noise and vibration levels produced by the construction equipment to the nearby sensitive land uses.

• If R6 represents occupied residential use at the time of Project construction, install a minimum 10-foot high temporary construction noise barrier at the Project's site boundary adjacent to sensitive receiver location R6, shown on Exhibit ES-B, for the duration of Project construction. The noise control barriers must have a solid face from top to bottom. The noise control barrier must meet the minimum height and be constructed as follows:

o The temporary noise barrier shall provide a minimum transmission loss of 20 dBA (Federal Highway Administration, Noise Barrier Design Handbook). The noise barrier shall be constructed using an acoustical blanket (e.g. vinyl acoustic curtains or quilted blankets) attached to the construction site perimeter fence or equivalent temporary fence posts. Example photos are provided in Appendix 11.2.;

o The noise barrier must be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired;

o The noise control barrier and associated elements shall be completely removed, and the site appropriately restored upon the conclusion of the construction activity.

• Large mobile equipment (greater than or equal to 80,000 pounds) (5) shall not be used within 50 feet of receiver locations R2 and R6 if occupied at the time of Project construction, as shown on Exhibit ES-B. Instead, smaller, rubber-tired mobile equipment (less than 80,000 pounds) or equivalent alternative equipment shall be used within this area during Project construction.

• Prior to approval of grading plans and/or issuance of building permits, plans shall include a note indicating that Project construction activities shall comply with the City of Moreno Valley Municipal Code requirements.

• During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.

• The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site during all Project construction (i.e., to the western center).

• The contractor shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.

1.8.5 Traffic

EIR 190 Addendum No. 1 includes several conditions of approval that require roadway improvements and payment of fees. Specifically, Condition of Approval No. 42(b) states: "The applicant/developer of any subdivision within Specific Plan 193 shall participate on a fair share basis in any mitigation and/or fee program designed to alleviate off site roadway and freeway interchange deficiencies."

An updated Traffic Impact Analysis (TIA) was prepared for the Modified Project (Appendix J). The TIA concluded that while the Modified Project would not cause any direct traffic impacts, two roadway deficiencies would occur in the future regardless of whether or not the Modified Project is constructed. In compliance with COA 42(b) and to provide greater specificity to the Modified Project, the following PDF is incorporated to require the Modified Project to contribute its fair-share to resolve future roadway deficiencies.

PDF TR-1: Prior to the issuance of Certificates of Occupancy, the Applicant shall contribute fair share towards the following intersection improvements as specified in the 2018 TIA prepared for the Modified Project:

Improvement – Lasselle Street & Iris Avenue (#2)

- Implement a 130-second cycle length during the peak hours.

Improvement – Lasselle Street & Krameria Avenue (#5)

- Modify the median and striping to accommodate dual northbound left turn lanes, a through lane, and shared through-right turn lane.
- Restripe the eastbound approach with 2 lefts, 1 through, and 1 right turn lane.
- Modify the traffic signal to implement overlap phasing on the eastbound right turn lane.
- Implement a 130-second cycle length during the peak hours.

1.9 Summary of Findings

In accordance with the analysis presented in Section 2.0, and pursuant to Section 15162, 15164, and 15183 of the *State CEQA Guidelines*, the City of Moreno Valley has determined that:

1) The modified project does not result in substantial changes that would require major revisions to the previously certified EIRs due to new or substantially more severe significant environmental effects than previously analyzed; and
2) No substantial changes in circumstances have occurred that would result in new or more severe significant environmental impacts than previously analyzed; and
3) No new information of substantial importance as described in Section 15162 (a)(3) has been identified that would require major revisions to the analysis or conclusions presented in the prior EIRs.

1.10 Cumulative Impacts

The Modified Project would not change the permitted land uses, extent of construction activities, or intensity of development beyond what was previously analyzed. Since the most intense short-term construction impacts entailing rough grading has already occurred, the construction impacts for the Modified Project are less than the Approved Project. For this reason, no new or greater cumulative impacts would occur from the Modified Project. Since there is no change in land use or an increase in intensity of development, the long-term operational impacts associated with the Modified Project would remain consistent with the analysis provided in the prior CEQA documents. There would be no changes to the analysis or conclusions regarding cumulative impacts.

SECTION 2.0 ENVIRONMENTAL CHECKLIST

2.1 Aesthetics

Issues:		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
AESTHETICS. Would the project:					
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b)	Substantially damage scenic resources, including scenic vistas from public parks and views from designated scenic highways or arterial roadways?	☐	☐	☒	☐
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐
e)	Will the project create a new source of substantial night light that would result in "sky glow" (i.e. illumination of the night sky in urban areas) or "spill light" (i.e. light that falls outside of the area intended to be lighted) onto adjacent sensitive land uses.	☐	☐	☒	☐

Discussion:

The prior CEQA documents determined that development of the Project site would not have significant impacts on visual resources for the following reasons:

- The Moreno Valley General Plan identifies scenic highways, panoramic viewsheds, and photographic viewing locations within the aesthetic resource element, none of which occur within the vicinity of the Project site.
- The Project site has been previously mass graded under prior project approvals, therefore the site does not contain scenic resources, rock outcroppings or historic structures.
- The area surrounding the Project site has been developed with a community college, residential development, and an elementary school.

The proposed changes associated with the Modified Project would not change the prior conclusions with respect to Aesthetics impacts and would not require new or revised mitigation measures.

a, b) The Project Site remains the same size and in the same location as analyzed in the prior CEQA documents. Therefore, the prior conclusions the Project Site does not constitute a scenic resource or provide views of a scenic vista remain unchanged.

c) The Modified Project would revert a portion of the site back to commercial land uses as approved in Specific Plan Amendment No. 1. The remainder of the site would remain designed for residential development. The areas surrounding the Project site has been developed with complementary land uses, such as a community college, elementary school, and residential development. The Modified Project represents a continuation of planned development in the area. The Specific Plan and Municipal Code include design guidelines and development standards that ensure the new development would be designed and constructed consistent with surrounding land uses.

d, e) The Modified Project would not change the potential impact of night lighting on glare or "sky glow." The overall land use (residential and commercial) and building intensity (number of dwelling units and size of the commercial) have not changed substantially from prior approvals. The type and intensity of night lighting would remain as previously analyzed and regulated by the Municipal Code.

Conclusion: The changes in design associated with the Modified Project would not change the visibility or character of the development. Therefore, no changes to the conclusions presented in the prior CEQA documents are warranted. No new impacts or intensification of previously identified impacts would occur with the Modified Project and no new mitigation is necessary.

2.2 Agriculture and Forestry Resources

Issues:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
AGRICULTURE AND FOREST RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☒	☐
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☒	☐
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

Discussion: The prior CEQA documents concluded development of the Project Site would not impact Agriculture and Forest Resources because no resources exist on the Project site; the Project site is not designated Prime or Unique Farmland; the Project site does not have an Agriculture or Forest zoning designation; and the Project site is not subject to a Williamson Act contract.

a) The Modified Project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as documented on the Riverside County Important Farmland 2016 map (Sheet 1 of 3) prepared by the California Department of Conservation as part of the Farmland Mapping and Monitoring Program. Therefore, the Modified Project would not cause new impacts to occur.

b) The Modified Project site is not zoned Agriculture on the City's Zoning Map. The Modified Project site is also not designated Agriculture by the City's General Plan.

c) According to the General Plan and Zoning Map, no timber farmland designation exists on the Modified Project site. Therefore, no new impacts would occur.

d) No forest or timber resources are located on the Modified Project site. Therefore, no new impacts would occur.

e) No other conditions exist that would convert farmland or timberland as a result of the Modified Project because timberland does not exist on the Modified Project site or in the area. Furthermore, the Modified Project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, no new impacts would occur as a result of the Modified Project.

Conclusion: The proposed changes associated with the Project would not change the conclusions in the Prior EIRs. The Project site continues to not have agriculture or timber resources or be subject to agriculture, timber, or Williamson Act land use restrictions. None of the components of the Modified Project (GPA/SPA) would change those designations or conclusions. No new impacts or intensification of previously identified impacts would occur with the Modified Project.

2.3 Air Quality

Issues:		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:					
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b)	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e)	Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Discussion: Air quality emissions apply to both construction activities and operation of the proposed land uses. Construction impacts are dependent on the size of the Project site and the amount of construction activity. The Project site, 11.64 acres, has not changed from that analyzed in prior CEQA documents. Construction activities have already occurred on the Project site, including prior mass grading. The Modified Project requires additional grading to remove and replace the upper 3 to 5 feet of unengineered fill material and recontour the site to accommodate the development proposal. The Modified Project proposes to perform the grading work with at least Tier III grading equipment, which tends to be the current standard for large grading contractors. The Modified Project is also subject to standard rules published by South Coast Air Quality Management District (SCAQMD) including Rule 403 to curb fugitive dust and Rule 1113 to curb VOC emissions from paints. Therefore, the following PDFs and Standard Conditions of Approval have been applied to the Modified Project to conform to standard rules applied by the South Coast Air Quality Management District and current technology for grading equipment.

> **PDF AQ-1**: During the site preparation phase, construction equipment greater than 150 horsepower (>150 HP), the Construction Contractor shall use off-road diesel construction equipment that complies with EPA/CARB Tier 3 emissions standards and will ensure that all construction equipment be tuned and maintained in accordance with the manufacturer's specifications.

SC AQ-1: The following measures shall be incorporated into Project plans and specifications as implementation of Rule 403.

- All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 25 mph per SCAQMD guidelines in order to limit fugitive dust emissions.
- The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the Project are watered at least three (3) times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day.
- The contractor shall ensure that traffic speeds on unpaved roads and Project site areas are reduced to 15 miles per hour or less.

SC AQ-2: Only "Low-Volatile Organic Compounds" paints (no more than 50 gram/liter of VOC) and/or High- Pressure Low Volume (HPLV) applications consistent with South Coast Air Quality Management District Rule 1113 shall be used.

Included as Appendix A to this Addendum is the report *Continental Villages Air Quality Impact Analysis*, prepared by Urban Crossroads (November 2018). The report provides a project specific air quality analysis. Table 3-4 in the Air Quality Impact Analysis report summarizes construction emissions for the Modified Project. The analysis determined that no significant impacts would occur. Emissions from construction activities would not exceed criteria pollutant thresholds of significance established by the South Coast Air Quality Management District.

Operational emissions consist of area source emissions, energy source emissions, and mobile source emissions. Collectively, the operational emissions depend on the land use type and intensity of the project being evaluated. The Moreno Valley Ranch Specific Plan planned development of the Project site in the original EIR document. During the intervening years, several Specific Plan Amendments (SPA) have changed the land use designations on the Project site. The most intensive land use was approved by SPA No. 1 and analyzed in EIR 190 Addendum No. 1. SPA No. 1 approved 130 high density residential dwelling units and 4.57 acres of commercial retail (119,442 square feet based on a 0.60 floor to area ratio). Compared to the Modified Project, SPA No. 1 permitted more residential uses (130 compared to 112) and more commercial square footage (119,442 square feet compared to 21,000 square feet). Therefore, the Modified Project is substantially less intensive and therefore, would have less operational emissions.

The report, *Continental Villages Air Quality Impact Analysis*, prepared by Urban Crossroads (November 2018) also analyzed operational emissions from the Modified Project. As summarized in Table 3-5, the Modified Project would not exceed the applicable regional thresholds of significance established by the South Coast Air Quality Management District for any criteria pollutant.

The study concludes the Modified Project site's air pollution emissions would be less than significant and less than or equal to those contained in the prior CEQA documents. Therefore, the proposed changes associated with the Modified Project would not change the conclusions in the prior CEQA documents.

a) In March 2017, the AQMD released the Final 2016 Air Quality Management Plan (AQMP). The 2016 AQMP continues to evaluate current integrated strategies and control measures to meet the national air quality standards (NAAQS). The Project's consistency with the AQMP is determined using the following criteria found in the AQMP:

> • Consistency Criterion No. 1: The proposed Project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.
>
> • Consistency Criterion No. 2: The Project will not exceed the assumptions in the AQMP based on the years of Project build-out phase.

The Project would not result in or cause national (NAAQS) or state (CAAQS) air quality violations. Construction and operation emissions are less than the thresholds of significance for criteria pollutants. Although the Project would require a General Plan Amendment, construction and operational source impacts would not exceed the applicable SCAQMD regional and localized thresholds. As per the *Continental Villages Focused Air Quality and Greenhouse Gas Memorandum*, the air quality emissions associated with the Project are less than land uses previously approved for the site. As such, the Project would have a less than significant impact with respect to consistency with the AQMP and the Modified Project would not cause new or more severe impacts to occur.

b) The Modified Project was evaluated against thresholds of significance for criteria pollutants established by the South Coast Air Quality Management District (SQAQMD) for construction and operational activities. In both cases, emissions from the Modified Project would not exceed the applicable regional thresholds of significance.

Table 3-4 and 3-5 from the Air Quality Study summarize emissions from the Modified Project, as shown below.

Table 2.3 - 1 Summary of Construction Emissions (Without Mitigation)

Year	**Emissions (Pounds Per Day)**					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
2019	4.61	59.32	36.68	0.08	9.78	5.64
2020	50.59	37.83	28.11	0.08	3.93	2.07
Maximum Daily Emissions	50.59	59.32	36.68	0.08	9.78	5.64
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Source: Table 3-4 from *Continental Villages Air Quality Impact Analysis*, prepared by Urban Crossroads (November 2018)

Table 2.3-2 Summary of Operational Emissions - Summer (Without Mitigation)

Year	Emissions (Pounds Per Day)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Area Emissions	3.93	1.97	10.12	0.01	0.20	0.20
Energy Emissions	0.05	0.45	0.20	2.89E-03	0.04	0.04
Mobile Emissions	4.93	31.81	38.26	0.14	8.81	2.44
Total Maximum Daily Emissions	**8.91**	**34.23**	**48.58**	**0.16**	**9.04**	**2.68**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Source: Table 3-5 (1 of 2) from *Continental Villages Air Quality Impact Analysis*, prepared by Urban Crossroads (November 2018)

Table 2.3-3 Summary of Operational Emissions - Winter (Without Mitigation)

Year	Emissions (Pounds Per Day)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Area Emissions	3.93	1.97	10.12	0.01	0.20	0.20
Energy Emissions	0.05	0.45	0.20	2.89E-03	0.04	0.04
Mobile Emissions	4.10	31.40	35.39	0.13	8.81	2.44
Total Maximum Daily Emissions	**8.08**	**33.82**	**45.71**	**0.14**	**9.05**	**2.68**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Source: Table 3-5 (2 of 2) from *Continental Villages Air Quality Impact Analysis*, prepared by Urban Crossroads (November 2018)

Therefore, emissions from the Modified Project are less than significant, consistent with the findings in the prior CEQA documents.

c) The SCAQMD has published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution.*

This report states that projects that do not generate operational or construction emissions that exceed SCAQMD's recommended daily thresholds for project-specific impacts would also not cause a cumulatively considerable increase in emissions. Since the Modified Project does not exceed the SCAQMD's thresholds of significance for any criteria pollutant for operational and construction emissions, the Modified Project would not cause a cumulatively considerable impact.

d) The report, *Continental Villages Air Quality Impact Analysis*, prepared by Urban Crossroads (November 2018) includes an analysis of Localized Significance Thresholds (LST) and potential impacts to sensitive receptors. Surrounding the Project site is an elementary school and residential development, both considered sensitive receptors.

Table 3-7 on Page 32 of the report, *Continental Villages Air Quality Impact Analysis*, prepared by Urban Crossroads (November 2018) summarizes the results of the LST analysis for construction activity. For each criteria pollutant, the Modified Project would produce emissions less than the significance thresholds.

A potential operational impact on sensitive receptors from operational emissions is a carbon monoxide "hotspot." CO hotspots have adversely high concentrations of carbon monoxide. Hotspots generally occur at congested intersections caused by excessive vehicle emissions. Based on the traffic volumes associated with the Modified Project, no CO hotspot would occur.

Given the Modified Project's less than significant LST and hotspot emissions, impacts to sensitive land uses would also be less than significant.

e) Land uses that are generally associated with causing significant odor impacts include, agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting operations, refineries, landfills, dairies, and fiberglass molding facilities. The land uses associated with the Modified Project, residential and neighborhood commercial, are not among those that generate noxious odors. Therefore, impacts associated with odors would be less than significant.

Conclusion: The changes in land use associated with the Modified Project would not change the conclusions presented in the prior CEQA documents. The amount of daily grading and development intensity remain less than previously analyzed. Furthermore, based on project-specific studies, impacts associated with the Modified Project would be less than significant. Therefore, no changes to the conclusions presented in the prior CEQA documents are warranted. No new impacts or intensification of previously identified impacts would occur with the Modified Project.

2.4 Biological Resources

Issues:		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
BIOLOGICAL RESOURCES. Would the project:					
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c)	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

Discussion: The Modified Project occurs within the boundaries previously analyzed in the prior CEQA documents. Initial biological studies occurred in Addendum No. 1 to EIR 190. Comprehensive biological mitigation was provided at that time for sensitive species such as Stephens Kangaroo Rat and raptor foraging on a Specific Plan-wide basis. At the time the Negative Declaration was prepared in 2012, grading had already occurred on the Project site in approximately 2004 – 2005 when the adjacent elementary school was constructed. In support of the Negative Declaration, Gonzales Environmental Consulting, LLC performed a biological

assessment and jurisdictional delineation on the Project Site. The Gonzales report (2011) determined no sensitive species or habitat would occur on site, however the report identified a potentially jurisdictional drainage leading from the corner of the elementary school toward the intersection of Krameria and Lasselle Streets. Two detention basins and riprap were also constructed as part of this drainage system. The Gonzales report concluded that the drainage did not constitute Water of the U.S. and therefore did not fall under jurisdiction of the U.S. Army Corps of Engineers. However, the Gonzales report was less conclusive in determining whether the drainage constituted Waters of the State.

In conjunction with this Addendum, a biological resources study of the Modified Project site was prepared and is included in Appendix B (Carlson Strategic Land Solutions, November 2018, "Biological Technical Report for the Continental Villages Project"). The Biological Technical Report (BTR) assessed the current site conditions and determined all 11.64 acres to have been graded and disturbed. Furthermore, the potentially jurisdictional drainage and detention basins referenced in the Gonzales Report are no longer present on site. In preparation of the BTR historical aerial photographs were analyzed of Project Site and surrounding area and no evidence of jurisdictional drainages, including the drainage observed by Gonzales, were identified in the natural condition prior to grading and development of the school site. Only after grading and development of the school site did the drainage observed by Gonzales appear. Furthermore, the watershed that would have served any natural drainage on the Project site was cut off with construction of Krameria Avenue, the residential development to the east of Krameria Avenue, and the construction of Lasselle Elementary School. Based on those factors and the inclusion of detention basins and riprap, the BTR has concluded that no natural drainages previously existed on the Project site and the drainage observed by Gonzales was only created by runoff and nuisance from the impervious surface and ballfields on the school site.

a) The Modified Project site has been completely disturbed and graded under authority of prior land use approvals and environmental clearance. No special status animal or plant species, or habitat classifications, exist on the Project Site. The conclusions presented in the prior CEQA documents remain unchanged. No new or more severe impacts would occur as a result of the Modified Project, and impacts remain less than significant.

b, c) The Modified Project site has been completely disturbed and graded under authority of prior land use approvals and environmental clearance. No wetlands or riparian features are present on the Project site. A previous biological study in 2011 identified a drainage crossing a portion of the property. However, after further review of historical aerial photographs, the current BTR determined the drainage to be created from urban runoff from the Lasselle Elementary School site and non-jurisdictional. Therefore, the conclusions presented in the prior CEQA documents remain unchanged. No new or more severe impacts would occur as a result of the Modified Project, and impacts remain less than significant.

d) The Modified Project site has been completely disturbed and graded under authority of prior land use approvals and environmental clearance. The Project site has been fenced for construction and is completely surrounding by streets and development. Those conditions eliminate any chance for wildlife movement across the Project site. Therefore, the conclusions presented in the prior CEQA documents remain unchanged. No new or more severe impacts would occur as a result of the Modified Project, and impacts remain less than significant.

e, f) The Modified Project Site is located within the Reche Canyon/Badlands Area Plan of the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP). The Project site is not located within any MSHCP Criteria Areas, Cell Groups, Subunits, Narrow Endemic Plants, or Burrowing Owl overlays. Therefore, development of the Project Site is consistent with the MSHCP designations. Furthermore, development of the proposed Project will be required to pay MSHCP development impact fees.

Conclusion: The Modified Project would not change the biological analysis included in the prior CEQA documents and no new impacts or intensification of previously identified impacts would occur with the Modified Project.

2.5 Cultural Resources

Issues:		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
CULTURAL RESOURCES. Would the project:					
a)	Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	☐	☐	☒	☐
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☒	☐
c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

Discussion: EIR 190 included a cultural resources study prepared by Scientific Resource Surveys (SRS) over the entire Moreno Valley Ranch Specific Plan area. A total of 51 archaeological resources were known to exist on the Project site. The archaeological sites include occupation site, processing sites, and isolated rock art sites. However, none of the resources were identified on the Project site. EIR 190 Addendum No. 1 determined that the archeological sites with significant resources would not be directly impacted by implementation of the Specific Plan. The EIR included several mitigation measures to ensure less than significant impacts, including fencing, caretakers, and other measures in conjunction with the State Department of Parks and Recreation.

Field reviews were conducted in October 2004 in conjunction with the Negative Declaration. No evidence of archaeological, paleontological, or historical resources were observed on the Project site. The Negative Declaration references a standard condition placed by the City for monitoring if any archaeological, paleontological, or historical resources are uncovered on the Project site.

, a Cultural and Paleontological Resources Assessment was prepared by Duke CRM (July 2018) for the Project site, included as Appendix C.

EIR 190 on Page 102 included a mitigation measure requiring paleontological monitoring during grading in areas with the potential to produce paleontological resources. In conjunction with this Addendum, the potential for paleontological resources was evaluated and presented in the *Cultural and Paleontological Resources Assessment* prepared by Duke CRM, July 2018, and included in Appendix C. The Cultural Assessment determined that no archaeological or historic resources have been identified on the Project site or are likely to be impacted. However, there is a high sensitivity to paleontological resources. Given the potential for paleontological resources to be present on the Project site, the following PDF has been added to provide more clarity and definition to the original mitigation measures.

PDF CR-1: A paleontological monitor shall be present to observe ground disturbing activities within the Project property. The monitor shall work under the direct supervision of a qualified paleontologist (B.S. /B.A. in geology, or related discipline with an emphasis in paleontology and demonstrated experience and competence in paleontological research, fieldwork, reporting, and curation).

1. The qualified paleontologist shall be on-site at the pre-construction meeting to discuss monitoring protocols.

2. Paleontological monitoring shall start at part-time. If no paleontological resources are discovered after half of the ground disturbance has occurred, monitoring can be reduced to spot-checking.

3. The monitor shall be empowered to temporarily halt or redirect grading efforts if paleontological resources are discovered.

4. In the event of a paleontological discovery the monitor shall flag the area and notify the construction crew immediately. No further disturbance in the flagged area shall occur until the qualified paleontologist has cleared the area.

5. In consultation with the qualified paleontologist the monitor shall quickly assess the nature and significance of the find. If the specimen is not significant it shall be quickly removed, and the area cleared.

6. If the discovery is significant the qualified paleontologist shall notify the applicant and the City immediately.

7. In consultation with the applicant, the qualified paleontologist shall develop a plan which will likely include salvage excavation and removal of the find, removal of sediment from around the specimen (in the laboratory), research to identify and categorize the find, curation of the find in a local qualified repository, and preparation of a report summarizing the find.

Since the Modified Project includes a General Plan Amendment and a Specific Plan Amendment, the Modified Project is subject to tribal notification under SB 18. On March 20, 2018 notice was sent to the Native American Heritage Commission. On March 21, 2018, the Native American Heritage Commission indicated no Native American cultural resources have been identified on the Project site. On August 27, 2018, all individuals/groups on the City's list, consisting of ten individuals/tribes were notified under SB 18. A second notification was made on September 4, 2018 and follow-up phone calls were made on October 10 and October 11, 2018. Two tribes requested consultation and/or information. The Cahuilla Band of Indians stated they did not want to consult but requested to be informed of any future developments or changes and they requested a monitor be present during ground disturbance. The Soboba Band of Luiseno Indians requested consultation and a monitor be present during ground disturbing activities. City staff consulted with Soboba by telephone on November 14, 2018. The consultation concluded with a commitment by the City to implement its standard tribal monitoring conditions, which Soboba finds acceptable, and tribal consultation concluded.

In order to address Native American tribal concerns, the City decided to develop a series of standard conditions applicable to all projects as opposed to crafting individual mitigation measures, unless a project site had resources or very high potential for resources. Therefore, the following standard conditions apply. These conditions represent further definition of the monitoring requirements identified in the prior Negative Declaration.

CR-1: Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the Project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

d. Project grading and development scheduling;

e. The Project archeologist and the Consulting Tribes(s) as defined in CR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;

f. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

CR-2: Prior to the issuance of a grading permit, the Developer shall secure agreements with the Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians for tribal monitoring. The Project Applicant is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-

foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2.

CR-3: In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

a) One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department:

i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.

ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CR-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CR-1.

CR-4: The City shall verify that the following note is included on the Grading Plan:

"If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."

CR-5: If potential historic or cultural resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person meeting the Secretary of the Interior's standards (36 CFR 61), Tribal Representatives, and all site monitors per the Standard Conditions above, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in CR-1 before any further work commences in the affected area.

CR-6: If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 5-days of the published finding to be given a reasonable opportunity to identify the "most likely descendant". The "most likely descendant"

shall then make recommendations and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

a) The prior CEQA documents and the cultural resources study prepared for the Modified Project site determined no historic resources exist on the Project site and the conclusions in the prior CEQA documents have not changed.

Therefore, no new or more severe impacts would occur as a result of the Modified Project, and impacts remain less than significant.

b) The prior CEQA documents and the cultural resources study prepared for the Modified Project site determined low potential for archaeological resources to exist on the Project site and the conclusions in the prior CEQA documents have not changed.

City staff has consulted with Native American tribes pursuant to SB 18. The consultation concluded with a commitment from the City to implement its standard conditions pertaining to tribal monitoring during ground disturbing activities. The City's standard conditions are outlined above in the discussion section.

Therefore, no new or more severe impacts would occur as a result of the Modified Project, and impacts remain less than significant.

c) The prior CEQA documents included a mitigation measure requiring paleontological monitoring during grading in areas with the potential to produce paleontological resources. The updated cultural resources report prepared for the Modified Project reached the same conclusion on the potential for paleontological resources. Therefore, a Project Design Feature, as detailed above in the discussion, has been included to provide more specificity to the previous mitigation measure included in the prior CEQA documents.

Therefore, the conclusions presented in the prior CEQA documents remain unchanged. No new or more severe impacts would occur as a result of the Modified Project, and impacts remain less than significant.

d) The prior CEQA documents did not identify any evidence suggesting the Project site was used in the past for human burials. The updated Cultural Resources Report prepared by Duke CRM reaches the same conclusion for the Modified Project site. The City's standard conditions require tribal monitors be present during grading and if human remains are discovered, protocol is in place to stop grading activities and recover the remains properly with Native American tribe oversight.

Therefore, the conclusions presented in the prior CEQA documents remain unchanged. No new or more severe impacts would occur as a result of the Modified Project, and impacts remain less than significant.

Conclusion: The changes associated with the Modified Project would not change the cultural resources analysis and conclusions presented in the prior CEQA documents. A Cultural Resources Report prepared for the Modified Project site justifies these conclusions. Therefore, no changes to the conclusions presented in the prior CEQA documents are warranted. The Negative Declaration referenced implementation of standard conditions to address discovery of cultural, archaeological,

paleontological, or tribal resources. Since issuance of the Negative Declaration the City has worked closely with local tribes and development more detailed standard conditions, which would apply to the proposed project. Therefore, no new impacts or intensification of previously identified impacts would occur with the Modified Project and impacts remain less than significant

2.6 Geology and Soils

Issues:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
GEOLOGY AND SOILS. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:	☐	☐	☒	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☒	☐

Discussion: Geologic conditions within the Moreno Valley Ranch Specific Plan area were analyzed by Leighton and Associated in a report titled, "Preliminary Geotechnical Investigation for EIR Purposes, Wolfskill Ranch" dated June 1983. This report was used in EIR 190 and Addendum No. 1 to conclude the overall Specific Plan area did not present any significant geologic impacts. The Negative Declaration relied on the report in EIR 190 to draw the same conclusions.

Conditional of Approval 88 from EIR 190 Addendum No. 1 and SPA Amendment No. 1 requires a detailed geotechnical investigation and incorporation of recommendations presented in the study. Included in Appendix D is "Geotechnical Update Investigation, Continental Villages, Southeast

of Lasselle Street & Krameria Avenue, Moreno Valley, California," dated March 26, 2018, prepared by GeoCon West Inc. The following Standard Condition is included to require implementation of the recommendations included in the geotechnical report, consistent with Condition of Approval 88 from EIR 190 Addendum No. 1.

> **SC GEO-1**: Prior to the issuance of a grading permit, the recommendations presented in the *Geotechnical Investigation Update* shall be incorporated into the final geotechnical report and on the grading plans.

GeoCon's investigation included records/report review, subsurface exploration, and engineering review of the proposal. The conclusions presented in the 2018 GeoCon geotechnical investigation are consistent with the findings in the prior CEQA documents as follows:

- The Modified Project site is underlain by older alluvial soils with unengineered fill. Near surface soils, approximately 3 to 5 feet, will require removal and recompaction to be suitable for development.
- Groundwater was not encountered during exploration to depths of 51.5 feet.
- The Modified Project site is not located within a State of California Earthquake Fault-Rupture Zone. No active or potentially active faults with the potential for fault rupture are known to pass underneath the site. The closest fault is the San Jacinto fault located approximately 5+ miles away.
- The main seismic hazard is ground shaking from one of the active regional faults, which can be mitigated through compliance with building code standards.
- The potential for post construction liquefaction and liquefaction-induced dynamic settlement is considered very low.
- The on-site soils generally consist of silty and clayey sands. Laboratory tests indicate a very low expansion potential.
- No landslides have been mapped on or adjacent to the Project site.
- No slope stability issues have been identified. Fill and cut slopes consistent with standard grading specifications are expected to perform well.
- The Project site is located 40+ miles from the coastline, therefore there is no risk from tsunamis and seiches.
- The site soils are not classified as corrosive.

The Preliminary Geotechnical Report prepared for the Modified Project site confirmed the conclusions in the prior CEQA documents that the Modified Project site is feasible for construction without significant geotechnical hazards and no new mitigation measures are required.

a) i) – iv) As presented in the Preliminary Geotechnical Report prepared for the Modified Project site the conclusions presented in the prior CEQA documents remain unchanged. The Modified Project site remains outside of the Alquist-Priolo Earthquake Fault Zone, the underlying geology remains the same and suitable for development, and the Modified Project does not increase or alter the potential risks from fault rupture, seismic shaking, liquefaction, or landslides.

b) The Modified Project would not increase the risk of top soil loss or erosion. The Modified Project site would be graded and landscaped. During construction, the Modified Project site is subject to the requirements of a NPDES General Construction Permit, which requires Best Management Practices (BMPs) to prevent erosion or soil loss during construction.

c) The stability of the geologic unit was analyzed in the prior CEQA documents and confirmed in the geotechnical report prepared for the Modified Project site. The changes in land use associated with the Modified Project would not change the stability of the underlying geologic unit. Included as a Standard Condition is the requirement to implement the recommendations found in the geotechnical report for the Modified Project to further ensure geologic stability.

d) As documented in the geotechnical report, based on preliminary laboratory test results, the onsite soils have a "Very Low" expansion potential. Final design expansion potential must be determined at the completion of grading.

e) Septic tanks are not proposed as part of the Modified Project.

Conclusion: The changes in land use associated with the Modified Project would not change the geology and soils analysis included in the prior CEQA documents. The City's standard practice through Standard Conditions requires incorporation of the recommendations from the geotechnical report into the grading plans and site design, which would be the case for the Modified Project. No new impacts or intensification of previously identified impacts would occur with the Modified Project.

2.7 Greenhouse Gas Emissions

Issues:		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
GREENHOUSE GAS EMISSIONS. Would the project:					
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of greenhouse gases?	☐	☐	☒	☐

Discussion: While Greenhouse Gas (GHG) emissions tend to be a global issue, the State of California has adopted a series of legislative actions aimed at reducing GHG emissions for projects within the State. To analyze potential impacts from the Modified Project on GHG emissions, the report, *Continental Villages Greenhouse Gas Analysis,* was prepared by Urban Crossroads, dated November 2018 and included in Appendix E.

The City of Moreno Valley adopted a Climate Action Plan (CAP) in October 2012. The measures identified in the CAP represent the City's actions to achieve the GHG reduction targets of AB 32 for target year 2020. While specific thresholds of significance have not been adopted by the State (SCAQMD) or by the City of Moreno Valley, the SCAQMD has implemented a screening threshold for residential and commercial project of 3,000 $MTCO_2e$ per year.

As shown in Table 3-1 of the *Greenhouse Gas Analysis* prepared by Urban Crossroads, the combined construction and operational emissions from the Modified Project equals 2,649.11 $MTCO_2e$ per year, which is less than the screening threshold of 3,000 $MTCO_2e$ per year.

a) The prior CEQA documents determined development of the Project Site would result in less than significant GHG impacts. The *Greenhouse Gas Analysis* (2018) determined the combined construction and operational emissions would be 2,649.11 $MTCO_2e$ per year, which is less than the screening threshold of 3,000 $MTCO_2e$ per year. Construction, area, energy, waste, and water usage emissions total approximately 556.23 $MTCO_2e$ per year. An additional 2092.88 $MTCO_2e$ per year would occur from mobile source emissions. Therefore, GHG emissions from the Modified Project would be less than significant. No new or more intensive impacts would occur from the Modified Project.

b) The California Air Resources Board (CARB) prepared a 2008 and 2017 Scoping Plan that includes strategies to meet the goals of AB 32. Table 3-2 in the *Greenhouse Gas Analysis* (2018) documents the Modified Project's consistency with those state and regional strategies. Furthermore, the City of Moreno Valley adopted a CAP, which includes local strategies for consistency with AB 32. The Modified Project is also consistent with the local strategies listed in the CAP. Further, the Modified Project is subject to California Building Code requirements. New buildings must achieve the 2016 Building and Energy Efficiency Standards and the 2016 California Green Building Standards requirements, which include water conservation measures.

Overall, the Modified Project would not conflict with the City of Moreno Valley CAP and impacts would be less than significant. No new or more intensive impacts would occur from the Modified Project.

Conclusion: The changes in land use designation associated with the Modified Project would not change the GHG conclusions included in the prior CEQA documents. The overall GHG emissions would remain less than the target 3,000 $MTCO_2e$ per year and the Modified Project would be consistent with the City of Moreno Valley CAP and the CARB 2008 and 2017 Scoping Plans. No new impacts or intensification of previously identified impacts would occur with the Modified Project, and impacts remain less than significant.

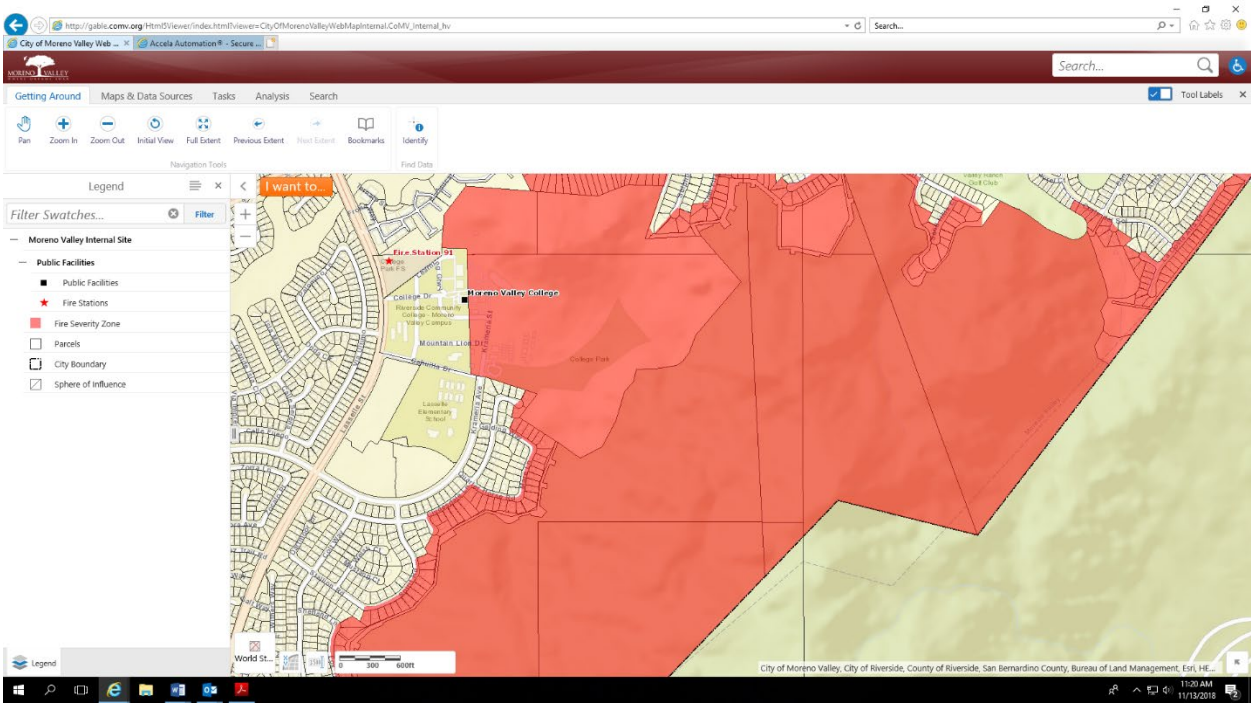
2.8 Hazards and Hazardous Materials

Issues:		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
HAZARDS AND HAZARDOUS MATERIALS. Would the project:					
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Discussion: The prior CEQA documents concluded that potential Hazards and Hazardous Waste impacts would be less than significant. In support of this Addendum a Phase I Environmental Site Assessment was prepared by Group Delta, dated March 29, 2018, and included in Appendix F.

The Phase I ESA included a physical site inspection and record search to determine whether hazardous materials were historically reported on the Project site or if there is any current evidence of the use of hazardous materials. The Phase I ESA concluded no Recognized Environmental Conditions (REC) were reported or observed on the Project site. Furthermore, the proposed land uses of residential and neighborhood commercial do not present a risk for release of hazardous materials during construction or operation.

The Project site is surrounded by an elementary school and residential development. According to the City's GIS mapping program, the Project site is located outside of the mapped Very High Fire Hazard Severity Zone, as shown below.



Therefore, the Modified Project would not change the conclusions in the prior CEQA documents.

a–c) The Modified Project includes a mix of land use previously analyzed in prior CEQA documents, including residential and neighborhood retail. Therefore, no new transport, use, or potential release of hazardous materials would occur as a result of the Modified Project.

d) The prior CEQA documents and the Phase I Environmental Site Assessment prepared for the Modified Project site determined the site is not included on a list of hazardous materials sites and does not pose a risk to the public. No significant impacts would occur as a result of the Modified Project.

e–f) The Project site is not located in an airport land use plan or near a private or public airstrip. As presented in the Negative Declaration, the nearest airport is March Air Reserve Base located approximately 5-miles to the west. The Project site is not within the crash zones or the noise contours identified in the most recent Air Installation Compatible Use Zone (AICUZ) study (Municipal Code Section 9.07.060). The Modified Project would not change these findings.

g) The roadway circulation patterns and land use patterns remain the same as analyzed in the prior CEQA documents, therefore no changes to emergency access routes or evacuation routes would occur as a result of the Modified Project.

h) The Project site is located outside of the Very High Fire Hazard Severity Zone as show on the City's GIS mapping system. Therefore, no impacts would occur as a result of the Modified Project.

Conclusion: The prior CEQA documents concluded the development of the project site would result in less than significant impacts from hazards and hazardous materials. The Phase I Environmental Site Assessment (Appendix F) confirmed the conclusions and findings presented in the prior CEQA documents. No new impacts or intensification of previously identified impacts would occur with the Modified Project, and impacts remain less than significant.

2.9 Hydrology and Water Quality

Issues:		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
HYDROLOGY AND WATER QUALITY. Would the project:					
a)	Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in flooding- or off-site?	☐	☐	☒	☐
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff above pre-development condition in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e)	Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f)	Otherwise substantially degrade water quality?	☐	☐	☒	☐
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☒	☐
h)	Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐

Issues:		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
j)	Cause inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐
k)	Deposit sediment and debris materials within existing channels obstructing flows?	☐	☐	☒	☐
l)	Exceed the capacity of a channel and cause overflow during design storm conditions?	☐	☐	☒	☐
m)	Adversely change the rate, direction or flow of groundwater?	☐	☐	☒	☐
n)	Have an impact on groundwater that is inconsistent with a groundwater management plan prepared by the water agencies with the responsibility for groundwater management?	☐	☐	☒	☐
o)	Cause a significant alteration of receiving water quality during or following construction?	☐	☐	☒	☐
p)	Create or contribute runoff water which would generate substantial additional sources of polluted runoff?	☐	☐	☒	☐
q)	Substantially degrade water quality by discharge which affects the beneficial uses (i.e. swimming, fishing, etc.) of the receiving or downstream waters?	☐	☐	☒	☐
r)	Increase in any pollutant for which the receiving water body is already impaired as listed on the Clean Water Act Section 303(d) list?	☐	☐	☒	☐

Discussion: The Project site has always been contemplated for development since adoption of the original Moreno Valley Ranch Specific Plan. As development has occurred around the Project site infrastructure, such as storm drains, have been installed. Following the adoption of the Negative Declaration, the City approved *Final Hydrology Study, Continental Villages Tentative Tract 36401, PA11-0026 for Phase 1 of PM 36468*, prepared by Pacific Coast Land Consultants, Inc. (2017). While that study primary focused on Parcel 1, which consists of 125 apartments, the study analyzed runoff from the greater drainage area which is bound by Lasselle Street, Krameria Avenue, and Cahuilla Drive. The drainage area generally flows southwest to the corner of Krameria and Lasselle. The Negative Declaration concluded development of the Project site would not cause significant hydraulic or runoff impacts, which is supported by the Pacific Coast Land Consultants study.

In support of this Addendum a second hydrology study has been prepared, titled *Preliminary Hydrology and Hydraulics Study for Continental Villages Phases 2 and 3*, by JLC Engineering & Consulting, Inc. (June 2018), attached as Appendix G. The JLC study analyzed the same drainage area and reached the same conclusion that runoff from the Project site would not cause significant

impacts. The study determined the Project site discharges into an existing storm drain system that has been designed for the peak 100-year flow rate, which is engineered and maintained to convey flows to Canyon Lake. The increase in impervious surface associated with development of the Project site has been accounted for and peak flows are reduced in the planned bioretention basins that also provide water quality benefit. Therefore, the JLC study concluded development of the Project site would not cause significant impacts.

A Preliminary Water Quality Management Plan (PWQMP) was prepared in conjunction with the Negative Declaration. The PWQMP required implementation of treatment BMPs to treat pollutants of concern. For the current proposal, an updated PWQMP was prepared by JLC Engineering and Consulting, Inc. (August 2018), included as Appendix H. The geotechnical investigated for SPA No. 10 determined the Project site does not have sufficient infiltration rates to use infiltration as a treatment strategy. Therefore, the PWQMP identifies bioretention/biotreatment solutions. The multi-family areas will drain into three bioretention basins where flows will be treated prior to discharge into the storm drain system. The bioretention basins have been sized to accommodate the design storm in the Santa Ana Watershed, in which the Project site is located in. At the time the plot plan is prepared for the commercial site, the WQMP will be updated to include treatment BMPs.

Based upon the Riverside County Stormwater & Water Conservation Tracking Tool, the Project site is exempt from Hydromodifications.

a, f, o–r) The Modified Project site drains into a reginal storm drain system that conveys flows to Canyon Lake. An updated Preliminary WQMP, which includes treatment BMPs consisting of three bioretention basins, has been prepared to demonstrate compliance with MS4 water quality requirements. Furthermore, during construction, the Modified Project would be required to comply with NPDES and SWPPP requirements to prevent runoff or discharge from the Modified Project site during construction. Therefore, no new or more severe water quality impacts would occur as a result of the Modified Project.

b, n) As stated in the Negative Declaration, the Eastern Municipal Water District (EMWD) supplies water to the Project site as opposed to relying on individual water wells. Furthermore, the geotechnical study concluded ground water depths are greater than 50 feet below ground surface and infiltration rates are not sufficient to use infiltration as a water quality treatment. Therefore, while development of the Project site will increase the amount of impervious surface, the Project site did not provide an area important to groundwater infiltration. No new or more severe water quality impacts would occur as a result of the Modified Project.

c–d) The Negative Declaration concluded no stream or streambed is located on the Project site and the Project will not cause a change in the existing on-site drainage patterns that would result in substantial erosion. As documented in the *Preliminary Hydrology and Hydraulics Study for Continental Villages Phases 2 and 3*, by JLC Engineering & Consulting, Inc. (June 2018), the Project site drains into existing storm drain facilities sized to accommodate the 100-year storm event. On-site bioretention basins provide storage volume to reduce peak discharge rates. Therefore, the Project would not change the existing drainage pattern or cause downstream erosion. No new or more severe impacts would occur as a result of the Modified Project.

e) The Negative Declaration explained, "It should be noted that the Riverside County Flood Control Agency was contacted and indicated in a letter dated September 6, 2011, that the proposed project involves District Master Plan facilities (Perris Valley MDD Lat. V-3) and is located within the limits of the District's Perris Valley Drainage Plan and that drainage fees have been adopted, which will need to be paid prior to the issuance of permits." Those conditions described in the Negative Declaration remain applicable.

The *Preliminary Hydrology and Hydraulics Study for Continental Villages Phases 2 and 3*, prepared by JLC Engineering & Consulting, Inc. (June 2018), determined the Project site drains into existing storm drain facilities sized to accommodate the 100-year storm event. The PWQMP prepared by JLC Engineering and Consulting, Inc. (August 2018) identifies bioretention basins as the means to treat runoff. Furthermore, the on-site bioretention basins provide storage volume to reduce peak discharge rates. Therefore, runoff from the Project site would not exceed the capacity of existing stormwater facilities and would not provide substantial sources of polluted runoff. No significant impacts would occur.

g–i) As documented in the Negative Declaration, the Project site is located in Federal Emergency Management Agency Zone "X", outside of the 100-year floodplain. The Project Site is also located outside of the delineated dam inundation are for Perris Dam at Lake Perris Reservoir. The Modified Project would not change any of these conditions or conclusions, which is further substantiated by the *Preliminary Hydrology and Hydraulics Study for Continental Villages Phases 2 and 3*, prepared by JLC Engineering & Consulting, Inc. (June 2018). The Preliminary Hydrology Study determine the Project would drain into existing storm drains sized to accommodate the 100-year storm event. Therefore, no new or more severe impacts would occur as a result of the Modified Project.

j) The Project site is located 40+ miles from the coastline and therefore not subject to tsunami or seiche. The Project site and the immediately surrounding area is relatively flat with the largest slope approximately 15 feet tall. This condition does not create a potential for mudflow. Furthermore, the Project site is separated from natural foothills by residential development and an elementary school, which provide sufficient buffer from mudflows. Therefore, no new or more severe impacts would occur as a result of the Modified Project.

k) The drainage area for the Project site is bound by Lasselle Street, Krameria Avenue, and Cahuilla Drive, and will be entirely developed with residential, elementary school, and commercial land uses. Therefore, the drainage area does not provide a source for sediment or debris. Furthermore, prior to discharge into the storm drain system, runoff will flow through one of three bioretention basins designed to provide water quality treatment, which includes the removal of sediment and debris. Therefore, no new or more severe impacts would occur as a result of the Modified Project.

l) The *Preliminary Hydrology and Hydraulics Study for Continental Villages Phases 2 and 3*, by JLC Engineering & Consulting, Inc. (June 2018), the Project site drains into existing storm drain facilities sized to accommodate the 100-year storm event. On-site bioretention basins provide storage volume to reduce peak discharge rates. Therefore, the Project would not cause overflow of storm drain facilities. No new or more severe impacts would occur as a result of the Modified Project.

m) Groundwater was determined to be over 50 feet below ground surface. Infiltration rates are too low to permit infiltration as a water quality strategy. Therefore, the Project would not have a significant effect on groundwater movement. No new or more severe impacts would occur as a result of the Modified Project.

Conclusion: The Project site has always been contemplated for development since adoption of the original Moreno Valley Ranch Specific Plan. As development has occurred around the Project site infrastructure, such as storm drains, have been installed. The change associated with the Modified Project would not change the direction or volume of runoff or contribute to a water quality impact. The analysis and conclusions found in the prior CEQA documents remain unchanged for the Modified Project. This has been confirmed through the preparation of a hydrology and hydraulic study (Appendix G) and a Preliminary Water Quality Management Plan (Appendix H), which details the project's water quality treatment features. Therefore, no new impacts or intensification of previously identified impacts would occur with the Modified Project.

2.10 Land Use and Planning

Issues:		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
LAND USE AND PLANNING. Would the project:					
a)	Physically divide an established community?	☐	☐	☒	☐
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c)	Substantially conflict with on-site or adjacent land use due to project-related significant unavoidable indirect effects (e.g., noise, aesthetics, etc.) that preclude use of the land as it was intended by the General Plan.	☐	☐	☒	☐
d)	Conflict with the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) of which the City of Moreno Valley is a participant?	☐	☐	☒	☐

Discussion: The Modified Project constitutes a minor change in land use, reverting the approved land use on 2.84 acres (Parcel 2) from High Density Residential back to Neighborhood Commercial as specified in Specific Plan Amendment No. 1, and construct multi-family housing on 8.80 acres (Parcel 3), at a lower density than the existing zoning requirements allow. The Modified Project requires a General Plan Amendment, Zone Change, and Specific Plan Amendment to ensure vertical consistency among land use governing documents. Specifically, the General Plan Amendment would revert the land use designation on Parcel 2, an approximately 2.84-acre parcel located at the corner of Lasselle Street and Krameria Avenue, from R-20 to Neighborhood Commercial, consistent with the commercial land use designation specified in Specific Plan Amendment No. 1. The General Plan Amendment would also change the land use designation on Parcel 3, approximately 8.80 acres, from R-20 to R-15 Residential: Max 15 du/ac to accommodate lower density residential housing.

The Zone Change would amend the City's Zoning Map to be consistent with the General Plan Amendment, including change the zoning designation on Parcel 2, a 2.84-acre parcel located at the corner of Lasselle Street and Krameria Avenue, from Multi-family to Neighborhood Commercial. Parcel 3, a 8.80-acre parcel, would remain zoned Multi-family, however the Specific Plan would designate Parcel 3 for a maximum of 15 du/ac. Additionally, the Zoning Map would be amended to include reference to Specific Plan 193 over the entire area covered by the Tentative Parcel Map.

The proposed Specific Plan Amendment would make the following changes to the Moreno Valley Ranch Specific Plan No. 193.

- Revert the currently approved land use on Parcel 2, 2.84 acres, at the corner of Lasselle Street and Krameria Avenue, from High Density Residential back to Neighborhood Commercial as designated by Specific Plan Amendment No. 1.
- Change the designation of High Density Residential on Parcel 3, 8.80 acers, to Medium-High Density, to accommodate lower density residential housing more consistent with the surrounding land uses.
- The development standards for the multi-family land use shall be consistent with the R-15 zoning standards, except where modified per Specific Plan No. 193. Additionally, the SPA shall include a provision in the multi-family development standards that building separations of 15 feet shall be permitted for buildings two-stories and less, and buildings with 8 or less units in each building.
- The development standards for the Neighborhood Commercial land use shall be consistent with the Neighborhood Commercial zoning standards.
- Parcel 3, 8.80 acres, is the area subject to the proposed General Plan Amendment, Zone Change, Specific Plan Amendment, and Plot Plan, to reduce the density from R-20 to R-15 for the construction of multi-family residential apartments.

a) The Project site has been planned for development since the adoption of the Moreno Valley Ranch Specific Plan. The Modified Project would change specific land uses to be consistent with prior designations. The area surrounding the Project site has been developed with residential and school uses. Therefore, the Modified Project would not physically divide an established community.

b, c, d) The entitlements associated with the Modified Project would ensure vertical consistency among land use governing documents. Therefore, the Modified Project would be consistent with General Plan, Zoning Code, and Specific Plan upon approval.

The Project site is surrounded by other residential, commercial, and institutional (school) land uses. Therefore, the Modified Project would not create a conflict with existing surrounding land uses.

The Modified Project site is located within the Reche Canyon/Badlands Area Plan of the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP). The Project site is not located within any MSHCP Criteria Areas, Cell Groups, Subunits, Narrow Endemic Plants, or Burrowing Owl overlays. Therefore, development of the Project Site is consistent with the MSHCP designations. Furthermore, development of the proposed Project will be required to pay MSHCP development impact fees.

Conclusion: The changes associated with the Modified Project require a General Plan Amendment, Zone Change, and Specific Plan Amendment. The analysis of those changes remains consistent with the analysis in the prior CEQA documents because the prior CEQA documents analyzed the proposed land uses (neighborhood commercial and medium high density residential) and determined the impacts would be less than significant. Therefore, no new or more severe impacts would occur as a result of the Modified Project; no mitigation is required; and the impacts remain less than significant.

2.11 Mineral Resources

Issues:		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
MINERAL RESOURCES. Would the project:					
a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐
b)	Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☒	☐

Discussion: The prior CEQA documents concluded that development of the Project site would not cause a loss in mineral resource recovery. Before adoption of the Moreno Valley Ranch Specific Plan, the area was used for agriculture. Upon adoption of Moreno Valley Ranch Specific Plan, the Project site was zoned for commercial and residential development. No mineral recovery programs are located within the Project site or the Specific Plan area.

a) Consistent with the findings in the prior CEQA documents, no known mineral resources are located on the Modified Project site. Therefore, no new or more severe impacts would occur as a result of the Modified Project.

b) The Modified Project site is designated for residential development in the General Plan, Zoning Map, and Specific Plan, and not mineral recovery. Therefore, no loss of mineral resources identified on any City land use maps would occur as a result of the Modified Project.

Conclusion: The Modified Project would not change the analysis or conclusions found in the prior CEQA documents and would not result in any new or more intense impacts related to mineral resources. Impacts would remain less than significant as a result of the Modified Project.

2.12 Noise

Issues:		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
NOISE. Would the project result in:					
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐
f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐
g)	Project traffic will cause a noise level increase of 3 dB or more on a roadway segment adjacent to a noise sensitive land use. Noise sensitive land uses include the following: residential (single-family, multi-family, mobile home); hotels; motels; nursing homes; hospitals; parks, playgrounds and recreation areas; and schools?	☐	☐	☒	☐
h)	The resulting "future with project" noise level exceeds the noise standard for sensitive land uses as identified in the City of Moreno Valley General Plan?	☐	☐	☒	☐
i)	Exceeds the stationary source noise criteria for the City of Moreno Valley as specified by the noise standards set forth in the Moreno Valley Municipal Code?	☐	☐	☒	☐

Discussion: The prior CEQA documents analyzed potential construction, operation, and vibration noise associated with development of the Project Site and determined impacts would be less than

significant. The changes associated with the Modified Project would not change the analysis included in the prior CEQA documents.

EIR 190 Page 76 requires attainment of 45 dBA interior noise levels and EIR 190 on Page 75 includes a mitigation measure, "special construction techniques can be used to maintain interior noise levels at acceptable standards." In compliance with those measures and to provide greater specificity to the Modified Project, the following PDF is incorporated.

> **PDF NO-1**: To meet the City of Moreno Valley 45 dBA CNEL interior noise standards the following on-site standard construction measures are required:
>
> • Windows/Glass Doors: All units require windows and sliding glass doors that have well-fitted, well-weather-stripped assemblies, and minimum sound transmission class (STC) ratings of 27.
>
> • Exterior Doors (Non-Glass): All exterior doors shall be well weather-stripped and have well-sealed perimeter gaps to achieve minimum sound transmission class (STC) ratings of 27.
>
> • Exterior Walls: At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal.
>
> • Roof: Roof sheathing of wood construction shall be per manufacturer's specification or caulked plywood of at least one-half inch thick. Ceilings shall be per manufacturer's specification or wellsealed gypsum board of at least one-half inch thick. Insulation with at least a rating of R-19 shall be used in the attic space.
>
> • Ventilation: Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g. air conditioning) or active ventilation system (e.g. fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.

EIR 190 Page 75 also requires attenuation of construction noise. In addition to requiring compliance with established construction hours, EIR 190 also included noise reduction in the form of berms and walls. In compliance with those measures and to provide greater specificity to the Modified Project, the following PDF is incorporated.

> **PDF NO-2**: The following PDFs are included in the Project design to reduce construction noise and vibration levels produced by the construction equipment to the nearby sensitive land uses.
>
> - If R6 represents occupied residential use at the time of Project construction, install a minimum 10-foot high temporary construction noise barrier at the Project's site boundary adjacent to sensitive receiver location R6, shown on Exhibit ES-B, for the duration of Project construction. The noise control barriers must have a solid face from top to bottom. The noise control barrier must meet the minimum height and be constructed as follows:

- The temporary noise barrier shall provide a minimum transmission loss of 20 dBA (Federal Highway Administration, Noise Barrier Design Handbook). The noise barrier shall be constructed using an acoustical blanket (e.g. vinyl acoustic curtains or quilted blankets) attached to the construction site perimeter fence or equivalent temporary fence posts. Example photos are provided in Appendix 11.2.;

- The noise barrier must be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired;

- The noise control barrier and associated elements shall be completely removed, and the site appropriately restored upon the conclusion of the construction activity.

- Large mobile equipment (greater than or equal to 80,000 pounds) shall not be used within 50 feet of receiver locations R2 and R6 if occupied at the time of Project construction, as shown on Exhibit ES-B. Instead, smaller, rubber-tired mobile equipment (less than 80,000 pounds) or equivalent alternative equipment shall be used within this area during Project construction.

- Prior to approval of grading plans and/or issuance of building permits, plans shall include a note indicating that Project construction activities shall comply with the City of Moreno Valley Municipal Code requirements.

- During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.

- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site during all Project construction (i.e., to the western center).

- The contractor shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.

With implementation of the PDFs above, construction noise levels would remain less than significant. Therefore, no new or more severe noise impacts, including vibration, would occur from the Modified Project.

Operational noise in residential neighborhoods occurs from vehicle traffic. While the Modified Project would generate less traffic than permitted by SPA No. 1, the 2018 Noise Study analyzed potential increases in operational noise levels. The Noise Study analyzed 11 roadway segments surrounding the Project site and predicted changes in noise levels based on changes to average daily traffic (ADT) volumes. The Noise Study found the increases in operational noise associated with the Modified Project would remain less than significant.

a–d) The City of Moreno Valley established a stationary source noise level limit of 60 dBA Leq (daytime) for residential uses and 65 dBA Leq (daytime) for commercial uses. In addition, grading operations are limited to 7:00 am to 6:00 pm, Monday through Friday, and 8:00 am to 4:00 pm on weekends and holidays. With implementation of the PDFs, construction noise levels would remain less than significant. Therefore, no new or more severe noise impacts, including vibration, would occur from the Modified Project.

e–f) The Modified Project site is not located near a public or private airport or airstrip; therefore, the Modified Project would not create a significant impact or alter the analysis or conclusions in the prior CEQA documents.

g–i) The 2018 Noise Study documents the Modified Project's consistency with the City's General Plan and Municipal Code noise standards, including land use compatibility and stationary source noise standards. The prior CEQA documents analyzed development of the Project site at greater intensity than proposed by the Modified Project. Therefore, the Noise Study found operational noise associated with the Modified Project would remain less than significant.

Conclusion: The Modified Project would not change the location or intensity of construction activities analyzed in the prior CEQA documents. Given the City's Municipal Code requirements on construction noise and the presence of surrounding sensitive receptors, the Modified Project has included Project Design Features to proactively reduce construction noise. Furthermore, the Modified Project as a standard condition must comply with the construction hours specified in the Municipal Code. Therefore, no new or more severe construction noise or vibration impacts would occur. The Modified Project proposes a reduction in development intensity compared to the approved land uses analyzed in EIR 190 Addendum No. 1. Furthermore, the 2018 Noise Study analyzed operational noise from the Modified Project and determined the increase in noise levels is less than significant and consistent with the City's General Plan and Municipal Code standards. Therefore, the Modified Project would not create a new or more intense significant impact.

2.13 Population and Housing

Issues:		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
POPULATION AND HOUSING. Would the project:					
a)	Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of road or other infrastructure)?	☐	☐	☒	☐
b)	Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐
c)	Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐

Discussion: The Moreno Valley Ranch Specific Plan originally permitted 12,703 dwelling units. The prior nine Specific Plan Amendments reduced the total number of permitted dwelling units within the Moreno Valley Ranch Specific Plan from 12,703 to approximately 10,505[2] dwelling units. For the Project site, SPA No. 1 permitted 130 dwelling units and 4.57 acres of commercial. SPA No. 6 converted the commercial land use to residential and permitted a total of 215 dwelling units. The Modified Project proposes 112 dwelling units and 2.87 acres of commercial. Therefore, the Modified Project does not cause new or more intensive impacts to population and housing.

a) The Modified Project includes fewer dwelling units than approved under SPA Nos. 1 and 6. Therefore, the Modified Project would not increase the population beyond that analyzed in the prior CEQA documents. No new impacts or intensification of impacts would occur as a result of the Modified Project.

b) No housing currently exists on the Modified Project site; therefore, no displacement of existing housing would occur as a result of the Modified Project.

c) No housing currently exists on the Modified Project site; therefore, no displacement of existing housing would occur as a result of the Modified Project.

Conclusion: The Modified Project would not change the land use or intensity of development, including the number of permitting dwelling units beyond what was previously analyzed in the prior CEQA documents. Therefore, no additional population or housing would be created as part of the Modified Project, and no new impacts or intensification of previously identified impacts would occur as a result of the Modified Project.

[2] Specific Plan Amendment No. 9 concluded the prior nine Specific Plan Amendments result in 10,439 dwelling units permitted within the Specific Plan area. The difference between 10,505 and 10,439 is due to several planning areas that permit a range of densities that could alter the total number of permitted dwelling units.

2.14 Public Service

Issues:		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
PUBLIC SERVICES.					
a)	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	☐	☐	☒	☐
	Fire protection?	☐	☐	☒	☐
	Police protection?	☐	☐	☒	☐
	Schools?	☐	☐	☒	☐
	Parks?	☐	☐	☒	☐
	Other public facilities?	☐	☐	☒	☐

Discussion: The Modified Project would decrease population compared to what was analyzed in the prior CEQA documents. Both SPA No.1 and SPA No. 6 permitted more dwelling units than proposed by the Modified Project. Since the demand on public services is directly related to development intensity and mix of land uses, the Modified Project would not cause any new or more intense impacts on public facilities.

a) The demand on public services is directly related to development intensity and mix of land uses. The Modified Project would reduce development intensity compared to from what was analyzed in the prior CEQA documents for SPA Nos 1 and 6. Therefore, no new or more severe impacts as a result of the Modified Project would occur associated with the demand for public services.

Conclusion: The changes associated with the Modified Project pertain to a change in land use, resulting in less development intensity that what is permitted by SPA No. 6. Therefore, no additional demands on public services would be created as part of the Modified Project, and no new impacts or intensification of previously identified impacts would occur. Impacts as a result of the Modified Project would remain less than significant.

2.15 Recreation

Issues:		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
RECREATION. Would the project:					
a)	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b)	Include recreational facilities or require the construction or expansion of recreational facilities which have an adverse physical effect on the environment?	☐	☐	☒	☐

Discussion: The Moreno Valley Ranch Specific Plan incorporates recreation facilities for the entire Specific Plan area, not on each individual Project site. To meet the County of Riverside Recreation standard, the Moreno Valley Ranch Specific Plan provides three lakes, three major community recreation facilities, ten neighborhood parks, as well as equestrian facilities and bike trails. The Modified Project includes a change in land use to commercial on 2.87 acres and a reduction in density for the remaining residential areas. The deviations associated with the change in land uses will reduce the previously anticipated demand on the recreation services. Therefore, no new or more severe impacts as a result of the Modified Project would occur associated with the demand for recreation services and facilities.

a) The Modified Project would not increase development intensity beyond that analyzed in the prior CEQA documents and the Modified Project would not change the number and size of parks included in the Specific Plan area.

b) Since the Modified Project would not increase the number of dwelling units or change the amount of park included in the Specific Plan, no new impacts would occur.

Conclusion: The changes associated with the Modified Project do not increase the development intensity of land uses that would place more demand on parks. Therefore, no additional demands on recreation would be created as part of the Modified Project, and no new impacts or intensification of previously identified impacts would occur.

2.16 Transportation/Traffic

Issues:		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
TRANSPORTATION/TRAFFIC. Would the project:					
a)	Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b)	Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☒	☐
d)	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e)	Result in inadequate emergency access?	☐	☐	☒	☐

Discussion: Traffic studies for the prior CEQA documents determined development of the Project site would not cause a significant impact. EIR 190 Addendum No. 1 included a comprehensive traffic study prepared by Linscott, Law, and Greenspan. The study analyzed 24 intersections and associated roadway segments. The study determined SPA No. 1 would not cause significant traffic impacts with implementation of mitigation measures. For the Project site, SPA No. 1 represents the highest generating land use approved on the Project Site with development limitations of 130 dwelling units and 119,442 square feet of commercial. SPA No. 6 and the Negative Declaration prepared in 2012 both relied on the traffic study provided for SPA No. 1, based on reduction in development intensity.

EIR 190 Addendum No. 1 includes several conditions of approval that require roadway improvements and payment of fees. Specifically, Condition of Approval No. 42(b) states: "The applicant/developer of any subdivision within Specific Plan 193 shall participate on a fair share basis in any mitigation and/or fee program designed to alleviate off site roadway and freeway interchange deficiencies."

While the Modified Project also represents a reduction in development intensity from what was approved in SPA No. 1, an updated comprehensive traffic study was prepared by Urban Crossroads, titled *Continental Villages Traffic Impact Analysis, City of Moreno Valley*, dated October 26, 2018, and included as Appendix J. The 2018 Traffic Impact Analysis (TIA) analyzes the following four conditions:

- Existing (2018)
- Existing plus Project
- Opening Year Cumulative (2023), without and with Project
- Horizon Year (2040), without and with Project

The study area for the 2018 TIA was defined by the intersections where the Modified Project would contribute 50 or more peak hour trips. Seven intersections were identified as follows:

- Kitching Street & Krameria Avenue
- Lasselle Street & Iris Avenue
- Lasselle Street & Cahuilla Drive
- Lasselle Street & Driveway 1 – future intersection
- Lasselle Street & Krameria Avenue
- Driveway 2/Colt Way & Krameria Avenue
- Krameria Avenue & Driveway 3/Quarter Horse Road

The intersections were analyzed for each of the six scenarios listed above to determine whether the Project would cause significant traffic impacts. The following table provides a summary of the analysis:

Table 2.16-1 Summary of Deficient Intersections by Analysis Scenario

#	Intersection	Existing (2018)	E+P	Opening Year (2023) Without Project	Opening Year (2023) With Project	Horizon Year (2040) Without Project	Horizon Year (2040) With Project
1	Kitching St. & Krameria Av.						
2	Lasselle St. & Iris Av.						
3	Lasselle St. & Cahuilla Dr.						
4	Lasselle St. & Dwy. 1	NA		NA		NA	
5	Lasselle St. & Krameria Av.						
6	Dwy. 2/Colt Wy. & Krameria Av.						
7	Krameria Av. & Quarter Horse Rd.						

LEGEND:

- = AM PEAK HOUR
- = PM PEAK HOUR
- = LOS A-D
- = LOS D-E
- = LOS F
- NA = NOT AN ANALYSIS LOCATION FOR THIS SCENARIO

Source: Continental Villages Traffic Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads (October 2018)

As shown in the table, no change in intersection level of service (LOS) would occur between the Existing and Existing plus Project scenarios. Opening Year with and without Project shows a LOS change at Lasselle St. and Iris Avenue. As specified in the TIA, a change in signal timing to a 130-second cycle length during peak hours would offset the change in level of service. Since that change is an operational change that can only be made by the City and not a physical change, no significant impact would occur.

Based on the analysis included in the 2018 TIA, the Modified Project does not directly cause a significant traffic impact. The Modified Project does contribute traffic to the overall circulation system in the cumulative condition, including Lasselle Street and Krameria Avenue, which would operate at a deficient level of service in 2040 with or without the proposed Project. When an intersection is projected to operate at a deficient level of service with or without a project and a proposed project could contribute trips to that intersection, the City's standard practice is to require the project applicant contribute its fair share toward the cumulative improvement to that intersection as a condition of approval. That standard practice would be applied to the Proposed Project for the additional trips contributed to Lasselle Street/Krameria Avenue and Lasselle Street/Iris Avenue intersections.

It should be noted that following submittal of the project application and preparation of the TIA, the City implemented a "road diet" to address safety concerns, primarily for bicyclists. The "road diet" includes the removal of certain travel lanes to accommodate a larger bicycle lane. Since this improvement has started implementation after the project application and completion of the TIA, the effects of the "road diet" are not included in the TIA. Furthermore, prior to implementation the City studied the potential traffic impacts associated with the "road diet" and determined no significant traffic impacts would occur.

a, b) The 2018 TIA prepared for the Modified Project confirms the change in land use as part of the Modified Project would not result in new or more severe traffic impacts. Therefore, the analysis and conclusions presented in the prior CEQA documents remain unchanged and applicable to the Modified Project.

c) Development of the Modified Project site would not impact air traffic or air travel; therefore, the changes associated with the Modified Project would also not cause a new or more severe impact.

d) The Modified Project reverts land uses back to what was previously approved in SPA No. 1. That change in land use does not create incompatible land uses or a traffic hazard. Three intersections provide access to the Project site. Those intersections have been analyzed in the 2018 TIA and no hazardous conditions were identified. The TIA included a queuing analysis and determined that non-project specific background traffic causes a queueing deficiency at the Lasselle Street & Krameria Avenue intersection. The remedy includes modification to the center median to lengthen the turn pockets. The TIA also analyzed intersection performance and determined two intersections, Lasselle/Iris and Lasselle/Krameria, will operate deficiently in the cumulative condition without the proposed project. Consistent with the City's standard practices and conditions of approval, if a project contributes trips to an already deficient intersection, the project must pay its fair share contribution to City sponsored improvements. This is also consistent

with the Prior EIR Condition of Approval No. 42(b). The TIA includes the following recommendations for those two intersections:

Improvement – Lasselle Street & Iris Avenue (#2)

- Implement a 130-second cycle length during the peak hours.

Improvement – Lasselle Street & Krameria Avenue (#5)

- Modify the median and striping to accommodate dual northbound left turn lanes, a through lane, and shared through-right turn lane.
- Restripe the eastbound approach with 2 lefts, 1 through, and 1 right turn lane.
- Modify the traffic signal to implement overlap phasing on the eastbound right turn lane.
- Implement a 130-second cycle length during the peak hours.

A standard condition requires the Modified Project to contribute its fair share to those improvements.

Furthermore, the previously approved Parcel Map that includes the Project site and the proposed Plot Plan for the residential portion of the Modified Project have been reviewed by the City's traffic engineer and engineering department for inconsistencies with design standards and hazardous conditions, and none have been identified. Therefore, the Modified Project would not create new hazardous conditions or incompatible land uses.

e) The Modified Project is located in a developed portion of the City and is surrounded by existing streets (Krameria Avenue, Lasselle Street, and Cahuilla Drive) that have been designed and constructed to City standards. Those streets form the backbone of emergency access from the Project site. The Modified Project would not alter or restrict access to those streets, therefore, no impact to emergency access would occur.

f) The Modified Project would not affect the surrounding roadway system, including lane configuration and design, bicycle facilities, bus routes, and pedestrian circulation. No new or more intense impacts would occur as a result of the Modified Project.

Conclusion: The Modified Project would change the permitted land uses on the Project site to include neighborhood commercial and Medium High Density Residential. The proposed land use intensity is less than the land use intensity approved by SPA No. 1 and analyzed in EIR 190 Addendum No. 1. An updated Traffic Impact Analysis was prepared for the Modified Project, which concluded that the Modified Project would not cause any significant impacts. The Modified Project is expected to comply with standard conditions of approval to pay its fair share for cumulative traffic conditions. Therefore, no new or more intense impacts would occur as a result of the Modified Project.

2.17 Utilities and Service Systems

Issues:		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
UTILITIES AND SERVICE SYSTEMS. Would the project:					
a)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b)	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? In making this determination, the Authority shall consider whether the project is subject to the water supply assessment requirements of Water Code Section 10910, et. seq. (SB 610), and the requirements of Government Code Section 664737 (SB 221).	☐	☐	☒	☐
e)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g)	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Discussion: The Moreno Valley Ranch Specific Plan originally permitted 12,703 dwelling units. The prior nine Specific Plan Amendments reduced the total number of permitted dwelling units within the Moreno Valley Ranch Specific Plan from 12,703 to approximately 10,505[3] dwelling

[3] Specific Plan Amendment No. 9 concluded the prior nine Specific Plan Amendments result in 10,439 dwelling units permitted within the Specific Plan area. The difference between 10,505 and 10,439 is due to several planning areas that permit a range of densities that could alter the total number of permitted dwelling units.

units. For the Project site, SPA No. 1 permitted 130 dwelling units and 4.57 acres of commercial. SPA No. 6 converted the commercial land use to residential and permitted a total of 215 dwelling units. The Modified Project proposes 112 dwelling units and 2.87 acres of commercial. The Project site is located within a developed portion of the Moreno Valley Ranch Specific Plan. The surrounding utility infrastructure system is in place and capable of serving the Modified Project as documented in the prior CEQA documents.

a–b and e) The Eastern Municipal Water District (EMWD) provides potable water and waste water treatment. EMWD has also indicated an ability and willingness to serve the Project site. Connections to all utilities exist at the Project site boundaries and no off-site infrastructure improvements are required. As documented in the Negative Declaration, the planned buildout of the Moreno Valley Ranch Specific Plan was substantially greater than what has been constructed and left to be built. Therefore, the utility systems would have been oversized to accommodate the current level of development. Therefore, impacts to the utility system are considered less than significant and the Modified Project would not cause new or more intense impacts.

c) As detailed in *Section 2.9 Hydrology and Water Quality*, the existing storm drain system surrounding the Project site has been designed and maintained to accommodate the 100-year storm event. Furthermore, the Modified Project has incorporated three bioretention basins for water quality purposes that also provide storage capacity to temporarily hold storm flows, thereby reducing peak discharge rates. Therefore, impacts to the storm drain system are considered less than significant and the Modified Project would not cause new or more intense impacts.

d) The demand for domestic water depends on development intensity. The Modified Project would not cause an increase in the number of dwelling units or square footage of commercial uses beyond that analyzed in EIR 190 Addendum No. 1. The prior CEQA documents concluded that domestic water capacity is sufficient to accommodate the Modified Project. Therefore, no new or more severe impacts would occur as a result of the Modified Project.

f–g) Solid waste disposal from the Project site is taken to the Badlands Sanitary Disposal site in the City of Moreno Valley. The original solid waste generation estimates from the Moreno Valley Ranch Specific Plan has been substantially reduced with the reduction in permitted dwelling units from 12,703 to 10,505. Specific to the Project site, the development intensity has reduced from that analyzed in the EIR 190 Addendum No. 1 to the current Modified Project. That reduction in land use intensity results in less solid waste generation. According to the Negative Declaration, "The project will be served by a landfill in the Badlands with sufficient permitted capacity to accommodate the project's solid waste disposal needs." In 1989 the State of California enacted AB 939, known as the Integrated Waste Management Act, which required a 25% reduction in solid waste by 1995 and a 50% reduction by 2000. AB 939 required jurisdictions create a waste reduction and recycling program, which remains in effect. Therefore, impacts associated with solid waste generation remain less than significant and the Modified Project would not cause new or more intense impacts.

Conclusion: Demands placed on utility and service systems are tied to the intensity of development. The nine previous amendments to the Moreno Valley Ranch Specific Plan have reduced overall development intensity from12,703 to approximately 10,505 dwelling units. Specific to the Project Site, the development intensity has been reduced from 130 dwelling units

and 119,442 square feet of commercial of potential development capacity to an actual proposal of 112 dwelling units and 21,000 square feet of commercial. Therefore, the Modified Project does not cause any new or more severe impacts.

2.18 Mandatory Findings of Significance

Issues:		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
MANDATORY FINDINGS OF SIGNIFICANCE					
a)	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b)	Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?	☐	☐	☒	☐
c)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current project, and the effects of probable future projects.)	☐	☐	☒	☐
d)	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

a) The Modified Project would not change the biological analysis included in the prior CEQA documents. The prior CEQA documents determined impacts to biological resources would be less than significant. The Modified Project does not impact any sensitive species or sensitive habitat. Furthermore, the Modified Project is consistent with the Western Riverside Multiple Species Habitat Conservation Plan. No new impacts or intensification of previously identified impacts would occur with the Modified Project

b) The Modified Project does not cause any new or more severe short-term or long-term significant impacts. No new or revised mitigation measures are required as a result of the Modified Project and the conclusions presented in the prior CEQA documents remain unchanged.

c) The Modified Project would reduce the development intensity analyzed in EIR 190 Addendum No. 1 from 130 dwelling units and 119,442 square feet of commercial of potential development capacity to an actual proposal of 112 dwelling units and 21,000 square feet of commercial. The corresponding reduction in development intensity results in reduced short-term construction

impacts and long-term operational impacts compared to that analyzed in prior CEQA documents. The findings of significance presented in the prior CEQA documents would remain without change and without intensification as a result of the Modified Project.

d) The changes associated with the Modified Project are minor and no new impacts or more severe impacts to human beings, either directly or indirectly, would occur as a result of the Modified Project.

MITIGATION MONITORING AND REPORTING PROGRAM
ENVIRONMENTAL DOCUMENT REFERENCE NUMBER (SCH NO. 84050907)

In 1985, the Moreno Valley City Council adopted Specific Plan 193 and EIR 190, creating the Moreno Valley Ranch Specific Plan. Specific Plan 193 was initially approved for 12,703 residential units encompassing 3,959 acres. During the intervening years Specific Plan 193 has been amended 9 times, as summarized within Moreno Valley Ranch EIR Addendum No 2 (Modified Project). The prior CEQA documents included mitigation measures and conditions of approval affecting development of the Modified Project site. The applicable measures and conditions of approval from the prior CEQA documents are listed below. The Modified Project includes several Project Design Features (PDFs) and Standard Conditions of Approval, which represent elements of the project design that have been included proactively within the Modified Project design, either in response to prior mitigation measures/conditions or approval or in order to comply with City ordinances or State regulations.

PROJECT NAME: Continental Villages Development Project
PROJECT LOCATION: The Project site is bound on the west by Lasselle Street, on the north by Cahuilla Drive, and on the south by Krameria Avenue.
PROJECT DESCRIPTION: The Project Applicant proposes to modify the previous development approvals to 1) Revert the approved land use on 2.84 acres (Parcel 2) from High Density Residential back to Neighborhood Commercial; and 2) Construct multi-family housing on 8.80 acres (Parcel 3), at a lower density than the existing zoning requirements allow. This proposal requires a General Plan Amendment, Zone Change, Specific Plan Amendment, Plot Plan, and environmental documentation pursuant to CEQA.

LEAD AGENCY: City of Moreno Valley
CONTACT PERSON/ TELEPHONE NO.: Jeff Bradshaw, Associate Planner/ (951) 413-3224

APPLICANT: Continental East Development Inc.
CONTACT PERSON/ TELEPHONE NO.: Andrew Spousta/ (951) 600-8600

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
Air Quality						
EIR #190 pg. 116	The quantity of particulate matter emitted during the grading and construction phase of the project may be reduced through watering graded surfaces and planting groundcover as dust palliatives.	During Construction – Applicant/ Construction Contractor	During Construction – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
EIR #190 pg. 116	Modes of transportation other than the automobile (bicycles, pedestrian, equestrian, etc.) should be encouraged as a strategy in reducing pollution from mobile sources. The proposed network of pedestrian trails providing access to residential, commercial, recreational and indus-trial areas should assist to reduce residents' reliance on the automobile. These routes should be widely publicized.	Post Construction – Applicant	Post Construction – City			
EIR #190 pg. 116	Additionally, the design of efficient and direct traffic flow patterns on the project site can help reduce the quantity of air pollutants generated, by minimizing the places in the roadway system where automobiles would be idling unnecessarily Extension of public transit routes to serve the property would also assist in this regard.	Pre-Construction – Applicant	Pre-Construction – City			
EIR #190 pg. 117	The SCAQMD's Regional Air Quality Strategy proposes measures to reduce' pollutants from mobile sources. These include: 1) expansion of ride-sharing efforts; 2) expansion of transit systems; 3) encouragement of increased bicycle travel; 4) improvements in traffic flows; 5) encouragement of pedestrian travel; 6) expansion of interurban bus and rail systems; and	Pre-Construction – Applicant	Pre-Construction – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
	7) freeway ramp metering. These tactics are noted above.					
EIR #190 pg. 117	Reduction of stationary source air pollution emissions may be achieved by incorporating energy-saving devices and additional insulation into the proposed homes as discussed in Section IV.A.7, Energy Conservation.	Post Construction – Applicant	Post Construction – City			
EIR #190 pg. 117	The Environmental Hazards and Resources Element of the Comprehensive. General Plan sets forth Land Use Standards - Air Quality Impact Mitigations, stating that major development proposals which may create a significant new source of air pollutant emissions must contribute to the mitigation of adverse air quality impacts. Air quality mitigation measures to reduce automobile use include the following: - Bicycle facilities, such as bike lanes, racks and lockers - Transit facilities such as benches, shelters and turnouts - Park and Ride facilities - Energy efficient buildings - Solar access orientation of structures - Solar heated and cooled structures and swimming pools	Post Construction – Applicant	Post Construction – City			
COA 58	The project shall conform to the requirements specified in Title 24 as well as	Design Phase – Applicant	Design Phase – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
	solar water heating requirements of Condition #77.					
PDF AQ-1	During the site preparation phase, construction equipment greater than 150 horsepower (>150 HP), the Construction Contractor shall use off-road diesel construction equipment that complies with EPA/CARB Tier 3 emissions standards and will ensure that all construction equipment be tuned and maintained in accordance with the manufacturer's specifications.	During Grading and Excavation – Applicant / Construction Contractor	During Grading and Excavation – City			
SC AQ-1	The following measures shall be incorporated into Project plans and specifications as implementation of Rule 403. - All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 25 mph per SCAQMD guidelines in order to limit fugitive dust emissions. - The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the Project are watered at least three (3) times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day.	During Grading and Excavation – Applicant / Construction Contractor	During Grading and Excavation – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
	- The contractor shall ensure that traffic speeds on unpaved roads and Project site areas are reduced to 15 miles per hour or less					
SC AQ-2	Only "Low-Volatile Organic Compounds" paints (no more than 50 gram/liter of VOC) and/or High- Pressure Low Volume (HPLV) applications consistent with South Coast Air Quality Management District Rule 1113 shall be used.	During Grading and Excavation – Applicant / Construction Contractor	During Grading and Excavation – City			
Biological Resources						
EIR #190 pg. 91	The following measures are recommended by the Biological Consultant to minimize project impacts: • Access to the natural open space area should be limited to designated trails • Revegetation of cut and fill slopes, and other graded areas should be accomplished with plant palettes containing predominantly native species. Steeper slopes should be revegetated with genera or species of native perennial grasses including Stipa sp., Poa sp. and others. • Possibly in conjunction with fuel modification zones, dense brush should be cleared from lower, more gentle slopes of hillsides to re-place	During Construction – Applicant/ Construction Contractor	During Construction – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
	bird of prey foraging habitat lost.					
COA 71	All project related lighting shall be hooded or otherwise directed in a manner which will prevent or reduce direct lighting and glare on the adjacent hillsides.	During Construction – Applicant/ Construction Contractor	During Construction – City			
Cultural Resources						
EIR #190 pg. 101	Cultural Resources - Direct Impact Mitigations Necessary procedures to mitigate the direct impacts of construction on any site include: 1. Surface documentation as described for "Indirect Impact Mitigations. 2. In the area(s) of direct impact, a series of 1x2 meter excavation units must be dug by hand to gain a scientifically controlled sample of areas to be destroyed. This sampling could be from a 1%-5% sample of the processing sites, and includes processing through screen mesh, C14 dating, laboratory processing and analysis, and report preparation. 3. Any area(s) containing archaeological sites must be	During Grading and Excavation – Applicant/ Cultural Monitor	During Grading and Excavation – City/ Cultural Monitor			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
	monitored during the grading process; The monitor will be empowered to temporarily halt, divert or redirect the mechanical- equipment to document any feature(s) uncovered.					
PDF CR-1	A paleontological monitor shall be present to observe ground disturbing activities within the Project property. The monitor shall work under the direct supervision of a qualified paleontologist (B.S. /B.A. in geology, or related discipline with an emphasis in paleontology and demonstrated experience and competence in paleontological research, fieldwork, reporting, and curation). 1. The qualified paleontologist shall be on-site at the pre-construction meeting to discuss monitoring protocols. 2. Paleontological monitoring shall start at part-time. If no paleontological resources are discovered after half of the ground disturbance has occurred, monitoring can be reduced to spot-checking. 3. The monitor shall be empowered to temporarily halt or redirect grading	During Grading and Excavation – Applicant/ Cultural Monitor	During Grading and Excavation – City/ Cultural Monitor			

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	efforts if paleontological resources are discovered. 4. In the event of a paleontological discovery the monitor shall flag the area and notify the construction crew immediately. No further disturbance in the flagged area shall occur until the qualified paleontologist has cleared the area. 5. In consultation with the qualified paleontologist the monitor shall quickly assess the nature and significance of the find. If the specimen is not significant it shall be quickly removed, and the area cleared. 6. If the discovery is significant the qualified paleontologist shall notify the applicant and the City immediately. 7. In consultation with the applicant, the qualified paleontologist shall develop a plan which will likely include salvage excavation and removal of the find, removal of sediment from around the specimen (in the laboratory), research to identify and categorize the find, curation of the find in a local qualified					

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	repository, and preparation of a report summarizing the find.					
SC CR-1	Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the Project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include: a. Project grading and development scheduling; b. The Project archeologist and the	During Grading and Excavation – Applicant/ Cultural Monitor	During Grading and Excavation – City/ Cultural Monitor			

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	Consulting Tribes(s) as defined in CR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s)					

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	shall make themselves available to provide the training on an as-needed basis; **c.** The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.					
SC CR-2	Prior to the issuance of a grading permit, the Developer shall secure agreements with the Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians for tribal monitoring. The Project Applicant is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately	Pre-Grading and Excavation – Applicant/ Cultural Monitor	Pre-Grading and Excavation – City/ Cultural Monitor			

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	redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2.					
SC CR-3	In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries: a) One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department: i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.	Pre-Grading and Excavation – Applicant/ Cultural Monitor	Pre-Grading and Excavation – City/ Cultural Monitor			

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	ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CR-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CR-1.					
SC CR-4	The City shall verify that the following note is included on the Grading Plan: *"If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."*	Pre-Grading and Excavation – Applicant	Pre-Grading and Excavation – City			
SC CR-5	If potential historic or cultural resources are uncovered during excavation or construction	During Grading and Excavation	During Grading and Excavation –			

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	activities at the project site, work in the affected area must cease immediately and a qualified person meeting the Secretary of the Interior's standards (36 CFR 61), Tribal Representatives, and all site monitors per the Standard Conditions above, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in CR-1 before any further work commences in the affected area.	– Applicant/ Cultural Monitor	City/ Cultural Monitor			
SC CR-6	If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 5-days of the published finding to be given a reasonable opportunity	During Grading and Excavation – Applicant/ Cultural Monitor	During Grading and Excavation – City/ Cultural Monitor			

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	to identify the "most likely descendant". The "most likely descendant" shall then make recommendations and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).					
Geology and Soils						
EIR #190 pg. 55	Prior to site planning, seismic refraction surveys should be conducted in those areas to obtain reasonable approximations of the depths to boundaries of rippable, marginally rippable and non-rippable rock.	Pre-grading – Applicant/ Geotechnical Engineer	Pre-grading – Applicant/ City Geotechnical Engineer			
EIR #190 pg. 55	Slope stability constraints on the proposed development are expected to be minimal. Some precautions, such as providing green belt areas or building setbacks, below natural slopes may be necessary to ensure protection from the hazard of rockfall. Cut slopes less than 20 feet in height in non-highly jointed weathered bedrock are expected to be grossly stable against deep-seated failure. The project as currently designed avoids development where boulder rolling is expected to occur.	The Project as currently designed avoids development where boulder rolling is expected to occur.	The Project as currently designed avoids development where boulder rolling is expected to occur.			
EIR #190 pg. 55	Cut slopes in alluvium should be no more than 30 feet in height. All artificial slopes will require measures to minimize surficial degradation.	During Grading and Excavation – Applicant/ Geotechnical Engineer	During Grading and Excavation – Applicant/ City Geotechnical Engineer			

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EIR #190 pg. 55	To provide for surficial stability, and to prevent piecemeal sloughing, cut slopes in alluvium, weathered bedrock, and/or highly jointed bedrock will perform best if designed at an angle no steeper than 2:1. It will also be more feasible to establish vegetation on slopes if they are not steeper than 2:1. The stability of any 2:1 cut slopes in bedrock units higher than 20 feet should be individually evaluated once a tentative design is established. All cut slopes should be inspected for adverse conditions during grading by a qualified engineering geologist.	During Grading and Excavation – Applicant/ Geotechnical Engineer	During Grading and Excavation – Applicant/ City Geotechnical Engineer			
EIR #190 pg. 56	Incorporation of appropriate parameters for the design of one and two-story buildings and conformity with the latest Uniform Building Code, the Environmental Hazards and Resources Element of the Comprehensive General Plan, and other County ordinances can be expected to satisfactorily mitigate the effects of seismic ground shaking.	Pre-Construction – Applicant/ Geotechnical Engineer	Pre-Construction – Applicant/ City Geotechnical Engineer			
EIR #190 pg. 56	Secondary earthquake hazards, such as liquefaction, flow landsliding, seismically induced settlement and ground lurching or cracking, are generally associated with relatively high intensities of ground shaking, shallow ground water conditions and the presence of loose sandy soils or alluvial deposits. Although these secondary hazards	Foundation Design incorporates appropriate measures.	Foundation Design incorporates appropriate measures.			

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	appear unlikely, additional geotechnical investigation, including soil sampling and testing is required to adequately assess these constraints. At this time, it is expected that foundation designs incorporating appropriate engineering recommendations will be adequate to mitigate any of these kinds of constraints.					
Addendum 1 pg. IV-14	First, all structures and ancillary uses shall be restricted to areas having a slope range of less than 24%. All streets shall be aligned through slope having a gradient of no more than 16%. By restricting development to the flatter areas, the site will be less susceptible to falling rock resulting from unstabilizing hillside cuts, measures for mitigating biological impacts will remain intact, the potential for unsightly hillside scarring will be eliminated.	Design Phase – Applicant	Design Phase – City			
Addendum 1 pg. IV-14	Secondly, a detailed geotechnical investigation shall be conducted for the site to further analyze the thickness of colluvium and the degree of rock decomposition as they relate to the proposed development plan. The study shall include recommendations for appropriate cut and fill slope grades, degree of rippability of the soil, and methods to protect future structures from damage caused by falling rock.	Pre-Grading and Excavation – Applicant/ Geotechnical Engineer	Pre-Grading and Excavation – Applicant/ City Geotechnical Engineer			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
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Addendum 1 pg. IV-14	Embedded rock outcroppings shall be included as part of future landscaping plans for the purpose of economic as well as aesthetic enhancement of site development.	Design Phase – Applicant	Design Phase – City			
COA 73	A soils Engineering report including but not limited to a statement regarding the potential of ground settlement, shall be completed prior to the issuance of the grading permit.	Pre-Grading and Excavation – Applicant/ Geotechnical Engineer	Pre-Grading and Excavation – Applicant/ City Geotechnical Engineer			
COA 74	Potential rockfall and rollout zones shall be identified and restricted from development. These zones shall be preserved as part of the natural open space areas as shown on Exhibit "C" Amended No. 1 Land Use Plan.	Pre-Grading – Applicant/ Geotechnical Engineer	Pre-Grading – Applicant/ City Geotechnical Engineer			
COA 89	Embedded rock outcroppings shall be included as part of future landscaping plans for the purpose of economic as well as aesthetic enhancement of site development.	During Construction – Applicant / Construction Contractor	During Construction – City			
SC GEO-1	Prior to the issuance of a grading permit, the recommendations presented in the *Geotechnical Investigation Update* shall be incorporated into the final geotechnical report and on the grading plans.	Pre-Grading – Applicant/ Geotechnical Engineer	Pre-Grading – Applicant/ City Geotechnical Engineer			
Hydrology and Water Quality						
EIR #190 pg. 69	The Flood Control District assesses fees for the support of drainage improvements within the boundaries of adopted Area Drainage Plans, which will be applicable to	Pre-Grading – Applicant	Pre-Grading – City/ Flood Control District			

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	the developer of the Moreno Valley Ranch. These fees will mitigate any financial impacts.					
EIR #190 pg. 69	The improvements proposed by the Moreno Valley Ranch Master Drainage Plan respond to the Flooding Land Use Standards of the Environmental Hazards and Resources Element of the Comprehensive General Plan through mitigation of the existing floodplain condition and by payment of fees set forth by the Master Drainage Plans. All applicable Flooding Land Use Standards will be satisfied by the proposed project.	Pre-Grading and Excavation – Applicant	Pre-Grading and Excavation – City			
EIR #190 pg. 69	Erosion control devices will be utilized in hillside development areas to mitigate the effect of increased runoff at points of discharge. Devices may include temporary berms, culverts, sandbagging or desilting basins.	During Grading and Excavation – Applicant/ Construction Contractor	During Grading and Excavation – City			
EIR #190 pg. 69	A water quality maintenance program can be implemented to mitigate the impact of urban runoff on surface water quality over the long term. A suitable program is outlined in Water Pollution Aspects of Street Surface Contaminants (prepared by the U.S. Environmental Protection Agency). This program provides recommendations for street cleaning and prevention of pollutant generation. Its implementation rests with	Post Construction – Applicant/ Construction Contractor	Post Construction – City			

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	local agencies, the project Homeowners Association and individual residents.					
COA 66	Retention basins or other facilities shall be developed as required and approved by the Riverside County Flood Control District and the City Engineer to ensure that drainage flow velocities onto adjacent properties do not exceed those experienced under existing conditions.	Pre-Grading – Applicant/ Engineer	Pre-Grading – City			
COA 67	The developer shall participate in the fee mitigation program of the Master Drainage Plans for this area.	Pre-Grading – Applicant	Pre-Grading – City			
Landform/Topography						
EIR #190 pg. 41	All grading will be performed in accordance with the Riverside County Grading Policies. Measures to reduce soil erosion, such as performing grading operations during dry (summer) months, keeping the soil mantle moist during grading and providing erosion control facilities should be implemented. Soil erosion potential will be further reduced through implementation of the Riverside County Flood Control District's Master Plan for the site as proposed by the project. Landscaping all cut and fill slopes will protect the slopes from erosion and minimize the visual impacts of grading operations. As previously mentioned, grading will occur in	During Grading and Excavation – Applicant/ Construction Contractor	During Grading and Excavation – City			

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	phases, minimizing the areal extent of exposed soils, thereby reducing erosion.					
Addendum 1 pg. IV-11	In conformance with the Hillside Development Standards, providing erosion control facilities as required by the City Public Works Department, and landscaping all manufactured slopes in accordance with City Standards.	During Grading and Excavation – Applicant/ Construction Contractor	During Grading and Excavation – City			
Land Use						
COA 15	The total specific plan shall be developed with maximum 12,695 dwelling units on 1620 acres pursuant to Exhibit "C" - Amended No. 1 Land Use Plan. Final development densities for each phase shown in Exhibit "D" 7/25/85 Revision shall be determined through the appropriate tract application, up to the maximum density identified for the planning unit in question, based upon, but not limited to the following: A. adequate availability of services; B. adequate access and circulation; C. sensitivity to land forms; D. innovation in housing types, design, conservation, or opportunities E. adequate provision of recreational open space within planned residential developments (PRD 1 s);	Design Phase – Applicant	Design Phase - City			

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	F. sensitivity to neighborhood design through appropriate lot and street layouts; G. compatibility with surrounding off-site development land uses and densities; H. adequate mitigation of all school impacts identified by the affected school district;					
COA 16	Lots created pursuant to this specific plan shall be in conformance with the development standards of the zones ultimately applied to the property.	Design Phase – Applicant	Design Phase - City			
COA 17	A change of zone application may be required, as determined by the Planning Department, with each subsequent development application.	Design Phase – Applicant	Design Phase - City			
COA 18	Flag lots shall not be permitted.	Design Phase – Applicant	Design Phase - City			
COA 19	All utilities shall be placed underground.	Design Phase – Applicant	Design Phase - City			
COA 20	All landscaped common greenbelt, park, improved open space, and linear park areas within the specific plan shall include automatic irrigation systems.	Design Phase – Applicant/ Landscape Architect	Design Phase - City			
COA 21	Prior to the recordation of any final subdivision, improvement plans for developed common park, landscaped areas, and parkway areas for that subdivision or to	Design Phase – Applicant	Design Phase - City			

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	mitigate an environmental impact for that stage of development shall be submitted to the Planning Commission for approval. The improvement plans shall include, but not be limited to the following: A. Final grading plan. B. Irrigation plans certified by a landscape architect. C. A landscaping plan with seed mixes for mulching and staking methods. Locations, type, size and quantity of plantings. D. A Hardscaping plan with location and type and quantity of recreational amenities/facilities.					
COA 23	The proposed neighborhood commercial areas, other than that described in Condition No. 22 above, shall be subject to Plot Plan review submitted under provision of Section 18.12 and 18.30 of Ordinance 348. Architectural compatibility with surrounding development shall be maintained.	Design Phase – Applicant/ Architect	Design Phase - City			
Noise						
EIR #190 pg. 75	Construction activities should be limited, especially during the later phases of development, to maintain quiet during evening hours and weekends. In addition, construction equipment should be	During Grading and Excavation – Applicant/ Construction Contractor	During Grading and Excavation – City			

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	equipped with effective muffling devices.					
COA 57	Prior to the issuance of building permits an acoustical study shall be performed by an engineer to establish appropriate mitigation measures for on-site impacts and to buffer the UCR Farm. This mitigation shall be applied to individual dwelling units within implementing subdivisions located adjacent to collector and larger roadways as well as providing noise attenuation between on-site uses adjacent to the UCR Farm, and to reduce noise ambient interior noise levels to 45 db(a). The required acoustical studies shall be subject to Planning Commission approval and review by the appropriate staff of UCR and any mitigation measures recommended in the reports shall be incorporated into the design of the specific plan and construction of residential units.	Pre-Construction – Applicant	Pre-Construction – City			
PDF NO-1	To meet the City of Moreno Valley 45 dBA CNEL interior noise standards the following on-site standard construction measures are required: • Windows/Glass Doors: All units require windows and sliding glass doors that have well-fitted, well-weather-stripped	During Construction – Applicant	During Construction – City			

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	assemblies, and minimum sound transmission class (STC) ratings of 27. • Exterior Doors (Non-Glass): All exterior doors shall be well weather-stripped and have well-sealed perimeter gaps to achieve minimum sound transmission class (STC) ratings of 27. • Exterior Walls: At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal. • Roof: Roof sheathing of wood construction shall be per manufacturer's specification or caulked plywood of at least one-half inch thick. Ceilings shall be per manufacturer's specification or well sealed gypsum board of at least one-half inch thick. Insulation with at least a rating of R-19 shall be used in the attic space. • Ventilation: Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air					

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	circulation system (e.g. air conditioning) or active ventilation system (e.g. fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.					
PDF NO-2	The following PDFs are included in the Project design to reduce construction noise and vibration levels produced by the construction equipment to the nearby sensitive land uses. • If R6 represents occupied residential use at the time of Project construction, install a minimum 10-foot high temporary construction noise barrier at the Project's site boundary adjacent to sensitive receiver location R6, shown on Exhibit ES-B, for the duration of Project construction. The noise control barriers must have a solid face from top to bottom. The noise control barrier must meet the minimum height and be constructed as follows: o The temporary noise barrier shall provide a minimum transmission loss of 20 dBA (Federal Highway Administration, Noise Barrier Design Handbook). The noise barrier shall be constructed using an acoustical blanket (e.g. vinyl acoustic curtains or	During Grading and Excavation – Applicant/ Construction Contractor	During Grading and Excavation – City			

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	quilted blankets) attached to the construction site perimeter fence or equivalent temporary fence posts. Example photos are provided in Appendix 11.2.; o The noise barrier must be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired; o The noise control barrier and associated elements shall be completely removed, and the site appropriately restored upon the conclusion of the construction activity. • Large mobile equipment (greater than or equal to 80,000 pounds) (5) shall not be used within 50 feet of receiver locations R2 and R6 if occupied at the time of Project construction, as shown on Exhibit ES-B. Instead, smaller, rubber-tired mobile equipment (less than 80,000 pounds) or equivalent alternative equipment shall be used within this area during Project construction.					

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	• Prior to approval of grading plans and/or issuance of building permits, plans shall include a note indicating that Project construction activities shall comply with the City of Moreno Valley Municipal Code requirements. • During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site. • The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site during all Project construction (i.e., to the western center). • The contractor shall design delivery routes to minimize the exposure of					

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	sensitive land uses or residential dwellings to delivery truck-related noise.					
Public Services						
EIR #190 pg. 148	The project applicant should study the possibility of including trash compactors as a standard feature in the new homes as well as the feasibility of installing recycling bins on the site for residents' use and convenience to reduce solid waste generation.	Design Phase – Applicant	Design Phase – City			
EIR #190 pg. 156	The project applicant will work with the County of Riverside Fire Department in order to insure the adequacy of the location and size of the presently proposed fire station sites. A fee of $600 per unit is assessed by the "Public Facilities Plan for the Moreno Valley". A portion of this will be allocated to the Fire Department to cover costs of constructing the stations. A number of measures to reduce the potential for fire occurring have been incorporated into the project design.	Measures reducing the potential for fire have been incorporated into the project design.	Measures reducing the potential for fire have been incorporated into the project design.			
EIR #190 pg. 159	The applicant will also cooperate with the Sheriff's Department to insure that adequate police protection is provided.	Pre-Grading and Excavation – Applicant	Pre-Grading and Excavation – City			
EIR #190 pg. 164	A number of natural gas and electricity conserving techniques have been incorporated into the project design, as described in the Specific Plan.	Condition is included within the Design of the Project.	Condition is included within the Design of the Project.			

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EIR #190 pg. 169	The project proponent will continue working with the four affected school districts to insure adequate facilities are provided. Payment of District(s) development fees will help mitigate financial impacts.	Pre-Grading and Excavation – Applicant	Pre-Grading and Excavation – City			
COA 59	The following fire impact mitigation measures shall be required: A. Fire protection shall be provided in accordance with Schedule "A" of Ordinance 460 and/or 546. B. All dwelling units and structures must have built-in smoke detectors and alarm systems. C. Buildings should be designed and constructed to be fire resistant through following: 1) Adequate spacing between buildings to allow the movement of fire equipment around the inner portions of the project. 2) All buildings within the project shall have Class A roofing material. 3) Overhead decking for multiple story structures should be designed to preclude a fire from burning under it and up	Design Phase – Applicant	Design Phase – City			

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	through it. 4) Exterior spark arrestors on chimneys shall be provided. A sample shall be submitted to the County Fire Department for inspection and approval prior to installation. D. Site specific project design should include the following: 1) A circulation pattern that has roadways which are of sufficient width to be easily traveled by fire vehicles, cul-de-sacs less than 1320 feet, and multiple access points into residential neighborhoods through loop streets and throughways.					
COA 60	The project sponsor shall participate in the Public Facilities Fee Program for Moreno Valley.	Pre-Grading – Applicant	Pre-Grading – City			
COA 62	Each subdivision within the specific plan shall provide school impact mitigation measures as determined by the Moreno Valley Unified, Val Verde Elementary, Perris Union, and NuView Union Elementary School districts through the dedication of sites and through developer fees.	Pre-Grading – Applicant	Pre-Grading – City			

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COA 64	The developer shall mitigate potential safety and security impacts in the following manner: A. Prior to recordation of the implementing tract maps the following action shall occur: 1) An application shall be submitted to the City of Moreno Valley for the formation of a street lighting district, or annexation to an existing light district. 2) This application shall be filed concurrently with the submittal of street improvement plans to the Riverside County Road Commissioner. B. The project design shall incorporate security hardware as recommended by law enforcement agencies on all structures, and an emphasis on visibility through location and landscaping of structures.	Prior to Recordation of Maps – Applicant	Prior to Recordation of Maps – City			
Traffic						
COA 40	All road improvements within the project boundaries shall be constructed to ultimate City standards in accordance with	Pre-Grading – Applicant	Pre-Grading – City			

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	Ordinance No. 460 and 461 as a requirement of the implementing subdivisions for this project and shall be subject to approval by the City Engineer.					
COA 41	The applicant shall submit for Planning Commission approval, a composite circulation plan prior to the issuance of grading permits for each stage of development in question which combines and defines the type and extent of pedestrian, equestrian and vehicular circulation modes identified in the Specific Plan and EIR. The composite circulation plan shall establish the development standards, phasing and maintenance responsibilities for the various circulation components, public and private streets, sidewalks, streetscapes, trails and bridges.	Pre-Grading – Applicant	Pre-Grading – City			
COA 42	The subdivider shall comply with the following street improvement recommendations: A. The master circulation plan shall be revised to designate Iris Avenue/Moreno Beach Drive as a six-lane arterial within the project boundaries. B. The applicant/developer of any subdivision within Specific Plan 193 shall participate on a fair share	Design Phase – Applicant	Design Phase – City			

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	basis in any mitigation and/or fee program designed to alleviate off site roadway and freeway interchange deficiencies.					
COA 43	Road improvements shall be provided in accordance with the requirements of the implementing subdivision for this project and/or as recommended by the City Engineer.	Design Phase – Applicant	Design Phase – City			
COA 44	The basic circulation system shall be developed substantially in accordance with the Specific Plan, EIR and Read Engineering Department conditions as contained herein.	Design Phase – Applicant	Design Phase – City			
COA 45	Collector roadways shall minimize the use of reverse frontage walls by such treatments as increased setbacks, landscaping, and berming or other techniques which will allow individual residential developments to have frontage on the collector roadways without the use of masonry walls or fences.	Design Phase – Applicant	Design Phase – City			
COA 46	The project proponent shall participate in the Traffic Signal Mitigation Program as adopted by the City of Moreno Valley.	Design Phase – Applicant	Design Phase – City			
COA 48	Concrete sidewalks shall be constructed throughout this development	Design Phase – Applicant	Design Phase – City			
COA 49	Handicapped/bicycle ramps shall be incorporated into all curb and sidewalk	Design Phase – Applicant	Design Phase – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
	designs.					
COA 50	A sufficient quantity of bicycle racks shall be provided by the developer at the neighborhood commercial center.	Design Phase – Applicant	Design Phase – City			
PDF TR-1	Prior to the issuance of Certificates of Occupancy, the Applicant shall contribute fair share towards the following intersection improvements as specified in the 2018 TIA prepared for the Modified Project: *Improvement – Lasselle Street & Iris Avenue (#2)* • Implement a 130-second cycle length during the peak hours. *Improvement – Lasselle Street & Krameria Avenue (#5)* • Modify the median and striping to accommodate dual northbound left turn lanes, a through lane, and shared through-right turn lane. • Restripe the eastbound approach with 2 lefts, 1 through, and 1 right turn lane.	Prior to Certificates of Occupancy – Applicant	Prior to Certificates of Occupancy – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
	• Modify the traffic signal to implement overlap phasing on the eastbound right turn lane. • Implement a 130-second cycle length during the peak hours.					
General Conditions						
COA 2	If any of the following conditions of approval differ from the commitment made by the developer in the specific plan text or map exhibits, the conditions enumerated herein shall take precedence.	Design Phase – Applicant	Design Phase – City			
COA 3	The development of the property shall be in accordance with the mandatory requirements of all City of Moreno Valley Ordinances and State Laws and shall conform substantially with approved Specific Plan No. 193 as filed in the offices of the City of Moreno Valley unless otherwise amended.	Design Phase – Applicant	Design Phase – City			
COA 4	No portion of the specific plan which purports or proposes to change, waive or modify any ordinance or other legal requirement in effect at time of final approval for the development shall be considered to be a part of the adopted specific plan.	Design Phase – Applicant	Design Phase – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
COA 5	Water and sewage disposal facilities shall be installed in accordance with the requirements and specifications of the Riverside County Health Department. Such requirements will be applied at the subdivision or plot plan stage.	Construction Phase – Applicant	Construction Phase – City			
COA 6	Drainage and flood control facilities and improvements shall be provided in accordance with Riverside County Flood Control and Water Conservation District and City Engineer's requirements. Such requirements will be applied at the subdivision and plot plan stage. a. All proposed improvements and construction shall be in conformance with the City of Moreno Valley Flood Prevention Ordinance.	Design Phase – Applicant/ Engineer	Design Phase – City/ City Engineer			
COA 7	Prior to issuance of a building permit for construction of any use contemplated by this approval, the applicant shall first obtain clearance from the City of Moreno Valley Planning Department that all pertinent conditions of approval have been satisfied with the' specific plan for the phase of development or planning unit in question.	Pre-Construction – Applicant	Pre-Construction – City			
COA 8	An environmental assessment shall be conducted with each filing for tentative	Design Phase – Applicant	Design Phase – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
	tract map, change of zone, plot plan, specific plan amendment or any other discretionary permit application required to implement the specific plan. At a minimum, the environmental assessments shall utilize the evaluation of impacts addressed in the EIR prepared for Specific Plan No. 193 and Addendum No. 1 to the EIR, prepared for Specific Plan No. 193 Amendment No. 1.					
COA 9	All future development shall be subject to and in accordance with the applicable ordinances of the City of Moreno Valley in effect at the time of application as contained in those County Ordinances (including Ordinances 348 and 460) that were adopted by the City following incorporation. Any future revisions to these City Ordinances shall be effective against all development phases for which Tentative Tract Maps have not been approved, as of the date of the revision.	Design Phase – Applicant	Design Phase – City			
COA 11	Where applicable by ordinance or required by adoption of a condition of approval relating to the underlying tentative tract proposal, a neighborhood owners association shall be established prior to the recordation of the final tract map for each residential development. The	Design Phase – Applicant	Design Phase – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
	neighborhood owners association shall be responsible for any common area improvements that are unique to that neighborhood/sub-community and other responsibilities as necessary as defined through the specific plan conditions of approval.					
COA 14	Prior to the recordation of any final subdivision map, or building permits being issued for conditional use permits and plot plans, the applicant shall submit to the Planning Commission the following documents which shall demonstrate to the satisfaction of the City that the individual appropriate owners associations will be established and will operate in accordance with the intent and purpose of the specific plan. A. The document to convey title. B. Covenants, Conditions and Restrictions to be recorded. C. Management and Maintenance agreements to be entered into with the unit/lot owners of the Project. The master property owners association, neighborhood owners association, commercial and industrial owners	Prior to Recordation of Final Map – Applicant	Prior to Recordation of Final Map – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
	associations shall be charged with the unqualified right to assess their own individual owners who own individual units for reasonable maintenance and management costs which shall be established and continuously maintained. The individual owners associations shall have the right to lien the property. of any owners who default in payment of their assessment fees. Such a lien shall not be subordinate to any encumbrance other than a first deed of trust, provided such deed of trust is made in good faith and for good value and is of record prior to the lien of the individual owners association.					
Planning Area Conditions						
COA 26 C.	Planning areas 3, 21, 57, 59, and 75 shall be developed as neighborhood commercial centers in the following manner: 1. The Commercial Centers shall be developed subject to a plot plan to be submitted under the provisions 6f Sections 18.12 and 18.30 of Ordinance 348. This plot plan shall include detailed building sizes, elevations, parking, roof treatment, landscaping and circulation designs, and will designate the major uses proposed on each site.	Design Phase – Applicant	Design Phase – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
	2. The Commercial Center shall be developed in a manner that is architecturally harmonious with its own defined identity incorporating development criteria from the defined theme of Specific Plan 193. 3. The Commercial Center all incorporate efficient pedestrian, bikeway, auto, and public transportation systems. Development details shall be provided concurrently with the plot plan which will be evaluated by the Planning Commission and other affected agencies. 4. Energy considerations shall be incorporated into the design of commercial areas. Parking areas shall be heavily landscaped to reduce heat gain. Passive and active solar systems shall be considered in structural designs. 5. All signs shall be in compliance with Section 19.4 of Ordinance 148.					
COA 26 F.	Flood Control facilities within each phase will be constructed prior to or concurrently with the initial development within that phase.	Design Phase – Applicant	Design Phase – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
Phasing Conditions						
COA 27	Construction of the development permitted hereby, including recordation of final subdivision maps, may be done progressively in stages, provided adequate vehicular access is constructed for all dwelling units in each stage of development and further provided that each phase of development conforms substantially with the intent and purpose of the Specific Plan Master Phasing Program. Any proposed variation to the Master Phasing Plan shall be reviewed by the Planning Commission for determination of substantial conformance to the Specific Plan.	During Construction – Applicant	During Construction – City			
COA 28	Development applications may be filed out of the numerical sequence of the Master Phasing Plan, provided that the development application complies with all conditions, including requirements for public facilities, infrastructure and recreational amenities, for the phase and planning unit in which it is located and all intervening phases and planning units.	Design Phase – Applicant	Design Phase – City			
COA 29	Area and density transfers between Master Phases shall be prohibited.	Design Phase – Applicant	Design Phase – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
COA 31	Each planning phase as identified in Exhibit "D" 7/25/85 Revised shall incorporate internal pedestrian access to common landscaped spaces and recreation areas. No direct pedestrian access shall be provided to the natural open space areas.	Post Construction – Applicant	Post Construction – City			
COA 32	Within eight (8) and sixteen (16) years of City Council's adoption of the Resolution for the specific plan, any portion of this specific plan, that has not been developed or for which an implementation development plan has not been approved by the City Council, the City Council may review and may require an amended specific plan at the developer's expense prior to further development.	Design Phase – Applicant	Design Phase – City			
COA 34	Construction of parks, community and equestrian recreational areas shall commence prior to, or concurrently with adjoining development in each applicable phase.	Design Phase – Applicant	Design Phase – City			
Grading Conditions						
COA 36	No grading shall be permitted for any development area prior to tentative map or plot plan approval and issuance of grading permits for the area of development in question, excluding stock pile plans or as approved by the City Engineer.	Pre-Grading and Excavation – Applicant	Pre-Grading and Excavation – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
COA 37	All grading within the specific plan shall comply with City Ordinance No. 45 and the following conditions and development criteria: A. All grading shall be in accordance with the County's Hillside Grading Policies, as adopted by the City. B. Where cut and fill slopes are created in excess of 10 feet in vertical height, detailed landscaping and irrigation plans shall be submitted to the Planning Department and Engineering Department prior to approval of grading plans. The plans will be reviewed for type and density of ground cover, seed mix, plant sizes and irrigation systems. C. Gradients of all driveways and private roadways shall not exceed 15% percent. D. All manufactured slopes shall be contour-graded incorporating the following grading techniques: 1. The angle of the graded slope shall be gradually adjusted to the angle of the natural terrain. 2. The toes and tops of all slopes in excess of 10 feet in vertical height	During Grading and Excavation – Applicant/ Construction Contractor	During Grading and Excavation – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
	shall be rounded with curves with radii designed in proportion to the total height of the slope where drainage and stability permit such rounding. 3. Where cut and fill slopes exceed 150 feet in horizontal length, the horizontal contours of the slopes shall be curved in a continuous, undulating fashion. E. Natural features such as trees with four inch or larger trunk diameters and significant rock outcrops shall be protected to the greatest extent feasible in the siting of individual lots and building pads. These features shall be shown on the grading plan with appropriate protection and relocation notes. F. All dwellings shall be located a minimum of 10 feet from the toes and tops of all slopes over 10 feet in vertical height unless otherwise approved by the City Engineer. G. Natural drainage courses shall be retained in their natural state wherever possible. H. All brow ditches, terrace drains and other minor swales where required					

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
	shall be lined with natural erosion control materials or concrete, as approved by the Planning Director and City Engineer. I. All grading work shall be balanced within the limits the phase boundary, eliminating any off-site transport of materials. J. All graded but undeveloped land shall be maintained in a weed-free condition and planted with interim landscaping. K. The applicant and/or developer shall be responsible for the maintenance and upkeep of all slope planting and irrigation systems until such time as those operations are the responsibility of other parties.					
COA 38	All tentative tract map submittals shall include the overall conceptual grading plan for the stage of development in question. The grading plans shall include but not be limited to the following: A. Preliminary quantity estimates for grading. B. Areas of temporary borrowing or depositing of material. C. Techniques which will be utilized to prevent erosion and sedimentation during and after the grading process.	Pre-Grading and Excavation – Applicant	Pre-Grading and Excavation – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
	D. Approximate time frames for grading including identification of areas which may be graded during the higher probability rain months of January through March. E. Preliminary pad and roadway elevations. F. Hydrology and hydraulic concerns and mitigation measures.					
Parks and Recreation Area Conditions						
COA 54	Prior to the issuance of building and grading permits, landscaping, irrigation, and improvement plans for landscaped areas and recreation areas shall be submitted to the Planning Commission and approved for the stage and area of development in question. Improvement plans shall conform to concepts, features and standards established in the specific plan and these conditions.	Pre-Grading and Excavation – Applicant	Pre-Grading and Excavation – City			
Impact Mitigation Conditions						
COA 56	The developer shall incorporate all special impact mitigation plans, findings, and recommendations into the design of all applicable development plans including subdivision, grading, and building plans.	Design Phase – Applicant	Design Phase – City			
COA 77	The developer shall provide solar water heating systems as the primary source of water heating in all residential units	Design Phase – Applicant	Design Phase – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
	designated medium, medium high and high density. The credit allowable to satisfy the Title 24 requirements shall be limited to the points allowed for the gas water heater. Also, any group swimming pools planned for the three major community recreation facilities, as well as the group swimming pools planned in residential areas designated medium, medium-high and high density shall use solar water heating as the primary method of heating the swimming pools. The Planning Department shall verify that these requirements have been satisfied prior to that issuance of building permits.					
COA 82	Detailed design standards shall be submitted to the Planning Department for review at the time an application is filed for development within Planning Areas 21 and 21A. Information submitted shall include the following: a. Plan showing the placement of buildings, location of usable open space, and delineating proposed setbacks; b. Building design and architecture; c. Elevations· including examples of	Design Phase – Applicant	Design Phase – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
	proposed materials for exteriors and heights of buildings; d. Fencing plan including height and details of proposed materials to be used. e. Conceptual landscaping and irrigation plan; f. Parking design; g. conceptual grading plan.					
COA 83	A cross-sectional rendering, illustrating land use relationships between Planning Areas 21A and 22A, shall be submitted for Planning Department review concurrently with the initial development request.	Design Phase – Applicant	Design Phase – City			
COA 84	Should public transportation (bus) service be available at the time of development request submittal for uses within Planning Areas 26, 27, 21, and 22, a bus turn out facility shall be incorporated in implementing site plans to the satisfaction of the Planning Department and the Riverside Transit Agency.	Design Phase – Applicant	Design Phase – City			
COA 86	Concurrently with the submittal of any implementing subdivisions, the project sponsor shall submit a schedule for traffic control facility installations based on traffic studies contained within EIR 190 and subsequent plan amendments. The schedule shall include signalization, stop	Design Phase – Applicant	Design Phase – City			

No.	Mitigation Measure	Time Frame and Responsible Party for Implementation	Time Frame and Responsible Party for Monitoring	Verification of Compliance		
				Initials	Date	Remarks
	signs, and other required traffic controls.					
COA 87	a. All structures and ancillary uses shall be restricted to areas having a slope range of less than 24%. b. All streets shall be aligned through slope having a gradient of more than 16%.	Design Phase – Applicant	Design Phase – City			

Source:
Moreno Valley Ranch Specific Plan/ Environmental Impact Report No. 190. August 13, 1985.
Addendum No. 1 to Environmental Impact Report No. 190. November 25, 1986.
Specific Plan 193 (Moreno Valley Ranch) Final Conditions of Approval. July 25, 1985, Amended 10-23-86.
Moreno Valley Ranch Specific Plan/ Environmental Impact Report No. 190 Addendum #2. January 04, 2019.

CITY COUNCIL RESOLUTION NO. 2019-XX

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY APPROVING APPLICATION NO. PEN18-0119, AN AMENDMENT TO THE GENERAL PLAN LAND USE MAP, CHANGING THE LAND USE DESIGNATION FROM RESIDENTIAL 20 TO COMMERCIAL ON 2.8 ACRES LOCATED AT THE NORTHEAST CORNER OF LASSELLE STREET AND KRAMERIA AVENUE

WHEREAS, the applicant, Continental East Fund III, LLC, filed Application No. PEN18-0119, requesting an amendment to the Moreno Valley General Plan, as described in the title of this resolution and the attached Exhibit A; and

WHEREAS, the application has been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, an Addendum has been prepared for the project consistent with the California Environmental Quality Act (CEQA) and based on a thorough analysis of potential environmental impacts, and the Addendum represents the City's independent judgement and analysis; and

WHEREAS, the Planning Commission of the City of Moreno Valley held a public hearing on January 24, 2019 to consider the subject application and all environmental documentation prepared for the project and recommended approval of the project by the City Council; and

WHEREAS**,** the public hearing notice for this project was published in the local newspaper on February 22, 2019. Public notice was sent to all property owners of record within 300 feet of the project site on February 21, 2019. The public hearing notice for this project was also posted on the project site on February 21, 2019;

WHEREAS, on March 5, 2019, the City Council held a public hearing to consider the application; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, pursuant to Government Code Section 66020(d)(1), NOTICE IS HEREBY GIVEN that this project is subject to certain fees, dedications, reservations and other exactions as provided herein.

NOW, THEREFORE, BE IT RESOLVED, it is hereby found, determined and resolved by the City Council of the City of Moreno Valley as follows:

A. This City Council hereby specifically finds that all of the facts set forth above in this Resolution are true and correct.

B. Based upon substantial evidence presented to this City Council during the above-referenced meeting, including written and oral staff reports, and the record from the public hearing, this City Council hereby specifically finds as follows:

1. Conformance with General Plan Policies – The proposed general plan amendment is consistent with the General Plan, and its goals, objectives, policies and programs.

FACT: The Continental East Phase II project proposes to modify the previously approved Continental Villages project by subdividing the approximately 19 acre site into three parcels; establishing land use designations for development of Medium High Density Residential and future neighborhood commercial development; and replacing the previously approved detached dwelling units with a 112 unit apartment project.

The project site is located within Planning Area 21 of the Moreno Valley Ranch Specific Plan (SP 193) which as approved on August 13, 1985. The General Plan land use designations for the project site were Commercial and High Density Residential.

In 2001, the City of Moreno Valley approved Amendment No. 6 to Specific Plan 193, which amended the land use designations for Planning Area 21, eliminating the Commercial designation and assigning High Density Residential to the entire site.

The project site has a current General Plan designation of R20. The proposed General Plan Amendment would change the land use designation on an approximately 2.8 acre parcel located at the corner of Lasselle Street and Krameria Avenue from R20 to Commercial. The balance of the project site would remain designated R20.

The project site is bounded by Lasselle Street along its western property line and Krameria along its eastern and southern property line. Beyond the contiguous streets, land uses surrounding the project site are primarily single-family residences in the Low and Medium-low Density Residential zones. Moreno Valley Community College is located directly north of Cahuilla Drive. Lasselle Elementary School is located northeast of the Project site and contiguous to the Project site on two sides.

General Plan Policy 2.4.1 states that the primary purpose of areas designated Commercial is to provide property for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services.

With approval of the requested General Plan Amendment, the project as designed and conditioned will achieve the objectives of the City of Moreno Valley's General Plan for commercial land uses and will promote development of the undeveloped portion of the project site.

2. Health, Safety and Welfare – The proposed general plan amendment will not be detrimental to the public health, safety or general welfare.

FACT: The proposed General Plan Amendment is a legislative action and will not result in any direct physical impacts; therefore, the action itself could not be detrimental to the public health, safety or welfare.

The change in land use designation for the 2.8 acres vacant will allow for future commercial development that is consistent with the General Plan, zoning, and public health safety and welfare.

An Initial Study was for the project for the purpose of compliance with the California Environmental Quality Act (CEQA). Based on the Initial Study, it was determined that the project impacts remain less than significant and certification of an Addendum to a previously approved Negative Declaration and the Moreno Valley Ranch Specific Plan Environmental Impact Report is recommended.

There is no evidence that the proposed project will have a significant impact on public health or be materially injurious to surrounding properties of the environment as a whole.

BE IT FURTHER RESOLVED that the City Council APPROVES Resolution No. 2019-XX and:

1. APPROVES General Plan Amendment Application No. PEN18-0119, based on the findings contained in this resolution.

APPROVED this 5th day of March, 2019.

_____
Mayor of the City of Moreno Valley

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

_____
City Attorney

RESOLUTION JURAT

STATE OF CALIFORNIA)

COUNTY OF RIVERSIDE) ss.

CITY OF MORENO VALLEY)

I, Pat Jacquez-Nares, City Clerk of the City of Moreno Valley, California, do hereby certify that Resolution No. 2019-XX was duly and regularly adopted by the City Council of the City of Moreno Valley at a regular meeting thereof held on the 5th day of March, 2019 by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Council Members, Mayor Pro Tem and Mayor)

CITY CLERK

(SEAL)

GENERAL PLAN AMENDMENT

Application No. PEN18-0119
Resolution No. 2019-XX

N

Exhibit A to Resolution 2019-XX

ORDINANCE NO. 2019-XX

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, APPROVING SPECIFIC PLAN AMENDMENT APPLICATION NO. PEN18-0120 CHANGING THE SPECIFIC PLAN LAND USE DESIGNATION FROM HIGH DENSITY RESIDENTIAL TO MEDIUM DENSITY RESIDENTIAL AND NEIGHBORHOOD COMMERCIAL FOR PROPERTY LOCATED AT THE NORTHEAST CORNER OF KRAMERIA AVENUE AND LASSELLE STREET

The City Council of the City of Moreno Valley does ordain as follows:

SECTION 1 GENERAL:

1.1 The applicant, Continental East Fund III, LLC, has filed application PEN18-0120, requesting an amendment Planning Area 21 of the Moreno Valley Ranch Specific Plan for certain property as described in the title of this ordinance and the attached Exhibit A.

1.2 Pursuant to the provisions of the law, a public hearing was held before the City Council on March 5, 2019, for deliberations and decision.

1.3 The matter was fully discussed, and the public and other agencies were given opportunity to present testimony and documentation.

1.4 An Addendum has been prepared for the Project for the purpose of compliance with the California Environmental Quality Act (CEQA). Based on the Addendum including all supporting technical evidence, it was determined that the project impacts are expected to remain less than significant with implementation of project design features and compliance with mitigation measures outlined in the Moreno Valley Ranch Specific Plan Environmental Impact Report, and therefore, certification of an Addendum is an appropriate action for the Project.

SECTION 2 FINDINGS:

2.1 Based upon substantial evidence presented to this City Council during the above-referenced meeting on March 5, 2019, including written and oral staff reports, and the record from the public hearing, this City Council hereby specifically finds as follows:

1. Conformance with General Plan Policies – The proposed amendment is consistent with the General Plan, and its goals, objectives, policies and programs.

FACT: The Continental East Phase II project proposes to modify the previously approved Continental Villages project by subdividing the approximately 19 acre site into three parcels; establishing land use designations for development of Medium High Density Residential and future neighborhood commercial development; and replacing the previously approved detached dwelling units with a 112 unit apartment project.

The project site is located within Planning Area 21 of the Moreno Valley Ranch Specific Plan (SP 193) which as approved on August 13, 1985. The General Plan land use designations for the project site were Commercial and High Density Residential.

In 2001, the City of Moreno Valley approved Amendment No. 6 to Specific Plan 193, which amended the land use designations for Planning Area 21, eliminating the Commercial designation and assigning High Density Residential to the entire site.

The project site has a current General Plan designation of R20. The proposed Specific Plan Amendment would change the land use for 8.8 acres from High Density Residential to Medium High Density Residential and from High Density Residential to Neighborhood Commercial for 2.8 acres located at the corner of Lasselle Street and Krameria Avenue.

The project site is bounded by Lasselle Street along its western property line and Krameria along its eastern and southern property line. Beyond the contiguous streets, land uses surrounding the project site are primarily single-family residences in the Low and Medium-low Density Residential zones. Moreno Valley Community College is located directly north of Cahuilla Drive. Lasselle Elementary School is located northeast of the Project site and contiguous to the Project site on two sides.

General Plan Policy 2.2.10 states that the primary purpose of areas designated Residential 20 is to provide a range of high density multi-family housing types. Developments within Residential 20 areas shall also provide amenities, such as common open spaces and recreational facilities. The maximum density shall be 20 dwelling units per acre.

Medium High Density Residential is a zoning district with development standards that are consistent with the goals and intent of the Residential 20 land use designation.

General Plan Policy 2.4.1 states that the primary purpose of areas designated Commercial is to provide property for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services.

With approval of the requested Zone Change, the project as designed and conditioned will achieve the objectives of the City of Moreno Valley's General Plan for multiple family and commercial land uses and will promote development of the undeveloped portion of the project site.

2. Health, Safety and Welfare – The proposed amendment will not adversely affect the public health, safety or general welfare.

FACT: The proposed Specific Plan Amendment is a legislative action and will not result in any direct physical impacts; therefore, the action itself could not be detrimental to the public health, safety or welfare.

The change in land use designations for the project site vacant will allow for development of 112 unit apartment project and future commercial development that is consistent with the General Plan, zoning, and public health safety and welfare.

An Initial Study was for the project for the purpose of compliance with the California Environmental Quality Act (CEQA). Based on the Initial Study, it was determined that the project impacts remain less than significant and certification of an Addendum to a previously approved Negative Declaration and Moreno Valley Ranch Specific Plan Environmental Impact Report is recommended.

There is no evidence that the proposed project will have a significant impact on public health or be materially injurious to surrounding properties of the environment as a whole.

3. Conformance with the Zoning Regulations – The proposed Specific Plan Amendment is consistent with the purposes and intent of Title 9 of the City of Moreno Valley Municipal Code.

FACT: The proposed Specific Plan Amendment would change the land use for 8.8 acres from High Density Residential to Medium High Density Residential (MHR) and from High Density Residential to Neighborhood Commercial (NC) for 2.8 acres located at the corner of Lasselle Street and Krameria Avenue.

Both the MHR and NC zones defer to the City's Municipal Code for development standards. With the adoption of the Specific Plan Amendment, the project would be consistent with the purposes and intent of Title 9.

SECTION 3 EFFECT OF ENACTMENT:

3.1 Except as specifically provided herein, nothing contained in this ordinance shall be deemed to modify or supersede any prior enactment of the City Council, which addresses the same subject addressed herein.

SECTION 4. NOTICE OF ADOPTION:

Within fifteen days after the date of adoption hereof, the City Clerk shall certify to the adoption of this ordinance and cause it to be posted in three public places within the city.

SECTION 5. EFFECTIVE DATE:

This ordinance shall take effect thirty days after the date of its adoption.

APPROVED AND ADOPTED this _____ day of _____, _____.

_____

Mayor

ATTEST:

_____

City Clerk

APPROVED AS TO FORM:

_____

City Attorney

ORDINANCE JURAT

STATE OF CALIFORNIA)

COUNTY OF RIVERSIDE) ss.

CITY OF MORENO VALLEY)

I, Pat Jacquez-Nares, City Clerk of the City of Moreno Valley, California, do hereby certify that Ordinance No. YYYY-___ was duly and regularly adopted by the City Council of the City of Moreno Valley at a regular meeting thereof held on the _____ day of March, 2019, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Council Members, Mayor Pro Tem and Mayor)

_____

CITY CLERK

(SEAL)

Moreno Valley Ranch Specific Plan Amendment No. 10

Executive Summary

The tenth Amendment to the Specific Plan covers approximately 11.64 acres of land designated High Density Residential in the Moreno Valley Ranch Specific Plan (SP No. 193). Specific Plan No. 193 was initially approved for 12,703 residential units encompassing 3,959 acres. The proposed change in Specific Plan land use designation for the 11.64-acre parcel is a negligible change affecting less than one-half percent of the total land area of the Specific Plan.

The acreage that would be modified by this Specific Plan Amendment is part of Planning Area 21 and 21A. More specifically, the project site is bound on the west by Lasselle Street, on the north by Cahuilla Drive, and on the south by Krameria Avenue.

Moreno Valley Ranch Specific Plan Amendment No. 10 changes the land use designation on 2.84 acres from High Density Residential to Neighborhood Commercial and on 8.80 acres from High Density Residential to Medium High Density Residential. These changes would accommodate approximately 21,000 square feet of neighborhood commercial and 112 multi-family dwelling units. There is no impact on the overall acreage of the Specific Plan itself.

The following table summarizes the progression of land use designations over the 11.64-acre Project site from original Specific Plan through Specific Plan Amendment No. 6.

Land Use	Original SP 193	SPA #1	SPA #6	SPA #10
Medium Low Density Residential	11.64 acres (69 dus)	-	-	
Medium High Density Residential				8.80 acres (112 dus)
High Density Residential	-	7.07 acres (130 du)	11.64 (215 dus)	
Commercial	-	4.57 acres (119,442 sq. ft.)	-	2.84 acres (21,000 sq. ft)
Total	11.64 acres	11.64 acres	11.64 acres	11.64 acres

Proposed Action

The Specific Plan Amendment pertains to 11.64 acres and would change the land use designations for parcels located within Planning Areas 21 and 21A of the Moreno Valley Ranch Specific Plan (SP No. 193) (Figure 1).

This Specific Plan Amendment is comprised of the Specific Plan text included herein, and the update of the land use and zoning exhibits of the Specific Plan. No other modifications to the Specific Plan are required to satisfy the State Government Code sections applicable to Specific Plans.

Summary of Key Elements of Specific Plan Amendment 10

The proposed Specific Plan Amendment would make the following changes to the Moreno Valley Ranch Specific Plan No. 193.

- Revert the currently approved land use on Parcel 2, 2.84 acres, at the corner of Lasselle Street and Krameria Avenue, from High Density Residential back to Neighborhood Commercial as designated by Specific Plan Amendment No. 1.
- Change the designation of High Density Residential on Parcel 3, 8.80 acres, to Medium-High Density, to accommodate lower density residential housing more consistent with the surrounding land uses.
- The development standards for the multi-family land use shall be consistent with the R20 zoning standards, except where modified per Specific Plan No. 193.
- The development standards for the Neighborhood Commercial land use shall be consistent with the Neighborhood Commercial zoning standards.
- Parcel 3, 8.80 acres, is the area subject to the proposed General Plan Amendment, Zone Change, Specific Plan Amendment, and Plot Plan, to reduce the density from R20 to R15 for the construction of multi-family residential apartments.

Background

In 1985, the Moreno Valley City Council adopted Specific Plan 193 and EIR 190, creating the Moreno Valley Ranch Specific Plan. Specific Plan 193 was initially approved for 12,703 residential units encompassing 3,959 acres. During the intervening years Specific Plan 193 has been amended 9 times, as summarized below.

Amendment 1 (1987) added the Moreno Valley campus of the Riverside Community College to the Specific Plan 193. The addition of the college campus rearranged land uses in other Planning Areas resulting in a net reduction of 8 dwelling units.

Amendment 2 (1987) incorporated the 27-hole golf course into the Specific Plan. The effect of that change was a reduction of 642 residential units.

Amendment No. 3 (1988) changed land use designations in Planning Areas 18, 19, and 23, resulting in an increase in public parkland by 1.3 acres and a reduction in dwelling units by approximately 54 single family dwellings.

Amendment No. 4 (1990) changed land uses among Planning Areas, most notably resulting in the construction of a 10-acre sports complex in Planning Area 4. The other land uses changes resulted in an increased in the maximum number of residential development units by approximately 137 dwelling units.

Amendment No. 5 (1998) amended the Specific Plan to modify eight planning areas of the Specific Plan generally modifying residential categories that allow for higher density to Medium Low Residential (4-8 dwelling units per acre) and Medium Residential (8-13 dwelling units per acre). The approval decreased the potential build-out within these Planning Areas of the Specific Plan by 1,160 dwelling units.

Amendment No. 6 (2001) modified uses in fourteen Planning Areas on 227 acres, resulting in a 1,221 dwelling unit reduction.

Amendment No. 7 modified the Specific Plan to allow for a maximum of 176 additional dwelling units.

Amendment No. 8 modified the Specific Plan to allow for condominiums, increasing the number of dwelling units by 135.

Amendment No. 9 (2018) amended land use designations, including the conversion of nine holes of the golf course known as the Lakes 9 to passive park and open space. Amendment No. 9 added 439 dwelling units.

The prior nine Specific Plan Amendments reduced the total number of permitted dwelling units within the Moreno Valley Ranch Specific Plan from 12,703 to approximately 10,505[1] dwelling units.

The Project Site is located in Planning Areas 21 and 21A of the Moreno Valley Ranch Specific Plan, which have been previously amended by Specific Plan Amendment Nos. 1 and 6.

[1] Specific Plan Amendment No. 9 concluded the prior nine Specific Plan Amendments result in 10,439 dwelling units permitted within the Specific Plan area. The difference between 10,505 and 10,439 is due to several planning areas that permit a range of densities that could alter the total number of permitted dwelling units.

Specific Plan 193 originally designated Planning Area 21 (50 acres) for Medium Low density residential. Assuming 6 dwelling units per acre, Planning Area 21 could accommodate approximately 300 dwelling units.

In 1987, the City of Moreno Valley approved Amendment No. 1 to Specific Plan 193 to permit the Riverside Community College campus within Planning Area 22 and a portion of Planning Area 21. Amendment No. 1 reconfigured the Planning Area boundaries, leaving Planning Area 21 (15 acres) designated as Commercial and created Planning Area 21A (18 acres) designated as High Density Residential (333 dwelling units).

In 2001, the City of Moreno Valley approved Amendment No. 6 to Specific Plan 193, which amended the land use designations for Planning Areas 21 and 21A. Specific Plan Amendment No. 6 eliminated the Commercial designation and designated both Planning Areas as High Density Residential (32.19 acres).

In 2004, approximately 13.35 acres of Planning Areas 21 and 21A became an elementary school. The Lasselle Elementary School is primarily situated in Planning Area 21A, but a portion crosses into Planning Area 21, leaving the remaining 18.84 acres designed High Density Residential.

In 2012, the City of Moreno Valley approved a subdivision on the remaining 18.84 acres (PA 11-0026) to build three types of residential products for a total of 216 dwelling units. Conditional Use Permit (CUP) PA11-0027 provided for 36 detached single family and 55 cluster residential units. A CUP was required because the housing was less than the minimum density established for the property's land use and zoning designations. Plot Plan PA11-0025 provided for a 125-unit multi-family apartment project with a recreation building on approximately 7.20 acres. A variance was also approved to allow for parking to encroach into street side setbacks given the site's unique constraints.

While the City approved a CUP and Plot Plan, an Amendment to Specific Plan 193 was not approved. Therefore, the underlying zoning for the 18.84 acres remains High Density Residential as established in Specific Plan Amendment No. 6.

As a result of the City's action in 2012, approximately 7.20 acres of the Planning Area is currently being constructed with 125 apartments. The remaining 11.64 acres is subject to Specific Plan Amendment No. 10.

Requirements for a Specific Plan

Based on Section 65451 of the Government Code, it is mandated that a specific plan include the following structure:

A. A Specific Plan shall include a text and diagram which specify the distribution, location, and extent of the uses of land, including open space covered by the plan.

B. The proposed distribution, location, extent and intensity of major components of public and private transportation, sewer, water, drainage, solid waste disposal, energy, and other essential facilities proposed to be located within the area covered by the plan.

C. Standards and criteria by which development will proceed, and standards for the conservation, development, and utilization of natural resources, where applicable.

D. A program of implementation of measures including regulations, programs, public works projects, and financing measures necessary to carry out (A), (B), and (C).

Analysis of Specific Plan Amendment

Specific Plan Amendment No. 10 includes a reversion of 2.84 acres back to Neighborhood Commercial and a reduction in density on the remaining 8.8 acres from High Density Residential to Medium High Density Residential. The proposed land use changes are consistent with the purpose and intent of the land use patterns established in the Specific Plan.

This Specific Plan Amendment would 1) adjust the Specific Plan land use map, as shown in Figure 2 (attached); 2) amend the text to specify the development standards for the multi-family land use shall be consistent with the R-15 zoning standards, except building separations of 15 feet shall be permitted for buildings two-stories or less and buildings with 8 or less units in each building; and 3) Neighborhood Commercial zoning standards shall apply to the Neighborhood Commercial land use designation. These amendments to the Specific Plan are consistent with the purpose and intent of the land use patterns and design guidelines established in Specific Plan 193 and no conflicts would arise.

In evaluating the major components of infrastructure in the Specific Plan, the Specific Plan Amendment will have a negligible effect on infrastructure as the Amendment is within the scope of the Specific Plan as originally adopted. Further, the existing backbone street and utility systems have already been constructed and have sufficient capacity to adequately serve the site. Conditions of approval will be placed on the project to make sure that the project complies with all City requirements.

An Addendum to EIR 190 has been prepared and the Specific Plan Amendment would not cause new or more severe significant impacts. Several mitigation measures and conditions of approval established in EIR 190 and Amendment No. 1 remain applicable to this Specific Plan Amendment. No new mitigation measures are required.

Public Participation and Review Process

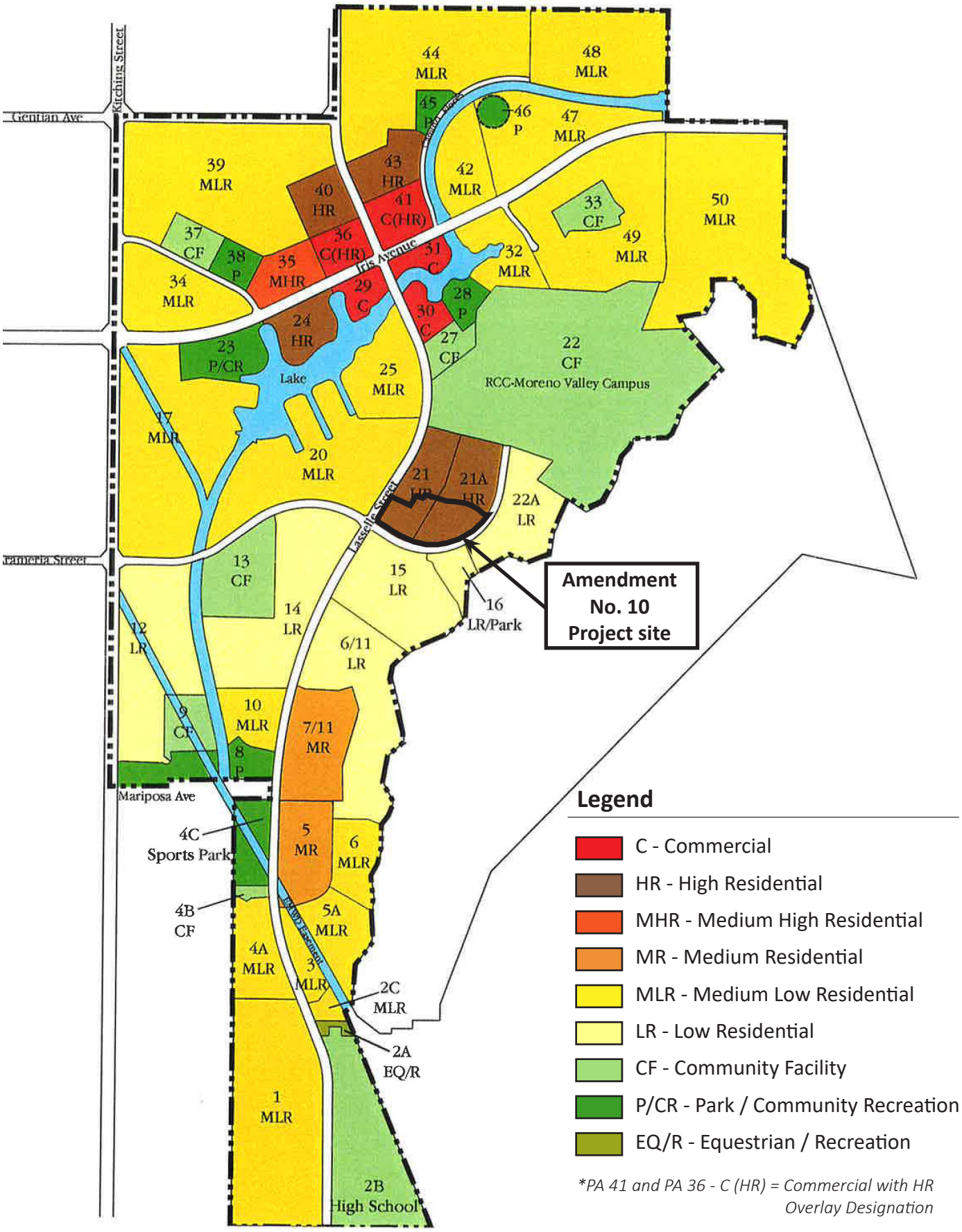
A specific plan is a tool for implementation of the General Plan. Consistent with the recommended specific plan process, public input will be provided through the public hearing process. The Specific Plan Amendment will be reviewed by the Planning Commission, and approval will require City Council review and action.

Specific Plan Objectives

The implementation of the Specific Plan to date has furthered one of the primary purposes of a Specific Plan which is to provide a tool for developing a community "sense of place." The Specific Plan is over 90% developed with only a few remaining sites to complete. The key backbone infrastructure, generous streetscapes, entry monumentation, and architecture have established a "sense of place" for existing development within the Specific Plan.

For Specific Plan Amendment No. 10, any development project on the 11.64 acres will be required to comply with the Specific Plan and the related zoning standards ensuring that this project is of a quality similar to other development within Moreno Valley Ranch. In addition, the measures included within this Specific Plan Amendment, and the project conditions of approval for any development implementing this Amendment, will ensure that the design and quality of development is compatible with surrounding land uses.

As outlined above, Specific Plan Amendment 10 will be consistent with all required elements of a Specific Plan as provided for in Government Code section 65451, and related sections.



Graphic Prepared By:
Carlson SLS
Created: January 10, 2019

N.T.S.

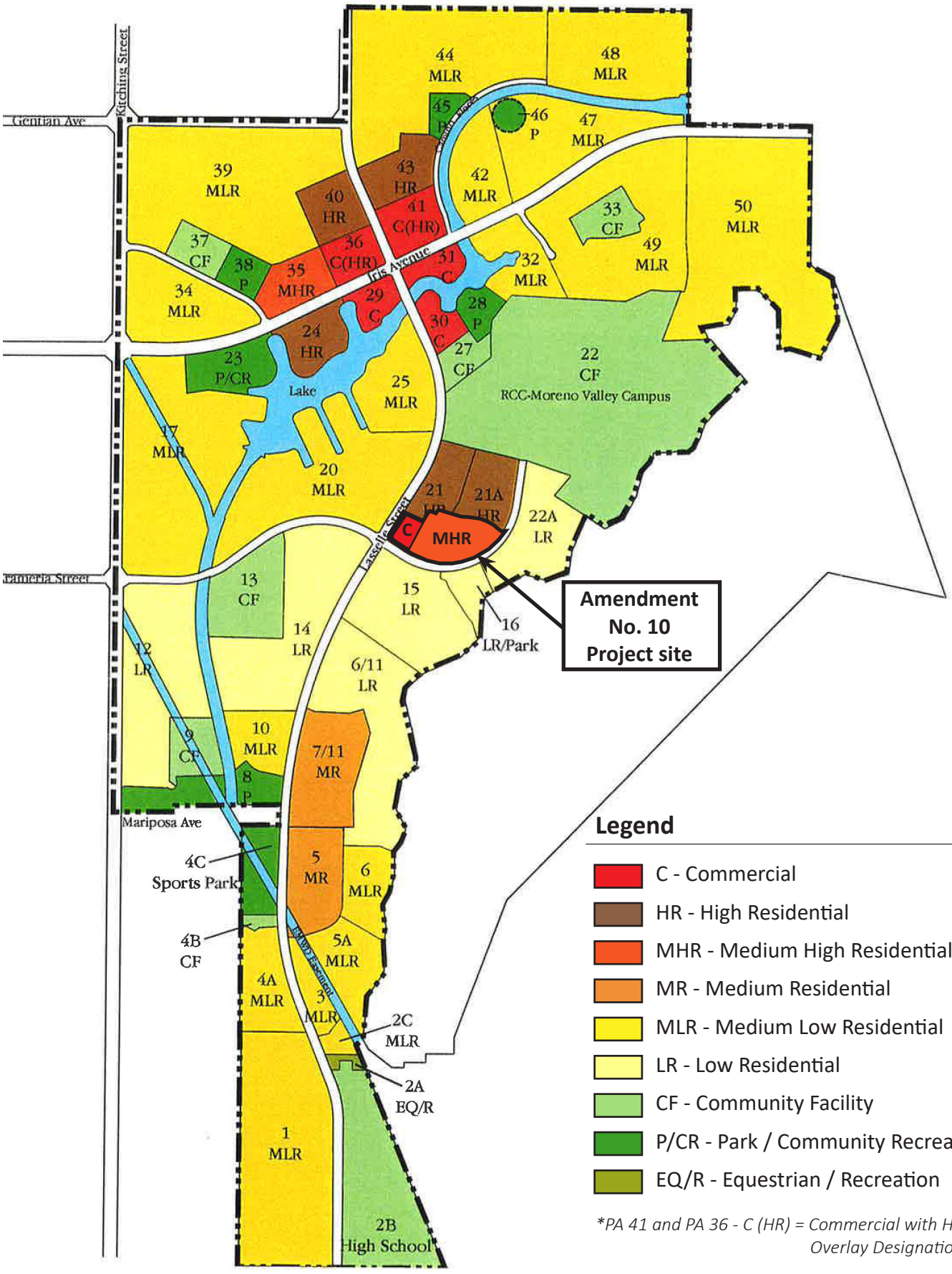
Data Source: Moreno Valley Ranch West Village: Figure II (February 2001)

Moreno Valley Ranch Specific Plan Amendment No. 10

Specific Plan Amendment No. 6

Existing Land Use Plan

FIGURE 1



Graphic Prepared By:
Carlson SLS
Created: January 10, 2019

N.T.S.

Data Source: Moreno Valley Ranch
West Village: Figure II
(February 2001)

Moreno Valley Ranch Specific Plan Amendment No. 10

Specific Plan Amendment No. 10
Revised Land Use Plan

FIGURE 2

ORDINANCE NO. 2019-XX

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, APPROVING ZONE CHANGE APPLICATION NO. PEN18-0121: AN AMENDMENT TO THE OFFICIAL ZONING ATLAS, CHANGING THE ZONING CLASSIFICATION FROM HIGH DENSITY RESIDENTIAL TO MEDIUM DENSITY RESIDENTIAL AND NEIGHBOR COMMERCIAL FOR PROPERTY LOCATED AT THE NORTHEAST CORNER OF KRAMERIA AVENUE AND LASSELLE STREET

The City Council of the City of Moreno Valley does ordain as follows:

SECTION 1 GENERAL:

1.1 The applicant, Continental East Fund III, LLC, has filed application PEN18-0121, requesting an amendment to Page 156 of the Official Zoning Atlas to change the zoning classification for certain property as described in the title of this ordinance and the attached Exhibit A.

1.2 Pursuant to the provisions of the law, a public hearing was held before the City Council on March 5, 2019, for deliberations and decision.

1.3 The matter was fully discussed, and the public and other agencies were given opportunity to present testimony and documentation.

1.4 An Addendum has been prepared for the Project for the purpose of compliance with the California Environmental Quality Act (CEQA). Based on the Addendum including all supporting technical evidence, it was determined that the project impacts are expected to remain less than significant with implementation of project design features and compliance with mitigation measures outlined in the Moreno Valley Ranch Specific Plan Environmental Impact Report, and therefore, certification of an Addendum is an appropriate action for the Project.

SECTION 2 FINDINGS:

2.1 Based upon substantial evidence presented to this City Council during the above-referenced meeting on March 5, 2018, including written and oral staff reports, and the record from the public hearing, this City Council hereby specifically finds as follows:

1. Conformance with General Plan Policies – The proposed amendment is consistent with the General Plan, and its goals, objectives, policies and programs.

FACT: The Continental East Phase II project proposes to modify the previously approved Continental Villages project by subdividing the approximately 19 acre site into three parcels; establishing land use designations for development of Medium High Density Residential and future neighborhood commercial development; and replacing the previously approved detached dwelling units with a 112 unit apartment project.

The project site is located within Planning Area 21 of the Moreno Valley Ranch Specific Plan (SP 193) which as approved on August 13, 1985. The General Plan land use designations for the project site were Commercial and High Density Residential.

In 2001, the City of Moreno Valley approved Amendment No. 6 to Specific Plan 193, which amended the land use designations for Planning Area 21, eliminating the Commercial designation and assigning High Density Residential to the entire site.

The project site has a current General Plan designation of R20. The proposed Zone Change would change the land use for 8.8 acres from High Density Residential to Medium High Density Residential and from High Density Residential to Neighborhood Commercial for 2.8 acres located at the corner of Lasselle Street and Krameria Avenue.

The project site is bounded by Lasselle Street along its western property line and Krameria along its eastern and southern property line. Beyond the contiguous streets, land uses surrounding the project site are primarily single-family residences in the Low and Medium-low Density Residential zones. Moreno Valley Community College is located directly north of Cahuilla Drive. Lasselle Elementary School is located northeast of the Project site and contiguous to the Project site on two sides.

General Plan Policy 2.2.10 states that the primary purpose of areas designated Residential 20 is to provide a range of high density multi-family housing types. Developments within Residential 20 areas shall also provide amenities, such as common open spaces and recreational facilities. The maximum density shall be 20 dwelling units per acre.

Medium High Density Residential is a zoning district with development standards that are consistent with the goals and intent of the Residential 20 land use designation.

General Plan Policy 2.4.1 states that the primary purpose of areas designated Commercial is to provide property for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services.

With approval of the requested Zone Change, the project as designed and conditioned will achieve the objectives of the City of Moreno Valley's General Plan for multiple family and commercial land uses and will promote development of the undeveloped portion of the project site.

2. Health, Safety and Welfare – The proposed amendment will not adversely affect the public health, safety or general welfare.

FACT: The proposed Zone Change is a legislative action and will not result in any direct physical impacts; therefore, the action itself could not be detrimental to the public health, safety or welfare.

The change in land use designations for the project site vacant will allow for development of 112 unit apartment project and future commercial development that is consistent with the General Plan, zoning, and public health safety and welfare.

An Initial Study was for the project for the purpose of compliance with the California Environmental Quality Act (CEQA). Based on the Initial Study, it was determined that the project impacts remain less than significant and certification of an Addendum to a previously approved Negative Declaration and Moreno Valley Ranch Specific Plan Environmental Impact Report is recommended.

There is no evidence that the proposed project will have a significant impact on public health or be materially injurious to surrounding properties of the environment as a whole.

3. Conformance with the Zoning Regulations – The proposed Zone Change is consistent with the purposes and intent of Title 9 of the City of Moreno Valley Municipal Code.

FACT: The proposed Zone Change would change the land use for 8.8 acres from High Density Residential to Medium High Density Residential (MHR) and from High Density Residential to Neighborhood Commercial (NC) for 2.8 acres located at the corner of Lasselle Street and Krameria Avenue.

Both the MHR and NC zones defer to the City's Municipal Code for development standards. With the adoption of the Specific Plan Amendment, the project would be consistent with the purposes and intent of Title 9.

SECTION 3 AMENDMENT OF THE OFFICIAL ZONING ATLAS:

3.1 The City of Moreno Valley Official Zoning Atlas, as adopted by Ordinance No. 359, on April 14, 1992, of the City of Moreno Valley, and as amended thereafter from

time to time by the City Council of the City of Moreno Valley, is further amended by placing in effect the zone or zone classification to Page 156 of the Official Zoning Atlas as shown on the attached map marked “Exhibit A” and included herein by reference and on file in the office of the City Clerk).

SECTION 4 EFFECT OF ENACTMENT:

4.1 Except as specifically provided herein, nothing contained in this ordinance shall be deemed to modify or supersede any prior enactment of the City Council which addresses the same subject addressed herein.

SECTION 5. NOTICE OF ADOPTION:

Within fifteen days after the date of adoption hereof, the City Clerk shall certify to the adoption of this ordinance and cause it to be posted in three public places within the city.

SECTION 6. EFFECTIVE DATE:

This ordinance shall take effect thirty days after the date of its adoption.

APPROVED AND ADOPTED this _____ day of _____, _____.

_____

Mayor

ATTEST:

_____

City Clerk

APPROVED AS TO FORM:

_____

City Attorney

ORDINANCE JURAT

STATE OF CALIFORNIA)

COUNTY OF RIVERSIDE) ss.

CITY OF MORENO VALLEY)

I, Pat Jacquez-Nares, City Clerk of the City of Moreno Valley, California, do hereby certify that Ordinance No. YYYY-___ was duly and regularly adopted by the City Council of the City of Moreno Valley at a regular meeting thereof held on the _____ day of March, 2019, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Council Members, Mayor Pro Tem and Mayor)

_____

CITY CLERK

(SEAL)

ZONE CHANGE

Application No. PEN18-0121
Ordinance No. 2019-XX

N

Exhibit A to Ordinance 2019-XX

CITY COUNCIL RESOLUTION NO. 2019-XX

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY APPROVING TENTATIVE PARCEL MAP 37514 (APPLICATION NO. PEN18-0090) TWO SUBDIVIDE 19 ACRES INTO THREE PARCELS FOR DEVELOPMENT OF MULTIPLE FAMILY APARTMENT PROJECTS AND FOR FUTURE COMMERCIAL DEVELOPMENT ON PROPERTY AT THE NORTHEAST CORNER OF LASSELLE STREET AND KRAMERIA AVENUE

Section 1:

WHEREAS, Continental East Fund III, LLC, has filed an application for the approval of Tentative Parcel Map 37514 (application Pen18-0090), a proposal to subdivide the 19 acres located within Assessor's Parcel Numbers 308-030-052, -053, and -054 into three parcels as described in the title of this Resolution;

WHEREAS, the application has been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan, Moreno Valley Ranch Specific and other applicable regulations; and

WHEREAS, the Planning Commission of the City of Moreno Valley held a public hearing on January 24, 2019 to consider the subject application and all environmental documentation prepared for the project and recommended approval of the project by the City Council; and

WHEREAS**,** the public hearing notice for this project was published in the local newspaper on February 22, 2019. Public notice was sent to all property owners of record within 300 feet of the project site on February 21, 2019. The public hearing notice for this project was also posted on the project site on February 21, 2019;

WHEREAS, on March 5, 2019, the City Council held a public hearing to consider the application; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, pursuant to Government Code Section 66020(d)(1), NOTICE IS HEREBY GIVEN that this project is subject to certain fees, dedications, reservations and other exactions as provided herein.

NOW, THEREFORE, BE IT RESOLVED, it is hereby found, determined and resolved by the City Council of the City of Moreno Valley as follows:

A. This City Council hereby specifically finds that all of the facts set forth above in this Resolution are true and correct.

B. Based upon substantial evidence presented to this City Council during the above-referenced meeting on January 24, 2019, including written and oral staff reports, and the record from the public hearing, this City Council hereby specifically finds as follows:

1. That the proposed map is consistent with applicable general and specific plans and the zoning ordinance;

FACT: The project site has a current General Plan designation of R20. The related Specific Plan Amendment and Zone Change applications would change the land use for 8.8 acres from High Density Residential to Medium High Density Residential and from High Density Residential to Neighborhood Commercial for 2.8 acres located at the corner of Lasselle Street and Krameria Avenue.

General Plan Policy 2.2.10 states that the primary purpose of areas designated Residential 20 is to provide a range of high density multi-family housing types. Developments within Residential 20 areas shall also provide amenities, such as common open spaces and recreational facilities. The maximum density shall be 20 dwelling units per acre.

Medium High Density Residential is a zoning district with development standards that are consistent with the goals and intent of the Residential 20 land use designation.

General Plan Policy 2.4.1 states that the primary purpose of areas designated Commercial is to provide property for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services.

The project as designed and conditioned will achieve the objectives of the City of Moreno Valley's General Plan and the Moreno Valley Ranch Specific Plan. The proposed project is consistent with the General Plan and does not conflict with the goals, objectives, policies, and programs established within the Plan.

2. That the design or improvement of the proposed subdivision is consistent with applicable general and specific plans;

FACT: The land division proposed by Tentative Parcel Map No. 37514 is consistent with the General Plan and Specific Plan land use designations proposed for the site. The design of the subdivision is consistent with the Moreno Valley Ranch Specific Plan and the City's Municipal Code Section 9.14 Land Divisions. The proposed parcel map will subdivide the 19 acres located within Assessor's Parcel Numbers 308-030-052, -053, and -054 into three parcels for

development of two apartment projects and a future commercial center.

The subdivision as designed and conditioned is consistent with existing goals, objectives, policies and programs of the General Plan.

3. That the site is physically suitable for the type of development;

FACT: The project site is located at the northeast corner of Lasselle Street and Krameria Avenue. The project site is irregular in shape and is comprised of topography that varies from level to sloping. The site has been massed graded several times for work related to prior approvals on the site. There are no existing trees, streambeds, drainage features or riparian vegetation or soils on the project site. There are no fault zones or soils prone to liquefaction within the project site. Overall, the project site is well suited for the proposed subdivision.

4. That the site of the proposed land division is physically suitable for the proposed density of the development;

FACT: The project site is irregular in shape and is comprised of topography that varies from level to rolling to sloping. The parcel map is designed in accordance with the provisions of the Moreno Valley Ranch Specific plan and the City's Municipal Code Section 9.14 Land Divisions. The project site is physically suitable for the proposed density of the development.

5. That the design of the subdivision or the proposed improvements are not likely to cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat;

FACT: The project site is bounded by Lasselle Street along its western property line and Krameria along its eastern and southern property line. Beyond the contiguous streets, land uses surrounding the project site are primarily single-family residences in the Low and Medium-low Density Residential zones. Moreno Valley Community College is located directly north of Cahuilla Drive. Lasselle Elementary School is located northeast of the Project site and contiguous to the project site on two sides. There are no existing trees, streambeds, drainage features or riparian vegetation on the project site. Based upon information from the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Full Report as provided by the Riverside County Transportation and Land Management Agency, there are no identified candidate, sensitive or special status species associated with the project site. Based on an Initial Study prepared for the project, it was determined that the project impacts remain less than

significant and certification of an Addendum to a previously approved Negative Declaration and Moreno Valley Ranch Specific Plan Environmental Impact Report is recommended. Therefore, the parcel map will not cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat

6. That the design of the subdivision or type of improvements is not likely to cause serious public health problems;

   FACT: As conditioned, the proposed parcel map would not cause serious public health problems. The Eastern Municipal Water District will provide water and sewer services to the project site. There are no known hazardous conditions associated with the property, the design of the land division or the type of improvements.

   The proposed parcel map as designed and conditioned will not result in unacceptable levels of protection from natural and man-made hazards to life, health, and property and is therefore consistent with General Goal 9.6.1. The project site is located less than one half mile from Fire Station #91, which is consistent with General Plan Goal 9.6.2 which requires emergency services that are adequate to meet minor emergency and major catastrophic situations.

   The proposed parcel map will not result in a development that would be inconsistent with General Plan Objective 6.1 to minimize the potential for loss of life and protect residents, workers, and visitors to the City from physical injury and property damage due to seismic ground shaking and secondary effects or General Plan Objective 6.2 to minimize the potential for loss of life and protect residents, workers, and visitors to the City from physical injury and property damage, and to minimize nuisances due to flooding.

   The parcel map has been designed consistently with the Moreno Valley Ranch Specific Plan, the City's Municipal Code Section 9.14 Land Divisions and meets all City requirements related to subdividing a property.

7. That the design of the subdivision or the type of improvements will not conflict with easements, acquired by the public at large, for access through or use of, property within the proposed subdivision;

   FACT: The tentative tract map has been designed to accommodate and not conflict with existing easements on the subject site including utility and storm drain easements.

8. That the proposed land division and the associated design and improvements are consistent with applicable ordinances of the city.

FACT: The land division proposed by Tentative Parcel Map No. 37514 is consistent with the City's Municipal Code Section 9.14 Land Divisions and the Moreno Valley Ranch Specific Plan. The subdivision as designed and conditioned is consistent with applicable ordinances of the city.

9. That the proposed land division is not subject the Williamson Act pursuant to the California Land Conservation Act of 1965.

FACT: The project site has been disturbed in the past through weed abatement and is not currently in agricultural use, or under Williamson Act control. There are no existing surrounding agricultural use, or sites under Williamson Act contract within the City limits.

Section 2:

FEES, DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

1. FEES

Impact, mitigation and other fees are due and payable under currently applicable ordinances and resolutions. These fees may include but are not limited to: Development Impact Fee, Transportation Uniform Mitigation Fee (TUMF), Multi-species Habitat Conservation Plan (MSHCP) Mitigation Fee, Stephens Kangaroo Habitat Conservation fee, Underground Utilities in lieu Fee, Area Drainage Plan fee, Bridge and Thoroughfare Mitigation fee (Future) and Traffic Signal Mitigation fee. The final amount of fees payable is dependent upon information provided by the applicant and will be determined at the time the fees become due and payable.

Unless otherwise provided for by this Resolution, all impact fees shall be calculated and collected at the time and in the manner provided in Chapter 3.32 of the City of Moreno Valley Municipal Code or as so provided in the applicable ordinances and resolutions. The City expressly reserves the right to amend the fees and the fee calculations consistent with applicable law.

2. DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

The adopted Conditions of Approval for PEN18-0090, incorporated herein by reference, may include dedications, reservations, and exactions pursuant to Government Code Section 66020 (d) (1).

3. CITY RIGHT TO MODIFY/ADJUST; PROTEST LIMITATIONS

The City expressly reserves the right to establish, modify or adjust any fee, dedication, reservation or other exaction to the extent permitted and as authorized by law.

Pursuant to Government Code Section 66020(d)(1), NOTICE IS FURTHER GIVEN that the 90 day period to protest the imposition of any impact fee, dedication, reservation, or other exaction described in this Resolution begins on the effective date of this Resolution and any such protest must be in a manner that complies with Section 66020(a) and failure to timely follow this procedure will bar any subsequent legal action to attack, review, set aside, void or annul imposition.

The right to protest the fees, dedications, reservations, or other exactions does not apply to planning, zoning, grading, or other similar application processing fees or service fees in connection with this project and it does not apply to any fees, dedication, reservations, or other exactions of which a notice has been given similar to this, nor does it revive challenges to any fees for which the applicable statute of limitations has previously expired.

Section 3:

BE IT FURTHER RESOLVED that the City Council APPROVES Resolution No. 2019-XX, and:

1. APPROVES Tentative Parcel Map 37514 (Application No. PEN18-0090), based on the findings contained in this resolution and subject to the conditions of approval included as Exhibit A.

APPROVED this 5th day of March, 2019.

_____
Mayor of the City of Moreno Valley

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

_____
City Attorney

RESOLUTION JURAT

STATE OF CALIFORNIA)

COUNTY OF RIVERSIDE) ss.

CITY OF MORENO VALLEY)

I, Pat Jacquez-Nares, City Clerk of the City of Moreno Valley, California, do hereby certify that Resolution No. 2019-XX was duly and regularly adopted by the City Council of the City of Moreno Valley at a regular meeting thereof held on the 5th day of March, 2019 by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Council Members, Mayor Pro Tem and Mayor)

_____

CITY CLERK

(SEAL)

CITY OF MORENO VALLEY
CONDITIONS OF APPROVAL
Tentative Parcel Map (PEN18-0090)

EFFECTIVE DATE:
EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENT

Planning Division

1. Tentative Parcel Map 37514 (PEN18-0090) subdivides the approximately 19-acre project area into three parcels:

   -Parcel 1 - approximately 7.2 acres; and
   -Parcel 2 - approximately 2.84 acres; and
   -Parcel 3 - approximately 8.80 acres.

2. A change or modification to the approved tentative parcel map may require a separate approval. Prior to any change or modification, the property owner shall contact the City of Moreno Valley Community Development Department to determine if a separate approval is required.

Special Conditions

3. All site plans, grading plans, landscape and irrigation plans, and street improvement plans shall be coordinated for consistency with this approval.

4. This approval shall comply with all applicable requirements of the City of Moreno Valley Municipal Code and the Moreno Valley Ranch Specific Plan (SP 193).

5. The site shall be developed in accordance with the approved tentative map on file in the Community Development Department -Planning Division, the Municipal Code regulations, General Plan, and the conditions contained herein. (MC 9.14.020)

6. Prior to building final, the developer/owner or developer's/owner's successor-in-interest shall pay all applicable impact fees, including but not limited to Transportation Uniform Mitigation fees (TUMF), and the City's adopted Development Impact Fees. (Ord)

7. If potential historic, archaeological, Native American cultural resources, or paleontological resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified

person (meeting the Secretary of the Interior's standards (36CFR61)) shall be consulted by the applicant to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, prehistoric, or paleontological resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all affected Native American Tribes before any further work commences in the affected area.

If human remains are discovered during grading and other construction excavation, no further disturbance shall occur until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 5-days of the published finding to be given a reasonable opportunity to identify the "most likely descendant." The "most likely descendant" shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

8. All landscaped areas in perpetuity shall be maintained in a healthy and thriving condition, free from weeds, trash and debris. (MC 9.02.030)

9. Prior to issuance of building permit issuance, landscape plans (trees, shrubs and groundcover) for basins maintained by an HOA or other private entity shall be submitted to and approved by the Planning Division for the sides and/or slopes. A hydroseed mix w/irrigation is acceptable for the bottom of all the basin areas. All detention basins shall include trees, shrubs and groundcover up to the concreted portion of the basin. A solid decorative (e.g. split face, color variation, pattern variation, or as approved by the Planning Official) wall with pilasters, tubular steel fence with pilasters or other fence or wall approved by the Planning Official is required to secure all water quality and detention basins more than 18 inches in depth.

10. This tentative map shall expire three years after the approval date of this tentative map unless extended as provided by the City of Moreno Valley Municipal Code; otherwise it shall become null and void and of no effect whatsoever in the event the applicant or any successor in interest fails to properly file a final map before the date of expiration. (MC 9.02.230, 9.14.050, 080)

11. Prior to the issuance of grading permits, mitigation measures contained in the Mitigation Monitoring Program approved with this project shall be implemented as provided therein.

12. Prior to any site disturbance and/or grading plan submittal, and or final map recordation, a mitigation monitoring fee, as provided by City ordinance, shall be paid by the applicant/owner. No City permit or approval shall be issued until such fee is paid. (CEQA)

13. Prior to issuance of a building permit, the developer/property owner or developer's successor-in-interest shall pay all applicable impact fees due at permit issuance, including but not limited to Multi-species Habitat Conservation Plan (MSHCP) mitigation fees. (Ord.)

14. Within thirty (30) days prior to any grading or other land disturbance, a pre-construction survey for Burrowing Owls shall be conducted pursuant to the established guidelines of Multiple Species Habitat Conservation Plan. The pre-construction survey shall be submitted to the Planning Division prior to any disturbance of the site and/or grading permit issuance.

15. Prior to building final, all required and proposed fences and walls shall be constructed/installed per the approved plans on file in the Planning Division. (MC 9.080.070)

16. Prior to the issuance of grading permits, a temporary project identification sign shall be erected on the site in a secure and visible manner. The sign shall be conspicuously posted at the site and remain in place until occupancy of the project. The sign shall include the following: The name and address of the development and the developer's name and address to include a 24-hour emergency phone number.

17. Prior to approval of any grading permits, plans for any security gate system shall be submitted to and approved by to the Planning Division.

18. Prior to issuance of grading permits, the developer shall pay the applicable Stephen's' Kangaroo Rat (SKR) Habitat Conservation Plan mitigation fee.

19. Prior to recordation of the final subdivision map, the following documents shall be submitted to and approved by the Planning Division which shall demonstrate that the project will be developed and maintained in accordance with the intent and purpose of the approval:

    a. The document to convey title
    b. Deed restrictions, easements, or Covenants, Conditions and Restrictions to be recorded

    The approved documents shall be recorded at the same time that the subdivision map is recorded. The documents shall contain provisions for reciprocal access to proposed parcels, general maintenance of the site to include common open space, water quality basins, lighting, landscaping and common area use items such as

general building maintenance of apartments, tot lot/public seating areas and other recreation facilities or buildings. The approved documents shall also contain a provision, which provides that they may not be terminated and/or substantially amended without the consent of the City and the developer's successor-in-interest. (MC 9.14.090)

In addition, the following deed restrictions and disclosures shall be included within the document and grant deed of the properties:

a. The developer and homeowners association shall promote the use of native plants and trees and drought tolerant species.

b. All lots designated for open space and or detention basins, shall be included as an easement to, and maintained by a Homeowners Association (HOA) or other private maintenance entity. All reverse frontage landscape areas shall also be maintained by the onsite HOA. Language to this effect shall be included and reviewed within the required Covenant Conditions and Restrictions (CC&Rs) prior to the approval of the final map.

c. Maintenance of any and all common facilities.

20. All undeveloped portions of the site in perpetuity shall be maintained in a manner that provides for the control of weeds, erosion and dust. (MC 9.02.030)

21. Prior to the issuance of building permits, the developer shall provide documentation that contact was made to the U.S. Postal Service to determine the appropriate type and location of mailboxes.

COMMUNITY DEVELOPMENT DEPARTMENT

Building Division

22. The proposed residential project (3 or more dwelling units) shall comply with the latest Federal Law, Americans with Disabilities Act, and State Law, California Code of Regulations, Title 24, Chapter 11A for accessibility standards for the disabled including access to the site, exits, kitchens, bathrooms, common spaces, pools/spas, etc.

23. Prior to submittal, all new development, including residential second units, are required to obtain a valid property address prior to permit application. Addresses can be obtained by contacting the Building Safety Division at 951.413.3350.

24. Contact the Building Safety Division for permit application submittal requirements.

25. Any construction within the city shall only be completed between the hour of seven a.m. to seven p.m. Monday through Friday, excluding holidays and from eight a.m. to

four p.m. on Saturday, unless written approval is obtained from the city building official or city engineer (Municipal Code Section 8.14.040.E).

26. Building plans submitted shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.

27. The proposed development is subject to the payment of applicable processing fees as required by the City's current Fee Ordinance at the time a building permit application is submitted or prior to the issuance of permits as determined by the City.

28. The proposed project will be subject to approval by the Eastern Municipal Water District and all applicable fees and charges shall be paid prior to permit issuance. Contact the water district at 951.928.3777 for specific details.

29. All new structures shall be designed in conformance to the latest design standards adopted by the State of California in the California Building Code, (CBC) Part 2, Title 24, California Code of Regulations including requirements for allowable area, occupancy separations, fire suppression systems, accessibility, etc. The current code edition is the 2016 CBC.

30. The proposed project's occupancy shall be classified by the Building Official and must comply with exiting, occupancy separation(s) and minimum plumbing fixture requirements. Minimum plumbing fixtures shall be provided per the 2016 California Plumbing Code, Table 422.1. The occupant load and occupancy classification shall be determined in accordance with the California Building Code.

31. The proposed residential project shall comply with The 2016 California Green Building Standards Code, Section 4.106.4, mandatory requirements for Electric Vehicle Charging Station (EVCS).

32. Onsite Water and Sewer Plans: A separate construction set of onsite water and sewer plans must be submitted to Building & Safety Division for design approvals and permit issuance. Sewer and Water design must comply with the 2016 California Plumbing Code.

33. Prior to permit issuance, every applicant shall submit a properly completed Waste Management Plan (WMP), as a portion of the building or demolition permit process. (MC 8.80.030)

PUBLIC WORKS DEPARTMENT

Land Development

34. The developer shall comply with all applicable City ordinances and resolutions including the City's Municipal Code (MC) and if subdividing land, the Government Code (GC) of the State of California, specifically Sections 66410 through 66499.58, said sections also referred to as the Subdivision Map Act (SMA). [MC 9.14.010]

35. The final approved conditions of approval (COAs) and any applicable Mitigation Measures issued by the Planning Division shall be photographically or electronically placed on mylar sheets and included in the Grading and Street Improvement plans.

36. The developer shall monitor, supervise and control all construction related activities, so as to prevent these activities from causing a public nuisance, including but not limited to, insuring strict adherence to the following:
(a) Removal of dirt, debris, or other construction material deposited on any public street no later than the end of each working day.
(b) Observance of working hours as stipulated on permits issued by the Land Development Division.
(c) The construction site shall accommodate the parking of all motor vehicles used by persons working at or providing deliveries to the site.
(d) All dust control measures per South Coast Air Quality Management District (SCAQMD) requirements during the grading operations.
Violation of any condition, restriction or prohibition set forth in these conditions shall subject the owner, applicant, developer or contractor(s) to remedy as noted in City Municipal Code 8.14.090. In addition, the City Engineer or Building Official may suspend all construction related activities for violation of any condition, restriction or prohibition set forth in these conditions until such time as it has been determined that all operations and activities are in conformance with these conditions.

37. In the event right-of-way or offsite easements are required to construct offsite improvements necessary for the orderly development of the surrounding area to meet the public health and safety needs, the developer shall make a good faith effort to acquire the needed right-of-way in accordance with the Land Development Division's administrative policy. If unsuccessful, the Developer shall enter into an agreement with the City to acquire the necessary right-of-way or offsite easements and complete the improvements at such time the City acquires the right-of-way or offsite easements which will permit the improvements to be made. The developer shall be responsible for all costs associated with the right-of-way or easement acquisition. [GC 66462.5]

38. If improvements associated with this project are not initiated within two (2) years of the date of approval of the Public Improvement Agreement (PIA), the City Engineer may require that the engineer's estimate for improvements associated with the project be modified to reflect current City construction costs in effect at the time of request for an extension of time for the PIA or issuance of a permit. [MC 9.14.210(B)(C)]

39. All Conditions of Approval from previously approved PA11-0026 shall continue to apply unless otherwise indicated herein.

40. The developer shall protect downstream properties from damage caused by alteration of drainage patterns (i.e. concentration or diversion of flow, etc). Protection shall be provided by constructing adequate drainage facilities, including, but not limited to, modifying existing facilities or by securing a drainage easement. [MC 9.14.110]

41. Public drainage easements, when required, shall be a minimum of 25 feet wide and shall be shown on the map and plan, and noted as follows: "Drainage Easement – no structures, obstructions, or encroachments by land fills are allowed." In addition, the grade within the easement area shall not exceed a 3:1 (H:V) slope, unless approved by the City Engineer.

42. The maintenance responsibility of the proposed storm drain line shall be clearly identified. Storm drain lines within private property will be privately maintained and those within public streets will be publicly maintained.

43. The proposed on-site private storm drain system will connect to the existing Riverside County Flood Control storm drain in Krameria Avenue. A storm drain manhole shall be placed at the right-of-way line to mark the beginning of the publicly maintained portion of this storm drain.

44. For single family residential subdivisions, all lots shall drain toward the street unless otherwise approved by the City Engineer. Residential lot drainage to the street shall be by side yard swales, and must be directed to a driveway or drainage devices located outside the right-of-way in accordance with City Standard MVSI-154-0. No cross-lot or over the sidewalk drainage shall be allowed.

45. This project shall submit civil engineering design plans, reports and/or documents (prepared by a registered/licensed civil engineer) for review and approval by the City Engineer per the current submittal requirements, prior to the indicated threshold or as required by the City Engineer. The submittal consists of, but is not limited to, the following:

    a. Parcel Map recordation prior to building permit issuance;

    b. Rough grading w/ erosion control plan prior to grading permit issuance;

    c. Precise grading w/ erosion control plan prior to building permit issuance;

    d. Public improvement plan (e.g., street/storm drain w/ striping, RCFC storm drain, sewer/water, etc.) prior to map approval or encroachment permit issuance;

    e. Final drainage study prior to grading plan approval;

    f. Final WQMP prior to grading plan approval;

    g. Legal documents (e.g., easement(s), dedication(s), lot line adjustment, vacation, etc.) prior to Occupancy release;

h. As-Built revision for all plans prior to Occupancy release.

46. Water quality best management practices (BMPs) designed to meet Water Quality Management Plan (WQMP) requirements for single-family residential development shall not be used as a construction BMP. Water quality BMPs shall be maintained for the entire duration of the project construction and be used to treat runoff from those developed portions of the project. Water quality BMPs shall be protected from upstream construction related runoff by having proper best management practices in place and maintained. Water quality BMPs shall be graded per the approved design plans and once landscaping and irrigation has been installed, it and its maintenance shall be turned over to an established Homeowner's Association (HOA). The Homeowner's Association shall enter into an agreement with the City for basin maintenance.

Prior to Grading Plan Approval

47. Resolution of all drainage issues shall be as approved by the City Engineer.

48. A final detailed drainage study (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer. The study shall include, but not be limited to: existing and proposed hydrologic conditions as well as hydraulic calculations for all drainage control devices and storm drain lines. The study shall analyze 1, 3, 6 and 24-hour duration events for the 2, 5, 10 and 100-year storm events [MC 9.14.110(A.1)]. A digital (pdf) copy of the approved drainage study shall be submitted to the Land Development Division.

49. A final project-specific Water Quality Management Plan (WQMP) shall be submitted for review and approved by the City Engineer, which:

a. Addresses Site Design Best Management Practices (BMPs) such as minimizing impervious areas, maximizing permeability, minimizes directly connected impervious areas to the City's street and storm drain systems, and conserves natural areas;

b. Incorporates Source Control BMPs and provides a detailed description of their implementation;

c. Describes the long-term operation and maintenance requirements for BMPs requiring maintenance; and

d. Describes the mechanism for funding the long-term operation and maintenance of the BMPs.

A copy of the final WQMP template can be obtained on the City's Website or by contacting the Land Development Division. A digital (pdf) copy of the approved final project-specific Water Quality Management Plan (WQMP) shall be submitted to the Land Development Division.

50. The developer shall ensure compliance with the City Grading ordinance, these

Conditions of Approval and the following criteria:

a. The project street and lot grading shall be designed in a manner that perpetuates the existing natural drainage patterns with respect to tributary drainage area and outlet points. Unless otherwise approved by the City Engineer, lot lines shall be located at the top of slopes.

b. Any grading that creates cut or fill slopes adjacent to the street shall provide erosion control, sight distance control, and slope easements as approved by the City Engineer.

c. All improvement plans are substantially complete and appropriate clearance letters are provided to the City.

d. A soils/geotechnical report (addressing the soil's stability and geological conditions of the site) shall be submitted to the Land Development Division for review. A digital (pdf) copy of the soils/geotechnical report shall be submitted to the Land Development Division.

51. Grading plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

52. The developer shall select Low Impact Development (LID) Best Management Practices (BMPs) designed per the latest version of the Water Quality Management Plan (WQMP) - a guidance document for the Santa Ana region of Riverside County.

53. The developer shall submit recorded slope easements from adjacent property owners in all areas where grading resulting in slopes is proposed to take place outside of the project boundaries. For all other offsite grading, written permission from adjacent property owners shall be submitted.

54. The developer shall pay all remaining plan check fees.

55. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared in conformance with the State's current Construction Activities Storm Water General Permit. A copy of the current SWPPP shall be kept at the project site and be available for review upon request.

56. Any proposed trash enclosure(s) shall be dual bin (1 for trash and 1 for recycables) [MC 9.03.040 (G)]. The enclosure shall have a solid roof and appropriate drainage collection for water quality purposes. The architecture shall be approved by the Planning Division and any structural approvals shall be made by the Building & Safety Division.

57. For projects that will result in discharges of storm water associated with construction with a soil disturbance of one or more acres of land, the developer shall submit a Notice of Intent (NOI) and obtain a Waste Discharger's Identification number (WDID#) from the State Water Quality Control Board (SWQCB) which shall be

noted on the grading plans.

58. Landscape & Irrigation plans (prepared by a registered/licensed civil engineer) for water quality BMPs shall be submitted for review and approved by the City Engineer per the current submittal requirements, if applicable.

Prior to Grading Permit

59. A receipt showing payment of the Area Drainage Plan (ADP) fee to Riverside County Flood Control and Water Conservation District shall be submitted. [MC 9.14.100(O)]

60. If the developer chooses to construct the project in phases, a Construction Phasing Plan for the construction of on-site public or private improvements shall be submitted for review and approved by the City Engineer.

61. The developer may be required to pay current Development Impact Fee (DIF) fees adopted by the City Council, if said fees have not already been paid. [Ord. 695 § 1.1 (part), 2005] [MC 3.38.030, 040, 050]

62. A digital (pdf) copy of all approved grading plans shall be submitted to the Land Development Division.

63. Security, in the form of a cash deposit (preferable), or letter of credit shall be submitted as a guarantee of the implementation and maintenance of erosion control measures. At least twenty-five (25) percent of the required security shall be in the form of a cash deposit with the City. [MC 8.21.160(H)]

64. Security, in the form of a cash deposit (preferable), or letter of credit shall be submitted as a guarantee of the completion of the grading operations for the project. [MC 8.21.070]

65. The developer shall pay all applicable inspection fees.

66. The developer may be required to pay current Transportation Uniform Mitigation Fee (TUMF) fees adopted by the City Council, if said fees have not already been paid. [Ord. 835 § 2.1, 2012] [MC 3.44.060]

Prior to Map Approval

67. If the project involves the subdivision of land, maps may be developed in phases with the approval of the City Engineer. Financial security shall be provided for all public improvements associated with each phase of the map. The boundaries of any multiple map increment shall be subject to the approval of the City Engineer. If

the project does not involve the subdivision of land and it is necessary to dedicate right-of-way/easements, the developer shall make the appropriate offer of dedication by separate instrument. In either case, the City Engineer may require the dedication and construction of necessary utility, street or other improvements beyond the project boundary, if the improvements are needed for circulation, parking, access, or for the welfare or safety of the public. This approval must be obtained prior to the Developer submitting a Phasing Plan to the California Bureau of Real Estate. [MC 9.14.080(B)(C), GC 66412 & 66462.5]

68. Maps (prepared by a registered civil engineer and/or licensed surveyor) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

69. All street dedications shall be free of all encumbrances, irrevocably offered to the public and shall continue in force until the City accepts or abandons such offers, unless otherwise approved by the City Engineer.

Prior to Improvement Plan Approval

70. The developer is required to bring any existing access ramps adjacent to and fronting the project to current ADA (Americans with Disabilities Act) requirements. However, when work is required in an intersection that involves or impacts existing access ramps, all access ramps in that intersection shall be retrofitted to comply with current ADA requirements, unless otherwise approved by the City Engineer.

71. The developer shall submit clearances from all applicable agencies, and pay all applicable plan check fees.

72. The street improvement plans shall comply with current City policies, plans and applicable City standards (i.e. MVSI-160 series, etc.) throughout this project.

73. The plans shall indicate any restrictions on trench repair pavement cuts to reflect the City's moratorium on disturbing newly-constructed pavement less than three (3) years old and recently slurry sealed streets less than one (1) year old. Pavement cuts for trench repairs may be allowed for emergency repairs or as specifically approved by the City Engineer.

74. All dry and wet utilities shall be shown on the plans and any crossings shall be potholed to determine actual location and elevation. Any conflicts shall be identified and addressed on the plans. The pothole survey data shall be submitted to Land Development with the public improvement plans for reference purposes only. The developer is responsible to coordinate with all affected utility companies and bear all costs of any utility relocation.

Prior to Building Permit

75. An engineered-fill certification, rough grade certification and compaction report shall be submitted for review and approved by the City Engineer. A digital (pdf) copy of the approved compaction report shall be submitted to the Land Development Division. All pads shall meet pad elevations per approved grading plans as noted by the setting of "blue-top" markers installed by a registered land surveyor or licensed civil engineer.

76. For all subdivision projects, the map shall be recorded. [MC 9.14.190]

77. For Commercial/Industrial projects, the owner may have to secure coverage under the State's General Industrial Activities Storm Water Permit as issued by the State Water Resources Control Board.

78. For non-subdivision projects, all street dedications shall be free of encumbrances, irrevocably offered to the public and shall continue in force until the City accepts or abandons such offers, unless otherwise approved by the City Engineer.

79. A walk through with a Land Development Inspector shall be scheduled to inspect existing improvements within public right of way along project frontage. Any missing, damaged or substandard improvements including handicap access ramps that do not meet current City standards shall be required to be installed, replaced and/or repaired. The applicant shall post security to cover the cost of the repairs and complete the repairs within the time allowed in the public improvement agreement used to secure the improvements.

80. Certification to the line, grade, flow test and system invert elevations for the water quality control BMPs shall be submitted for review and approved by the City Engineer.

Prior to Occupancy

81. All outstanding fees shall be paid.

82. All required as-built plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

83. The final/precise grade certification shall be submitted for review and approved by the City Engineer.

84. For commercial, industrial and multi-family projects, in compliance with Proposition 218, the developer shall agree to approve the City of Moreno Valley NPDES

Regulatory Rate Schedule that is in place at the time of certificate of occupancy issuance. Under the current permit for storm water activities required as part of the National Pollutant Discharge Elimination System (NPDES) as mandated by the Federal Clean Water Act, this project is subject to the following requirements:

a. Select one of the following options to meet the financial responsibility to provide storm water utilities services for the required continuous operation, maintenance, monitoring system evaluations and enhancements, remediation and/or replacement, all in accordance with Resolution No. 2002-46.

i. Participate in the mail ballot proceeding in compliance with Proposition 218, for the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule and pay all associated costs with the ballot process; or

ii. Establish an endowment to cover future City costs as specified in the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule.

b. Notify the Special Districts Division of the intent to request building permits 90 days prior to their issuance and the financial option selected. The financial option selected shall be in place prior to the issuance of certificate of occupancy. [California Government Code & Municipal Code]

85. The developer shall complete all public improvements in conformance with current City standards, except as noted in the Special Conditions, including but not limited to the following:

a. Street improvements including, but not limited to: pavement, base, curb and/or gutter, cross gutters, spandrel, sidewalks, drive approaches, pedestrian ramps, street lights, signing, striping, under sidewalk drains, landscaping and irrigation, medians, pavement tapers/transitions and traffic control devices as appropriate.

b. Storm drain facilities including, but not limited to: storm drain pipe, storm drain laterals, open channels, catch basins and local depressions.

c. City-owned utilities.

d. Sewer and water systems including, but not limited to: sanitary sewer, potable water and recycled water.

e. Under grounding of all existing and proposed utilities adjacent to and on-site. [MC 9.14.130]

f. Relocation of overhead electrical utility lines including, but not limited to: electrical, cable and telephone.

86. For residential subdivisions, punch list work for improvements and capping of streets in that phase shall be completed and approved for acceptance by the City Engineer, prior to the following thresholds:

a. Acceptance into the City's maintain system.

87. For commercial, industrial and multi-family projects, a “Stormwater Treatment

Device and Control Measure Access and Maintenance Covenant" shall be recorded to provide public notice of the maintenance requirements to be implemented per the approved final project-specific WQMP. A boilerplate copy of the "Stormwater Treatment Device and Control Measure Access and Maintenance Covenant" can be obtained by contacting the Land Development Division.

88. The applicant shall ensure the following, pursuant to Section XII. I. of the 2010 NPDES Permit:

a. Field verification that structural Site Design, Source Control and Treatment Control BMPs are designed, constructed and functional in accordance with the approved Final Water Quality Management Plan (WQMP).

b. Certification of best management practices (BMPs) from a state licensed civil engineer. An original WQMP BMP Certification shall be submitted for review and approved by the City Engineer.

89. The Developer shall comply with the following water quality related items:

a. Notify the Land Development Division prior to construction and installation of all structural BMPs so that an inspection can be performed.

b. Demonstrate that all structural BMPs described in the approved final project-specific WQMP have been constructed and installed in conformance with the approved plans and specifications;

c. Demonstrate that Developer is prepared to implement all non-structural BMPs described in the approved final project-specific WQMP; and

d. Demonstrate that an adequate number of copies of the approved final project-specific WQMP are available for future owners/occupants.

e. Clean and repair the water quality BMP's, including re-grading to approved civil drawing if necessary.

f. Obtain approval and complete installation of the irrigation and landscaping.

Special Conditions

90. Prior to approval of any grading plan, the additional right-of-way required at project entrances shall be shown on the grading plans and shall be consistent with that shown on the final map.

91. Prior to approval of any grading plan, proposed onsite private street grades shall be designed at 1%. Special approval is required from the City Engineer to construct at the absolute minimum street grade of 0.67%. Clustered unit parking common areas shall also be designed at 1% minimum.

92. Prior to approval of any grading plan, the plans shall clearly show that any slope near the public right-of-way has a minimum set-back area at 2% maximum of 2 feet before the start of the top of toe of slope.

93. Prior to rough grading plan approval, the grading plan shall clearly demonstrate that drainage is properly collected and conveyed. The plan shall show all necessary on-site drainage improvements to properly collect and convey drainage entering, within, and leaving the project. This may include, but not be limited to on-site and perimeter drainage improvements to properly convey drainage within and along the project site. A storm drain pipe within a private storm drain easement used to convey the runoff from the adjacent elementary school to Krameria Avenue shall be shown on all grading plans.

94. Prior to precise grading plan approval for the multi-family residential portion of the project, the plan shall show any proposed trash enclosure as dual bin; one bin for trash and one bin for recyclables. The trash enclosure shall be per City Standard Plan MVGF-660A-0.

95. Prior to final map approval, the developer shall submit for review and approval either a reciprocal access agreement for the shared use of the proposed driveway on Lasselle Street between the multi-family parcel and the clustered units parcel and the connecting access to Krameria Avenue across from Colt Way or alternatively, covenants, conditions, and restrictions (CCRs) that provide for the shared use of the driveway.

96. Prior to final map approval, the developer shall guarantee the construction of the following improvements by entering into a public improvement agreement and posting security. The improvements shall be completed prior to occupancy of the first building or as otherwise determined by the City Engineer. Public improvements shall be constructed per City standards.

a. Lasselle Street, Arterial, City Standard MVSI-104A-0 Modified per Moreno Valley Ranch Specific Plan (100-foot RW / 76-foot CC) shall be constructed to include missing improvements and replacement of damaged or non-standard improvements along project frontage. Improvements shall consist of, but not be limited to, sidewalk, pedestrian ramps, emergency vehicle median access, driveway approach, and undergrounding of overhead utilities less than 115,000 volts along project frontage. Improvements between Krameria Avenue and the project entrance shall consist of pavement, base, curb, gutter, sidewalk, relocation of a street light, and relocation of a power pole.

b. Krameria Avenue, Minor Arterial, City Standard MVSI-105A-0 (88-foot RW / 64-foot CC) shall be constructed to include missing improvements and replacement of damaged or non-standard improvements along project frontage. Improvements shall consist of, but not be limited to, sidewalk, driveway approaches, drainage structures, pedestrian ramps, dry and wet utilities, relocation of existing street light at conflict with proposed project entrance location, removal and replacement of existing driveway approach opposite Quarter Horse Road including any

replacement of curb and gutter, and abandonment of an existing storm drain lateral.

c. Project entrances at Krameria Avenue across the street from Colt Way shall be constructed per City Standard No. MVSI-112C-0. The final map shall show an additional 4-foot minimum right-of-way dedication behind the driveway approach. No decorative pavers shall be placed within the public right-of-way.

d. Pavement core samples of existing pavement may be taken and findings submitted to the City for review and consideration of pavement improvements. The City will determine the adequacy of the existing pavement structural section. If the existing pavement structural section is found to be adequate meeting current City standards, the developer may still be required to perform a one-tenth inch grind and overlay or slurry seal depending on the severity of existing pavement cracking, as required by the City Engineer. If the existing pavement section is found to be inadequate, the Developer shall replace the pavement to meet or exceed the City's pavement structural section standard.

97. Prior to final map approval, the applicant shall schedule a walk through with a Land Development Inspector to inspect existing improvements within public right-of-way along project frontage. The applicant will be required to install, replace and/or repair any missing, damaged or substandard improvements including handicap access ramps that do not meet current City standards. The applicant shall post security to cover the cost of the repairs and complete the repairs within the time allowed in the public improvement agreement used to secure the improvements.

98. Prior to building permit issuance, this project shall cause the vacation of those easements underneath proposed building footprints and the existing storm drain improvements shall be abandoned or removed.

99. Prior to building permit issuance, a private storm drain easement from the adjacent school site to Krameria Avenue and the multi-family development (Parcel 1) shall be submitted for review and approval, and then shall record. A private storm drain, conveying offsite, adjacent school site runoff and Parcel 1 across this project site to Krameria Avenue, is required. A private storm drain easements are required to accommodate the private storm drains.

100. Prior to occupancy, all overhead utility lines less than 115,000 volts fronting or within the entire project site boundary shall be placed underground per Section 9.14.130C of the City Municipal Code. Overhead utility lines along the east side of Lasselle Street along project frontage that are 115,000 volts or greater which do not meet the undergrounding of overhead utilities criteria, may remain above ground in which case any existing power poles, such as the one located at the proposed project entrance, shall be relocated outside of the proposed driveway approach and sidewalk areas.

101. Prior to occupancy, all ramps and traveled ways, including those at the intersection of Lasselle Street at Krameria Avenue and Lasselle Street at Cahuilla Drive shall comply with current ADA standards.

102. The Applicant shall submit two up dated P-WQMP approved documents consisting of two originally Applicant-signed and notarized documents that are also wet-stamped and signed by a California Registered Civil Engineer.

103. The Applicant shall prepare and submit for approval a final, project-specific water quality management plan (F-WQMP) for PEN18-0090 Continental Villages. The F-WQMP shall be consistent with the approved P-WQMP and the Special Project Conditions listed above, as well as in full conformance with the document; "Riverside County Water Quality Management Plan for Urban Runoff" dated 2010. At a minimum, the F-WQMP shall include the following: Site design BMPs; Source control BMPs; Treatment control BMPs; Operation and Maintenance requirements for BMPs; and sources of funding for BMP implementation.

104. The Applicant shall, prior to building or grading permit closeout or the issuance of a certificate of occupancy, demonstrate:

a. That all structural BMPs have been constructed and installed in conformance with the approved plans and specifications;
b. That all structural BMPs described in the F-WQMP have been implemented in accordance with approved plans and specifications;
c. That the applicant is prepared to implement all non-structural BMPs included in the F-WQMP, conditions of approval, and building/grading permit conditions; and
d. That an adequate number of copies of the approved F-WQMP are available for the future owners/occupants of the project.

105. On-site 2-foot pedestrian easement shall be required on the final map if on-street parking along Krameria Avenue is approved.

Special Districts Division

106. Inspection fees for the monitoring of landscape installation associated with the City of Moreno Valley maintained parkways/medians are due prior to the required pre-construction meeting. (MC 3.32.040)

107. The ongoing maintenance of any landscaping required to be installed behind the curb shall be the responsibility of the property owner.

108. Modification of existing irrigation systems for parkway or median improvements may be required per the direction of, approval by and coordination with the Special

Districts Division. Please contact Special District Division staff at 951.413.3480 or specialdistricts@moval.org to coordinate the modifications.

109. Any damage to existing landscape areas maintained by the City of Moreno Valley due to project construction shall be repaired/replaced by the Developer, or Developer's successors in interest, at no cost to the City of Moreno Valley.

110. Street Light Authorization forms for all street lights that are conditioned to be installed as part of this project must be submitted to the Special Districts Division for approval, prior to street light installation. The Street Light Authorization form can be obtained from the utility company providing electric service to the project, either Moreno Valley Utility or Southern California Edison. For questions, contact the Special Districts Division at 951.413.3480 or specialdistricts@moval.org.

111. The removal of existing trees with four-inch or greater trunk diameters (calipers), shall be replaced, at a three to one ratio, with minimum twenty-four (24) inch box size trees of the same species, or a minimum thirty-six (36) inch box for a one to one replacement, where approved. (MC 9.17.030)

112. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks & Community Services), Zone C (Arterial Street Lighting), and Landscape Maintenance District (LMD) 2014-02 Zone 03. All assessable parcels therein shall be subject to annual parcel taxes for Zone A and Zone C and an annual assessment for LMD 2014-02 Zone 03 for operations and capital improvements

113. The Developer, or the Developer's successors or assignees shall be responsible for all parkway and/or median landscape maintenance for a period of one (1) year commencing from the time all items of work have been completed to the satisfaction of Special Districts staff as per the City of Moreno Valley Public Works Department Landscape Design Guidelines, or until such time as the District accepts maintenance responsibilities.

114. Parkway, median, slope and/or open space landscape areas maintained as part of the City of Moreno Valley Community Facilities District 2014-01 shall be required to have independent utility systems, including but not limited to water, electric, and telephone services. An independent irrigation controller and pedestal will also be required. Combining utility systems with existing or future landscape areas not associated with the City of Moreno Valley Community Facilities District (CFD) landscaping will not be permitted.

115. Plans for parkway, median, slope, and/or open space landscape areas designated in the project's Conditions of Approval for incorporation into a City Coordinated landscape maintenance program, shall be prepared and submitted in accordance with the City of Moreno Valley Public Works Department Landscape Design

Guidelines. The guidelines are available on the City's website at www.moval.org/sd or from the Special Districts Division (951.413.3480 or specialdistricts@moval.org).

116. In the event the City of Moreno Valley determines that funds authorized by any Proposition 218 mail ballot proceeding are insufficient to meet the costs for parkway, slope, and/or open space maintenance and utility charges, the City shall have the right, at its option, to terminate the grant of any or all parkway, slope, and/or open space maintenance easements. This power of termination, should it be exercised, shall be exercised in the manner provided by law to quit claim and abandon the property so conveyed to the District, and to revert to the Developer or the Developer's successors in interest, all rights, title, and interest in said parkway, slope, and/or open space areas, including but not limited to responsibility for perpetual maintenance of said areas.

117. Plan check fees for review of parkway/median landscape plans for improvements that shall be maintained by the City of Moreno Valley are due upon the first plan submittal. (MC 3.32.040)

Prior to Building Permit

118. This project has been identified to potentially be included in the formation of a Map Act Area of Benefit Special District for the construction of major thoroughfares and/or freeway improvements. The property owner(s) shall participate in such District and pay any special tax, assessment, or fee levied upon the project property for such District. At the time of the public hearing to consider formation of the district, the property owner(s) will not protest the formation, but will retain the right to object any eventual assessment that is not equitable should the financial burden of the assessment not be reasonably proportionate to the benefit the affected property obtains from the improvements to be installed. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option when submitting an application for the first building permit to determine whether the development will be subjected to this condition. If subject to the condition, the special election requires a 90 day process in compliance with the provisions of Article 13C of the California Constitution. (Street & Highway Code, GP Objective 2.14.2, MC 9.14.100).

119. This project is conditioned to provide a funding source for the following special financing program(s):

a. Street Lighting Services for capital improvements, energy charges, and maintenance.

The Developer's responsibility is to provide a funding source for the capital improvements and the continued maintenance. The Developer shall satisfy this condition with one of the options below.

i. Participate in a special election (mail ballot proceeding) and pay all associated costs of the special election and formation, if any. Financing may be structured through a Community Services District zone, Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or

ii. Establish a Property Owner's Association (POA) or Home Owner's Association (HOA) which will be responsible for any and all operation and maintenance costs

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option when submitting the application for building permit issuance. The option for participating in a special election requires approximately 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the issuance of the first certificate of occupancy for the project and prior to acceptance of any improvements.

120. Parkway, open space, and/or median landscaping specified in the project's Conditions of Approval shall be constructed in compliance with the City of Moreno Valley Public Works Design Guidelines and completed prior to the issuance of 25% (or 24) of the dwelling permits for this tract or 12 months from the issuance of the first dwelling permit, whichever comes first. In cases where a phasing plan is submitted, the actual percentage of dwelling permits issued prior to the completion of the landscaping shall be subject to the review of the construction phasing plan.

121. For those areas to be maintained by the City and prior to the issuance of the first Building Permit, Planning Division (Community Development Department), Special Districts Division (the Public Works Department) and Transportation Division (the Public Works Department) shall review and approve the final median, parkway, slope, and/or open space landscape/irrigation plans as designated on the tentative map or in these Conditions of Approval prior to the issuance of the first Building Permit.

122. Prior to the issuance of the first building permit for this project, the Developer shall pay Advanced Energy fees for all applicable Residential and Arterial Street Lights required for this development. Payment shall be made to the City of Moreno Valley

and collected by the Land Development Division. Fees are based upon the Advanced Energy fee rate in place at the time of payment, as set forth in the current Listing of City Fees, Charges, and Rates adopted by City Council. The Developer shall provide a copy of the receipt to the Special Districts Division (specialdistricts@moval.org). Any change in the project which may increase the number of street lights to be installed will require payment of additional Advanced Energy fees at the then current fee. Questions may be directed to the Special Districts Division at 951.413.3480 or specialdistricts@moval.org.

123. This project is conditioned for a proposed district to provide a funding source for the operation and maintenance of public improvements and/or services associated with new development in that territory. The Developer shall satisfy this condition with one of the options outlined below.

a. Participate in a special election for maintenance/services and pay all associated costs of the election process and formation, if any. Financing may be structured through a Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or

b. Establish an endowment fund to cover the future maintenance and/or service costs.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the district has been or is in the process of being formed the Developer must inform the Special Districts Division of its selected financing option (a. or b. above). The option for participating in a special election requires 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the issuance of the first certificate of occupancy for the project.

Prior to Map Approval

124. This project has been conditioned to provide a funding source for the continued maintenance, enhancement, and/or retrofit of parks, open spaces, linear parks, and/or trail systems. The Developer shall satisfy this condition with one of the options below.

a. Participate in a special election for annexation into Community Facilities District No. 1 or other district and pay all associated costs of the special election

process and formation, if any; or

b. Establish an endowment fund to cover future maintenance costs for new neighborhood parks.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option prior to City Council action authorizing recordation of the final map for the development. A minimum of 90 days is needed to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution for conducting a special election.

Annexation to CFD No. 1 shall be completed or proof of payment to establish the endowment fund shall be provided prior to the issuance of the first building permit for this project.

125. This project has been identified to be included in the formation of a Community Facilities District for Public Safety services including but not limited to Police, Fire Protection, Paramedic Services, Park Rangers, and Animal Control services. The property owner(s) shall not protest the formation; however, they retain the right to object to the rate and method of maximum special tax. In compliance with Proposition 218, the property owner shall agree to approve the mail ballot proceeding (special election) for either formation of the CFD or annexation into an existing district that may already be established. The Developer must notify the Special Districts Division at 951.413.3480 or specialdistricts@moval.org of its intent to record the final map for the development 90 days prior to City Council action authorizing recordation of the map. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution. (California Government Code Section 53313 et. seq.)

126. Residential (R) If Land Development, a Division of the Public Works Department, requires this project to supply a funding source necessary to provide for, but not limited to, stormwater utilities services for the required continuous operation, maintenance, monitoring, systems evaluation and enhancements of on-site facilities and performing annual inspections of the affected areas to ensure compliance with state mandated storm water regulations, a funding source needs to be established. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option for the National Pollution Discharge Elimination System (NPDES) program (see Land Development's related condition). Participating in a special election the process requires a 90 day period prior to City Council action authorizing recordation of the final map for the development and to participate in a special election process. This allows adequate time to be in compliance with the provisions of Article 13D of the California Constitution. California Health and Safety Code Sections 5473 through 5473.8

(Ord. 708 Section 3.1, 2006) & City of Moreno Valley Municipal Code Title 3, Section 3.50.050.)

127. Prior to the recordation of the final map, the Developer shall provide all necessary documents to convey to the City the required easements for parkway and/or slope maintenance as specified on the tentative map or in these Conditions of Approval.

128. Easements for reverse frontage parkway and slope landscape areas abutting Lasselle St. shall be 10ft. and Krameria Ave. shall be 6ft. or to top of parkway facing slope or to face of perimeter tract wall, whichever is greater. Easements shall be dedicated to the City of Moreno Valley for landscape maintenance purposes, and shall be depicted on the final map, and an offer of their dedication made thereon.

PARKS & COMMUNITY SERVICES DEPARTMENT

129. This project is subject to current Development Impact Fees.

130. This project is required to supply a funding source for the continued maintenance, enhancement, and or retrofit of neighborhood parks, open spaces, linear parks, and/or trails systems. This can be achieved through annexing into Community Facilities District No. 1 (Park Maintenance). Please contact the Special Districts Division at 951.413.3480 or specialdistricts@moval.org to complete the annexation process.

131. This project is subject to current Quimby Fees.

132. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks and Community Services). All assessable parcels therein shall be subject to the annual Zone 'A' charge for operations and capital improvements. Proof of such shall be supplied to Parks and Community Services upon Final Map and at Building Permits.

CITY COUNCIL RESOLUTION NO. 2019-XX

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY APPROVING PLOT PLAN APPLICATION NO. PEN18-0107, FOR DEVELOPMENT OF A 112 UNIT APARTMENT PROJECT ON 8.8 ACRES LOCATED AT THE NORTHEAST CORNER OF LASSELLE STREET AND KRAMERIA AVENUE

WHEREAS, Continental East Fund III, LLC, has filed an application for the approval of Plot Plan PEN18-0107 for development of a 112 unit apartment project as described in the title above; and

WHEREAS, the application has been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan, Moreno Valley Specific Plan and other applicable regulations; and

WHEREAS, the Planning Commission of the City of Moreno Valley held a public hearing on January 24, 2019 to consider the subject application and all environmental documentation prepared for the project and recommended approval of the project by the City Council; and

WHEREAS**,** the public hearing notice for this project was published in the local newspaper on February 22, 2019. Public notice was sent to all property owners of record within 300 feet of the project site on February 21, 2019. The public hearing notice for this project was also posted on the project site on February 21, 2019;

WHEREAS, on March 5, 2019, the City Council held a public hearing to consider the application; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, pursuant to Government Code Section 66020(d)(1), NOTICE IS HEREBY GIVEN that this project is subject to certain fees, dedications, reservations and other exactions as provided herein.

NOW, THEREFORE, BE IT RESOLVED, it is hereby found, determined and resolved by the City Council as follows:

A. This City Council hereby specifically finds that all of the facts set forth above in this Resolution are true and correct.

B. Based upon substantial evidence presented to this City Council during the above-referenced meeting on March 5, 2019, including written and oral staff reports,

public testimony and the record from the public hearing, this City Council hereby specifically finds as follows:

1. Conformance with General Plan Policies – The proposed use is consistent with the General Plan, and its goals, objectives, policies and programs.

   FACT: The General Plan Land Use designation for the project site is Residential 20. General Plan Policy 2.2.10 states that the primary purpose of areas designated Residential 20 is to provide a range of high density multi-family housing types. Developments within Residential 20 areas shall also provide amenities, such as common open spaces and recreational facilities. The maximum density shall be 20 dwelling units per acre.

   The project as designed and conditioned will achieve the objectives of the City of Moreno Valley's General Plan. The proposed project is consistent with the General Plan and with its goals, objectives, policies, and programs established within the Plan.

2. Conformance with Zoning Regulations – The proposed use complies with all applicable zoning and other regulations.

   FACT: The project proposes to develop the 8.8 acre site consistent with the development standards of the Medium High Density Residential (MHR) zoning district of the Moreno Valley Ranch Specific Plan.

   The MHR zone defers to the City's Municipal Code for some development standards. As designed and conditioned and with the adoption of a Specific Plan Amendment and Zone Change, the project would be consistent with the purposes and intent of Title 9.

3. Health, Safety and Welfare – The proposed use will not be detrimental to the public health, safety or welfare or materially injurious to properties or improvements in the vicinity.

   FACT: The proposed Plot Plan as designed and conditioned will provide acceptable levels of protection from natural and man-made hazards to life, health, and property consistent with General Plan Goal 9.6.1. The project site is located less than one half mile from Fire Station No. 91 located to the west on Lasselle Street near Iris Avenue. Therefore, adequate emergency services can be provided to the site consistent with General Plan Goal 9.6.2.

   The proposed project as designed and conditioned will result in a development that will minimize the potential for loss of life and protect residents, workers, and visitors to the City from physical injury and property damage due to seismic ground shaking and flooding as provided for in General Plan Objective 6.1 and General Plan Objective 6.2.

The project site is bounded by Lasselle Street along its western property line and Krameria along its eastern and southern property line. Beyond the contiguous streets, land uses surrounding the project site are primarily single-family residences in the Low and Medium-low Density Residential zones. Moreno Valley Community College is located directly north of Cahuilla Drive. Lasselle Elementary School is located northeast of the Project site and contiguous to the project site on two sides.

The project as designed is consistent with the Medium High Density Residential zone of the Moreno Valley Ranch Specific Plan. Planning staff worked with Carlson Strategic Land Solutions in the preparation of an Initial Study and Addendum in accordance with the provisions of the California Environmental Quality Act (CEQA). Based on the Initial Study, it was determined that the project impacts remain less than significant and certification of an Addendum to a previously approved Negative Declaration and Moreno Valley Ranch Specific Plan Environmental Impact Report is recommended.

4. Location, Design and Operation – The location, design and operation of the proposed project will be compatible with existing and planned land uses in the vicinity.

FACT: The project is located at the northeast corner of Lasselle Street and Krameria Avenue within Planning Area 21 of the Moreno Valley Ranch Specific Plan and contains a significant slope and cross fall, and unique pie shaped boundary. Permitted uses for the 8.8 acre project site are the uses listed under the Medium High Density Residential zone of the Moreno Valley Ranch Specific Plan.

The project site is bounded by Lasselle Street along its western property line and Krameria along its eastern and southern property line. Beyond the contiguous streets, land uses surrounding the project site are primarily single-family residences in the Low and Medium-low Density Residential zones. Moreno Valley Community College is located directly north of Cahuilla Drive. Lasselle Elementary School is located northeast of the Project site and contiguous to the project site on two sides.

The Medium High Density Residential (MHR) zone of the Moreno Valley Ranch Specific Plan states that land designated MHR is intended for multiple-family residential development that ranges from13 to 17 dwelling units per gross acre. Housing types include townhouses, condominiums, and apartments.

The project as designed and conditioned is compatible with existing and proposed land uses in the vicinity.

FEES, DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

1. FEES

Impact, mitigation and other fees are due and payable under currently applicable ordinances and resolutions. These fees may include but are not limited to: Development Impact Fee, Transportation Uniform Mitigation Fee (TUMF), Multi-species Habitat Conservation Plan (MSHCP) Mitigation Fee, Stephens Kangaroo Habitat Conservation fee, Underground Utilities in lieu Fee, Area Drainage Plan fee, Bridge and Thoroughfare Mitigation fee (Future) and Traffic Signal Mitigation fee. The final amount of fees payable is dependent upon information provided by the applicant and will be determined at the time the fees become due and payable.

Unless otherwise provided for by this Resolution, all impact fees shall be calculated and collected at the time and in the manner provided in Chapter 3.32 of the City of Moreno Valley Municipal Code or as so provided in the applicable ordinances and resolutions. The City expressly reserves the right to amend the fees and the fee calculations consistent with applicable law.

2. DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

The adopted Conditions of Approval for PEN18-0107, incorporated herein by reference, may include dedications, reservations, and exactions pursuant to Government Code Section 66020 (d) (1).

3. CITY RIGHT TO MODIFY/ADJUST; PROTEST LIMITATIONS

The City expressly reserves the right to establish, modify or adjust any fee, dedication, reservation or other exaction to the extent permitted and as authorized by law.

Pursuant to Government Code Section 66020(d)(1), NOTICE IS FURTHER GIVEN that the 90 day period to protest the imposition of any impact fee, dedication, reservation, or other exaction described in this Resolution begins on the effective date of this Resolution and any such protest must be in a manner that complies with Section 66020(a) and failure to timely follow this procedure will bar any subsequent legal action to attack, review, set aside, void or annul imposition.

The right to protest the fees, dedications, reservations, or other exactions does not apply to planning, zoning, grading, or other similar application processing fees or service fees in connection with

this project and it does not apply to any fees, dedication, reservations, or other exactions of which a notice has been given similar to this, nor does it revive challenges to any fees for which the applicable statute of limitations has previously expired.

BE IT FURTHER RESOLVED that the City Council APPROVES Resolution No. 2019-XX, and:

1. APPROVES Plot Plan Application No. PEN18-0107, based on the findings contained in this resolution and subject to the conditions of approval included as Exhibit A.

APPROVED this 5th day of March, 2019.

_____
Mayor of the City of Moreno Valley

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

_____
City Attorney

RESOLUTION JURAT

STATE OF CALIFORNIA)

COUNTY OF RIVERSIDE) ss.

CITY OF MORENO VALLEY)

I, Pat Jacquez-Nares, City Clerk of the City of Moreno Valley, California, do hereby certify that Resolution No. 2019-XX was duly and regularly adopted by the City Council of the City of Moreno Valley at a regular meeting thereof held on the 5th day of March, 2019 by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Council Members, Mayor Pro Tem and Mayor)

_____

CITY CLERK

(SEAL)

CITY OF MORENO VALLEY
CONDITIONS OF APPROVAL
Plot Plan (PEN18-0107)

EFFECTIVE DATE:
EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENT

Planning Division

1. Plot Plan PEN18-0107 is approved for development of a 112 unit apartment project (96 units in six two-story buildings, and 16 units in eight two-story duplex-style buildings) to include common passive recreation areas, basins for water quality treatment, and a 3,836 square foot recreation building, which includes a fitness room, offices, a community room and a pool. A total of 235 parking spaces shall be provided including 32 carports with solar panels, 203 open parking spaces for residents and guests, and six accessible parking spaces.

2. Any expansion to this use or exterior alterations will require the submittal of a separate application(s) and shall be reviewed and approved under separate permit(s). (MC 9.02.080)

3. The developer, or the developer's successor-in-interest, shall be responsible for maintaining any undeveloped portion of the site in a manner that provides for the control of weeds, erosion and dust. (MC 9.02.030)

4. This approval shall expire three years after the approval date of this project unless used or extended as provided for by the City of Moreno Valley Municipal Code; otherwise it shall become null and void and of no effect whatsoever. Use means the beginning of substantial construction contemplated by this approval within the three-year period, which is thereafter pursued to completion, or the beginning of substantial utilization contemplated by this approval. (MC 9.02.230)

5. All landscaped areas shall be maintained in a healthy and thriving condition, free from weeds, trash and debris. (MC 9.02.030)

6. This project is located within the Moreno Valley Ranch Specific Plan (SP 193). The provisions of the specific plan, the design manual, their subsequent amendments, and the Conditions of Approval shall prevail unless modified herein. (MC 9.13)

7. The site shall be developed in accordance with the approved plans on file in the Community Development Department - Planning Division, the Municipal Code regulations, General Plan, and the conditions contained herein. Prior to any use of

the project site or business activity being commenced thereon, all Conditions of Approval shall be completed to the satisfaction of the Planning Official. (MC 9.14.020)

8. Any signs indicated on the submitted plans are not included with this approval. Any signs, whether permanent (e.g. wall, monument) or temporary (e.g. banner, flag), require separate application and approval by the Planning Division. No signs are permitted in the public right of way. (MC 9.12)

9. All site plans, grading plans, landscape and irrigation plans, fence/wall plans, lighting plans and street improvement plans shall be coordinated for consistency with this approval.

10. A change or modification to the land use or the approved site plans may require a separate approval. Prior to any change or modification, the property owner shall contact the City of Moreno Valley Community Development Department to determine if a separate approval is required.

Special Conditions

11. The following Mitigation Measures apply to this project:

Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

a. Project grading and development scheduling;

b. The Project archeologist and the Consulting Tribes(s) as defined in CR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the

monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Pr

12. Prior to the issuance of a grading permit, the City of Moreno Valley shall secure agreements with the Soboba Band of Luiseño Indians and Pechanga Band of Luiseño Indians for tribal monitoring. The City is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2. (only applicable if tribes require monitoring)

13. In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

a) One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department:

i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.

ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CR-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CR-1. The location for the future reburial area shall be identified on a confidential exhibit on file with the City, and concurred to by the Consulting Native American Tribal Governments prior to certification of the environmental document.

14. The City shall verify that the following note is included on the Grading Plan:

    "If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."

15. If potential historic or cultural resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person meeting the Secretary of the Interior's standards (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in CR-1 before any further work commences in the affected area.

16. If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given a reasonable opportunity to identify the "most likely descendant". The "most likely descendant" shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

17. This project shall comply with the project design features listed in the attached Exhibit A to the conditions of approval.

Prior to Grading Permit

18. Prior to issuance of any grading permit, all Conditions of Approval and Mitigation Measures shall be printed on the grading plans.

19. Prior to the issuance of grading permits, decorative (e.g. colored/scored concrete or as approved by the Planning Official) pedestrian pathways across circulation aisles/paths shall be provided throughout the development to connect dwellings with open spaces and/or recreational uses and/or the public right-of-way. The pathways shall be shown on the precise grading plan. (GP Objective 46.8, DG)

20. Prior to issuance of any grading permits, mitigation measures contained in the Mitigation Monitoring Program approved with this project shall be implemented as provided therein. A mitigation monitoring fee, as provided by City ordinance, shall be paid by the applicant within 30 days of project approval. No City permit or approval shall be issued until such fee is paid. (CEQA)

21. Prior to issuance of grading permits, the developer shall pay the applicable Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan mitigation fee. (Ord)

22. Within thirty (30) days prior to any grading or other land disturbance, a pre-construction survey for Burrowing Owls shall be conducted pursuant to the established guidelines of Multiple Species Habitat Conservation Plan. The pre-construction survey shall be submitted to the Planning Division prior to any disturbance of the site and/or grading permit issuance.

23. Prior to approval of any grading permits, plans for any security gate system shall be submitted to and approved by to the Planning Division.

24. Prior to the issuance of grading permits, the site plan and grading plans shall show decorative hardscape (e.g. colored concrete, stamped concrete, pavers or as approved by the Planning Official) consistent and compatible with the design, color and materials of the proposed development for all driveway ingress/egress locations of the project. [apply to commercial and multi-family project, and major entry driveways for industrial]

25. Prior to issuance of grading permits, the developer shall submit wall/fence plans to the Planning Division for review and approval as follows:

    A. If the developer chooses to secure the project, then a maximum 6 foot high tubular steel fence with pilasters and a cap shall be required. The design and materials shall be consistent with the design guidelines of the Moreno Valley Ranch Specific Plan.

    B. 3-foot high decorative wall, solid hedge or berm shall be placed in any setback areas between a public right of way and a parking lot for screening.

    C. Any proposed retaining walls shall also be decorative in nature, while the combination of retaining and other walls on top shall not exceed the height requirement.

26. Prior to the issuance of grading permits, a temporary project identification sign shall be erected on the site in a secure and visible manner. The sign shall be conspicuously posted at the site and remain in place until occupancy of the project. The sign shall include the following:

a. The name (if applicable) and address of the development.

b. The developer's name, address, and a 24-hour emergency telephone number.

27. Prior to issuance of grading permits, the location of the trash enclosure shall be included on the plans.

28. If potential historic, archaeological, Native American cultural resources or paleontological resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person (meeting the Secretary of the Interior's standards (36CFR61)) shall be consulted by the applicant to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, prehistoric, or paleontological resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all affected Native American Tribes before any further work commences in the affected area.

    If human remains are discovered during grading and other construction excavation, no further disturbance shall occur until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 5-days of the published finding to be given a reasonable opportunity to identify the "most likely descendant." The "most likely descendant" shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

Prior to Building Permit

29. Prior to issuance of any building permit, all Conditions of Approval and Mitigation Measures shall be printed on the building plans.

30. Prior to the issuance of building permits, proposed covered trash enclosures shall be included in the Planning review of the Fence and Wall plan or separate Planning submittal. The trash enclosure(s), including the roof materials, shall be compatible with the architecture, color and materials of the building(s) design. Trash enclosure areas shall include landscaping on three sides. Approved design plans shall be included in a Building submittal (Fence and Wall or building design plans). (GP Objective 43.6, DG)

31. Prior to the issuance of building permits, landscape and irrigation plans for areas

maintained by the Homeowner's Association shall be submitted to the Planning Division. All landscape plans shall be approved by the Planning Division prior to the release of any building permits for the site. The plans shall be prepared in accordance with the City's Landscape Development Guidelines and the Moreno Valley Ranch design guidelines. Landscaping is required for the sides and or slopes of all water quality basin and drainage areas, while a hydroseed mix with irrigation is acceptable for the bottom of the basin areas. All detention basins shall include trees, shrubs and groundcover up to the concreted portion of the basin. A solid decorative wall with pilasters, tubular steel fence with pilasters or other fence or wall approved by the Planning Official is required to secure all water quality and detention basins.

32. Prior to issuance of any building permits, final landscaping and irrigation plans shall be submitted for review and approved by the Planning Division. After the third plan check review for landscape plans, an additional plan check fee shall apply. The plans shall be prepared in accordance with the City's Landscape Requirements and shall include:

A. A three (3) foot high decorative wall, solid hedge or berm shall be placed in any setback areas between a public right of way and a parking lot for screening.

B. Finger and end planters with required step outs and curbing shall be provided every 12 parking stalls as well as at the terminus of each aisle.

C. Drought tolerant landscape shall be used. Sod shall be limited to gathering areas or no sod shall be installed.

D. Street trees shall be provided every 40 feet on center in the right of way.

E. On-site trees shall be planted at an equivalent of one (1) tree per thirty (30) linear feet of the perimeter of a parking lot and per thirty linear feet of a building dimension for the portions of the building visible from a parking lot or right of way. Trees may be massed for pleasing aesthetic effects.

F. Enhanced landscaping shall be provided at all driveway entries and street corner locations The review of all utility boxes, transformers etc. shall be coordinated to provide adequate screening from public view.

G. Landscaping on three sides of any trash enclosure.

H. All site perimeter and parking lot landscape and irrigation shall be installed prior to the release of certificate of any occupancy permits for the site or phase in question.

33. Prior to issuance of building permits, the Planning Division shall review and approve the location and method of enclosure or screening of transformer cabinets, commercial gas meters and back flow preventers as shown on the final working drawings. Location and screening shall comply with the following criteria: transformer cabinets and commercial gas meters shall not be located within required setbacks and shall be screened from public view either by architectural treatment or landscaping; multiple electrical meters shall be fully enclosed and incorporated into the overall architectural design of the building(s); back-flow preventers shall be screened by landscaping. (GP Objective 43.30)

34. Prior to issuance of a building permit, the developer/property owner or developer's successor-in-interest shall pay all applicable impact fees due at permit issuance, including but not limited to Multi-species Habitat Conservation Plan (MSHCP) mitigation fees. (Ord)

35. Prior to building final, the developer/owner or developer's/owner's successor-in-interest shall pay all applicable impact fees, including but not limited to Transportation Uniform Mitigation fees (TUMF), and the City's adopted Development Impact Fees. (Ord)

36. Prior to issuance of building permits, for projects that will be phased, a phasing plan shall be submitted to and approved by the Planning Division if occupancy is proposed to be phased.

37. Prior to or at building plan check submittal, the elevation plans shall include decorative lighting sconces on all sides of the buildings of the complex facing a parking lot, courtyard or plaza, or public right of way or open space to provide up-lighting and shadowing on the structures. Include drawings of the sconce details for each building within the elevation plans, approved by the Planning Division prior to building permit issuance.

38. Prior to or at building plan check submittal, two copies of a detailed, on-site, computer generated, point-by-point comparison lighting plan, including exterior building, parking lot, and landscaping lighting, shall be submitted to the Planning Division for review and approval prior to the issuance of a building permit. The lighting plan shall be generated on the plot plan and shall be integrated with the final landscape plan. The plan shall indicate the manufacturer's specifications for light fixtures used, shall include style, illumination, location, height and method of shielding per the City's Municipal Code requirements. After the third plan check review for lighting plans, an additional plan check fee will apply. (MC 9.08.100, 9.16.280)

39. Prior to issuance of building permits, screening details shall be addressed on the building plans for roof top equipment submitted for Planning Division review and approval through the building plan check process. All equipment shall be

completely screened so as not to be visible from public view, and the screening shall be an integral part of the building.

40. Prior to the issuance of building permits, the developer shall provide documentation that contact was made to the U.S. Postal Service to determine the appropriate type and location of mailboxes.

Prior to Building Final or Occupancy

41. Prior to building final, all required landscaping and irrigation shall be installed per plan, certified by the Landscape Architect and inspected by the Planning Division. (MC 9.03.040, MC 9.17).

42. Prior to building final, Planning approved/stamped landscape plans shall be provided to the Community Development Department – Planning Division on a CD disk.

43. Prior to building final, all required and proposed fences and walls shall be constructed according to the approved plans on file in the Planning Division. (MC 9.080.070).

44. Prior to building final or Certificate of Occupancy, the owner or owner's representative shall provide documentation to the Planning Division that they have contacted the Moreno Valley Police Department to establish and maintain a relationship with the City of Moreno Valley Police Department and cooperate with the Problem Oriented Policing (POP) program, or its successors.

COMMUNITY DEVELOPMENT DEPARTMENT

Building Division

45. The proposed residential project (3 or more dwelling units) shall comply with the latest Federal Law, Americans with Disabilities Act, and State Law, California Code of Regulations, Title 24, Chapter 11A for accessibility standards for the disabled including access to the site, exits, kitchens, bathrooms, common spaces, pools/spas, etc.

46. Prior to submittal, all new development, including residential second units, are required to obtain a valid property address prior to permit application. Addresses can be obtained by contacting the Building Safety Division at 951.413.3350.

47. Contact the Building Safety Division for permit application submittal requirements.

48. All new buildings 10,000 square feet and over, shall include building

commissioning in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (OPR). All requirements in The 2016 California Green Building Standards Code, sections 5.410.2 - 5.410.2.6 must be met.

49. Any construction within the city shall only be completed between the hour of seven a.m. to seven p.m. Monday through Friday, excluding holidays and from eight a.m. to four p.m. on Saturday, unless written approval is obtained from the city building official or city engineer (Municipal Code Section 8.14.040.E).

50. Building plans submitted shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.

51. The proposed development is subject to the payment of applicable processing fees as required by the City's current Fee Ordinance at the time a building permit application is submitted or prior to the issuance of permits as determined by the City.

52. The proposed project will be subject to approval by the Eastern Municipal Water District and all applicable fees and charges shall be paid prior to permit issuance. Contact the water district at 951.928.3777 for specific details.

53. All new structures shall be designed in conformance to the latest design standards adopted by the State of California in the California Building Code, (CBC) Part 2, Title 24, California Code of Regulations including requirements for allowable area, occupancy separations, fire suppression systems, accessibility, etc. The current code edition is the 2016 CBC.

54. The proposed project's occupancy shall be classified by the Building Official and must comply with exiting, occupancy separation(s) and minimum plumbing fixture requirements. Minimum plumbing fixtures shall be provided per the 2016 California Plumbing Code, Table 422.1. The occupant load and occupancy classification shall be determined in accordance with the California Building Code.

55. The proposed residential project shall comply with The 2016 California Green Building Standards Code, Section 4.106.4, mandatory requirements for Electric Vehicle Charging Station (EVCS).

56. Prior to permit issuance, every applicant shall submit a properly completed Waste Management Plan (WMP), as a portion of the building or demolition permit process. (MC 8.80.030)

PUBLIC WORKS DEPARTMENT

Land Development

57. Aggregate slurry, as defined in Section 203-5 of Standard Specifications for Public Works Construction, may be required just prior to the end of the one-year warranty period of the public streets at the discretion of the City Engineer. If slurry is required, a slurry mix design shall be submitted for review and approved by the City Engineer. The latex additive shall be Ultra Pave 70 (for anionic) or Ultra Pave 65 K (for cationic) or an approved equal per the geotechnical report. The latex shall be added at the emulsion plant after weighing the asphalt and before the addition of mixing water. The latex shall be added at a rate of two to two-and-one-half (2 to 2½) parts to one-hundred (100) parts of emulsion by volume. Any existing striping shall be removed prior to slurry application and replaced per City standards.

58. The developer shall comply with all applicable City ordinances and resolutions including the City's Municipal Code (MC) and if subdividing land, the Government Code (GC) of the State of California, specifically Sections 66410 through 66499.58, said sections also referred to as the Subdivision Map Act (SMA). [MC 9.14.010]

59. The final approved conditions of approval (COAs) and any applicable Mitigation Measures issued by the Planning Division shall be photographically or electronically placed on mylar sheets and included in the Grading and Street Improvement plans.

60. The developer shall monitor, supervise and control all construction related activities, so as to prevent these activities from causing a public nuisance, including but not limited to, insuring strict adherence to the following:
(a) Removal of dirt, debris, or other construction material deposited on any public street no later than the end of each working day.
(b) Observance of working hours as stipulated on permits issued by the Land Development Division.
(c) The construction site shall accommodate the parking of all motor vehicles used by persons working at or providing deliveries to the site.
(d) All dust control measures per South Coast Air Quality Management District (SCAQMD) requirements during the grading operations.
Violation of any condition, restriction or prohibition set forth in these conditions shall subject the owner, applicant, developer or contractor(s) to remedy as noted in City Municipal Code 8.14.090. In addition, the City Engineer or Building Official may suspend all construction related activities for violation of any condition, restriction or prohibition set forth in these conditions until such time as it has been determined that all operations and activities are in conformance with these conditions.

61. Drainage facilities (e.g., catch basins, water quality basins, etc.) with sump conditions shall be designed to convey the tributary 100-year storm flows. Secondary emergency escape shall also be provided.

62. In the event right-of-way or offsite easements are required to construct offsite improvements necessary for the orderly development of the surrounding area to meet the public health and safety needs, the developer shall make a good faith effort to acquire the needed right-of-way in accordance with the Land Development Division's administrative policy. If unsuccessful, the Developer shall enter into an agreement with the City to acquire the necessary right-of-way or offsite easements and complete the improvements at such time the City acquires the right-of-way or offsite easements which will permit the improvements to be made. The developer shall be responsible for all costs associated with the right-of-way or easement acquisition. [GC 66462.5]

63. If improvements associated with this project are not initiated within two (2) years of the date of approval of the Public Improvement Agreement (PIA), the City Engineer may require that the engineer's estimate for improvements associated with the project be modified to reflect current City construction costs in effect at the time of request for an extension of time for the PIA or issuance of a permit. [MC 9.14.210(B)(C)]

64. The developer shall protect downstream properties from damage caused by alteration of drainage patterns (i.e. concentration or diversion of flow, etc). Protection shall be provided by constructing adequate drainage facilities, including, but not limited to, modifying existing facilities or by securing a drainage easement. [MC 9.14.110]

65. Public drainage easements, when required, shall be a minimum of 30 feet wide and shall be shown on the map and plan, and noted as follows: "Drainage Easement – no structures, obstructions, or encroachments by land fills are allowed." In addition, the grade within the easement area shall not exceed a 3:1 (H:V) slope, unless approved by the City Engineer.

66. The maintenance responsibility of the proposed storm drain line shall be clearly identified. Storm drain lines within private property will be privately maintained and those within public streets will be publicly maintained.

67. The proposed private storm drain system shall connect to the existing public storm drain system. A storm drain manhole shall be placed at the right-of-way line to mark the beginning of the publicly maintained portion of this storm drain.

68. All lots shall drain toward the street unless otherwise approved by the City Engineer. Lot drainage to the street shall be by side yard swales, and must be directed to a drainage devices located outside the right-of-way in accordance with City Standard MVSI-154-0.

69. This project shall submit civil engineering design plans, reports and/or documents (prepared by a registered/licensed civil engineer) for review and approval by the

City Engineer per the current submittal requirements, prior to the indicated threshold or as required by the City Engineer. The submittal consists of, but is not limited to, the following:

a. Parcel Map recordation prior to building permit issuance;

b. Rough grading w/ erosion control plan prior to grading permit issuance;

c. Precise grading w/ erosion control plan prior to building permit issuance;

d. Public improvement plan (e.g., street/storm drain w/ striping, RCFC storm drain, sewer/water, etc.) prior to map approval or encroachment permit issuance;

e. Final drainage study prior to grading plan approval;

f. Final WQMP prior to grading plan approval;

g. Legal documents (e.g., easement(s), dedication(s), lot line adjustment, vacation, etc.) prior to building permit issuance;

h. As-Built revision for all plans prior to Occupancy release;

Prior to Grading Plan Approval

70. Resolution of all drainage issues shall be as approved by the City Engineer.

71. A final detailed drainage study (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer. The study shall include, but not be limited to: existing and proposed hydrologic conditions as well as hydraulic calculations for all drainage control devices and storm drain lines. The study shall analyze 1, 3, 6 and 24-hour duration events for the 2, 5, 10 and 100-year storm events [MC 9.14.110(A.1)]. A digital (pdf) copy of the approved drainage study shall be submitted to the Land Development Division.

72. Emergency overflow areas shall be shown at all applicable drainage improvement locations in the event that the drainage improvement fails or exceeds full capacity. This may include, but not be limited to, sump catch basin, bio-retention basins, etc.

73. A final project-specific Water Quality Management Plan (WQMP) shall be submitted for review and approved by the City Engineer, which:

a. Addresses Site Design Best Management Practices (BMPs) such as minimizing impervious areas, maximizing permeability, minimizes directly connected impervious areas to the City's street and storm drain systems, and conserves natural areas;

b. Incorporates Source Control BMPs and provides a detailed description of their implementation;

c. Describes the long-term operation and maintenance requirements for BMPs requiring maintenance; and

d. Describes the mechanism for funding the long-term operation and maintenance of the BMPs.

A copy of the final WQMP template can be obtained on the City's Website or by contacting the Land Development Division. A digital (pdf) copy of the approved

final project-specific Water Quality Management Plan (WQMP) shall be submitted to the Land Development Division.

74. The developer shall ensure compliance with the City Grading ordinance, these Conditions of Approval and the following criteria:

a. The project street and lot grading shall be designed in a manner that perpetuates the existing natural drainage patterns with respect to tributary drainage area and outlet points. Unless otherwise approved by the City Engineer, lot lines shall be located at the top of slopes.

b. Any grading that creates cut or fill slopes adjacent to the street shall provide erosion control, sight distance control, and slope easements as approved by the City Engineer.

c. All improvement plans are substantially complete and appropriate clearance letters are provided to the City.

d. A soils/geotechnical report (addressing the soil's stability and geological conditions of the site) shall be submitted to the Land Development Division for review. A digital (pdf) copy of the soils/geotechnical report shall be submitted to the Land Development Division.

75. Grading plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

76. The developer shall select Low Impact Development (LID) Best Management Practices (BMPs) designed per the latest version of the Water Quality Management Plan (WQMP) - a guidance document for the Santa Ana region of Riverside County.

77. The developer shall submit recorded slope easements from adjacent property owners in all areas where grading resulting in slopes is proposed to take place outside of the project boundaries. For all other offsite grading, written permission from adjacent property owners shall be submitted.

78. The developer shall pay all remaining plan check fees.

79. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared in conformance with the State's current Construction Activities Storm Water General Permit. A copy of the current SWPPP shall be kept at the project site and be available for review upon request.

80. Any proposed trash enclosure(s) shall be dual bin (1 for trash and 1 for recycables) [MC 9.03.040 (G)]. The enclosure shall have a solid roof and appropriate drainage collection for water quality purposes. The architecture shall be approved by the Planning Division and any structural approvals shall be made by the Building & Safety Division.

81. For projects that will result in discharges of storm water associated with construction with a soil disturbance of one or more acres of land, the developer shall submit a Notice of Intent (NOI) and obtain a Waste Discharger's Identification number (WDID#) from the State Water Quality Control Board (SWQCB) which shall be noted on the grading plans.

82. Landscape & Irrigation plans (prepared by a registered/licensed civil engineer) for water quality BMPs shall be submitted for review and approved by the City Engineer per the current submittal requirements, if applicable.

Prior to Grading Permit

83. A receipt showing payment of the Area Drainage Plan (ADP) fee to Riverside County Flood Control and Water Conservation District shall be submitted. [MC 9.14.100(O)]

84. If the developer chooses to construct the project in phases, a Construction Phasing Plan for the construction of on-site public or private improvements shall be submitted for review and approved by the City Engineer.

85. The developer shall pay current Development Impact Fee (DIF) fees adopted by the City Council. [Ord. 695 § 1.1 (part), 2005] [MC 3.38.030, 040, 050]

86. A digital (pdf) copy of all approved grading plans shall be submitted to the Land Development Division.

87. Security, in the form of a cash deposit (preferable), or letter of credit shall be submitted as a guarantee of the implementation and maintenance of erosion control measures. At least twenty-five (25) percent of the required security shall be in the form of a cash deposit with the City. [MC 8.21.160(H)]

88. Security, in the form of a cash deposit (preferable), or letter of credit shall be submitted as a guarantee of the completion of the grading operations for the project. [MC 8.21.070]

89. The developer shall pay all applicable inspection fees.

90. The developer shall pay current Transportation Uniform Mitigation Fee (TUMF), fees adopted by the City Council. [Ord. 835 § 2.1, 2012] [MC 3.44.060]

Prior to Map Approval

91. All proposed street names shall be submitted for review and approved by the City Engineer, if applicable. [MC 9.14.090(E.2.k)]

92. A copy of the Covenants, Conditions and Restrictions (CC&R's) shall be submitted for review and approved by the City Engineer. The CC&R's shall include, but not be limited to, access easements, reciprocal access, private and/or public utility easements as may be relevant to the project. In addition, for residential development, bylaws and articles of incorporation shall also be included as part of the maintenance agreement for any water quality BMPs.

93. The developer shall enter into a Cooperative Agreement with the City and Riverside County Flood Control and Water Conservation District establishing the terms and conditions covering the inspection, operation and maintenance of Master Drainage Plan facilities that may be required to be constructed as part of the project.

94. After recordation, a digital (pdf) copy of the recorded map shall be submitted to the Land Development Division.

95. Resolution of all drainage issues shall be as approved by the City Engineer.

96. If the project involves the subdivision of land, maps may be developed in phases with the approval of the City Engineer. Financial security shall be provided for all public improvements associated with each phase of the map. The boundaries of any multiple map increment shall be subject to the approval of the City Engineer. If the project does not involve the subdivision of land and it is necessary to dedicate right-of-way/easements, the developer shall make the appropriate offer of dedication by separate instrument. In either case, the City Engineer may require the dedication and construction of necessary utility, street or other improvements beyond the project boundary, if the improvements are needed for circulation, parking, access, or for the welfare or safety of the public. This approval must be obtained prior to the Developer submitting a Phasing Plan to the California Bureau of Real Estate. [MC 9.14.080(B)(C), GC 66412 & 66462.5]

97. Maps (prepared by a registered civil engineer and/or licensed surveyor) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

98. Under the current permit for storm water activities required as part of the National Pollutant Discharge Elimination System (NPDES) as mandated by the Federal Clean Water Act, this project is subject to the following requirements:

a. Establish a Home Owners Association (HOA) to finance the maintenance of the “Water Quality BMPs”. Any lots which are identified as “Water Quality BMPs” shall be owned in fee by the HOA.

b. Dedicate a maintenance easement to the City of Moreno Valley.

c. Execute a maintenance agreement between the City of Moreno Valley and the HOA, which shall be approved by City Council.

d. Provide a certificate of insurance per the terms of the maintenance

agreement.

e. Select one of the following options to meet the financial responsibility to provide storm water utilities services for the required continuous operation, maintenance, monitoring system evaluations and enhancements, remediation and/or replacement, all in accordance with Resolution No. 2002-46.

i. Participate in the mail ballot proceeding in compliance with Proposition 218, for the Residential NPDES Regulatory Rate Schedule and pay all associated costs with the ballot process, or

ii. Establish an endowment to cover future maintenance costs for the Residential NPDES Regulatory Rate Schedule.

f. Notify the Special Districts Division of the intent to record the final map 90 days prior to City Council action authorizing recordation of the final map and the financial option selected. The final option selected shall be in place prior to the issuance of certificate of occupancy. [California Government Code & Municipal Code]

99. The developer shall guarantee the completion of all related improvements required for this project by executing a Public Improvement Agreement (PIA) with the City and posting the required security. [MC 9.14.220]

100. All public improvement plans required for this project shall be approved by the City Engineer in order to execute the Public Improvement Agreement (PIA).

101. The developer shall comply with the requirements of the City Engineer based on recommendations of the Riverside County Flood Control District regarding the construction of County Master Plan Facilities.

102. All street dedications shall be free of all encumbrances, irrevocably offered to the public and shall continue in force until the City accepts or abandons such offers, unless otherwise approved by the City Engineer.

Prior to Improvement Plan Approval

103. The developer is required to bring any existing access ramps adjacent to and fronting the project to current ADA (Americans with Disabilities Act) requirements. However, when work is required in an intersection that involves or impacts existing access ramps, all access ramps in that intersection shall be retrofitted to comply with current ADA requirements, unless otherwise approved by the City Engineer.

104. The developer shall submit clearances from all applicable agencies, and pay all applicable plan check fees.

105. The street improvement plans shall comply with current City policies, plans and applicable City standards (i.e. MVSI-160 series, etc.) throughout this project.

106. The design plan and profile shall be based upon a centerline, extending beyond the project boundaries a minimum distance of 300 feet at a grade and alignment approved by the City Engineer.

107. Drainage facilities (i.e. catch basins, etc.) with sump conditions shall be designed to convey the tributary 100-year storm flows. Secondary emergency escape shall also be provided.

108. The hydrology study shall be designed to accept and properly convey all off-site drainage flowing onto or through the site. In the event that the City Engineer permits the use of streets for drainage purposes, the provisions of current City standards shall apply. Should the quantities exceed the street capacity or the use of streets be prohibited for drainage purposes, as in the case where one travel lane in each direction shall not be used for drainage conveyance for emergency vehicle access on streets classified as minor arterials and greater, the developer shall provide adequate facilities as approved by the City Engineer. [MC 9.14.110 A.2]

109. All public improvement plans (prepared by a licensed/registered civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

110. Any missing or deficient existing improvements along the project frontage, shall be constructed or secured for construction. The City Engineer may require the ultimate structural section for pavement to half-street width plus 18 feet or provide core test results confirming that existing pavement section and structures are per current City Standards, or the developer may still be required to perform a one-tenth inch grind and overlay or slurry seal depending on the severity of existing pavement cracking; additional signing & striping to accommodate increased traffic imposed by the development, as required by the City Engineer.

111. For non-subdivision projects, all street dedications shall be free of encumbrances, irrevocably offered to the public and shall continue in force until the City accepts or abandons such offers, unless otherwise approved by the City Engineer.

112. The plans shall indicate any restrictions on trench repair pavement cuts to reflect the City's moratorium on disturbing newly-constructed pavement less than three (3) years old and recently slurry sealed streets less than one (1) year old. Pavement cuts for trench repairs may be allowed for emergency repairs or as specifically approved by the City Engineer.

113. All dry and wet utilities shall be shown on the plans and any crossings shall be potholed to determine actual location and elevation. Any conflicts shall be identified and addressed on the plans. The pothole survey data shall be submitted to Land Development with the public improvement plans for reference purposes only. The

developer is responsible to coordinate with all affected utility companies and bear all costs of any utility relocation.

Prior to Encroachment Permit

114. A digital (pdf) copy of all approved improvement plans shall be submitted to the Land Development Division.

115. All applicable inspection fees shall be paid.

116. For non-subdivision projects, execution of a Public Improvement Agreement (PIA) and/or security (in the form of a cash deposit or other approved means) may be required as determined by the City Engineer. [MC 9.14.220]

117. Any work performed within public right-of-way requires an encroachment permit.

Prior to Building Permit

118. An engineered-fill certification, rough grade certification and compaction report shall be submitted for review and approved by the City Engineer. A digital (pdf) copy of the approved compaction report shall be submitted to the Land Development Division. All pads shall meet pad elevations per approved grading plans as noted by the setting of "blue-top" markers installed by a registered land surveyor or licensed civil engineer.

119. The developer shall enter into a Cooperative Agreement with the City and Riverside County Flood Control and Water Conservation District establishing the terms and conditions covering the inspection, operation and maintenance of Master Drainage Plan facilities if required to be constructed as part of the project.

120. For all subdivision projects, the map shall be recorded, [MC 9.14.190]

121. For non-subdivision projects, the developer shall guarantee the completion of all related public improvements required for this project by executing a Public Improvement Agreement (PIA) with the City and posting the required security. [MC 9.14.220]

122. The Applicant shall, prior to building or grading permit closeout or the issuance of a certificate of occupancy, demonstrate:

a. That all structural BMPs have been constructed and installed in conformance with the approved plans and specifications;

b. That all structural BMPs described in the F-WQMP have been implemented in accordance with approved plans and specifications;

c. That the applicant is prepared to implement all non-structural BMPs included in the F-WQMP, conditions of approval, and building/grading permit conditions; and

d. That an adequate number of copies of the approved F-WQMP are available for the future owners/occupants of the project.

123. For Commercial/Industrial projects, the owner may have to secure coverage under the State's General Industrial Activities Storm Water Permit as issued by the State Water Resources Control Board.

124. All street dedications shall be free of encumbrances, irrevocably offered to the public and shall continue in force until the City accepts or abandons such offers, unless otherwise approved by the City Engineer.

125. A walk through with a Land Development Inspector shall be scheduled to inspect existing improvements within public right of way along project frontage. Any missing, damaged or substandard improvements including handicap access ramps that do not meet current City standards shall be required to be installed, replaced and/or repaired. The applicant shall post security to cover the cost of the repairs and complete the repairs within the time allowed in the public improvement agreement used to secure the improvements.

126. Certification to the line, grade, flow test and system invert elevations for the water quality control BMPs shall be submitted for review and approved by the City Engineer.

Prior to Occupancy

127. All outstanding fees shall be paid.

128. All required as-built plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

129. The final/precise grade certification shall be submitted for review and approved by the City Engineer.

130. For commercial, industrial and multi-family projects, in compliance with Proposition 218, the developer shall agree to approve the City of Moreno Valley NPDES Regulatory Rate Schedule that is in place at the time of certificate of occupancy issuance. Under the current permit for storm water activities required as part of the National Pollutant Discharge Elimination System (NPDES) as mandated by the Federal Clean Water Act, this project is subject to the following requirements:

a. Select one of the following options to meet the financial responsibility to provide storm water utilities services for the required continuous operation,

maintenance, monitoring system evaluations and enhancements, remediation and/or replacement, all in accordance with Resolution No. 2002-46.

i. Participate in the mail ballot proceeding in compliance with Proposition 218, for the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule and pay all associated costs with the ballot process; or

ii. Establish an endowment to cover future City costs as specified in the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule.

b. Notify the Special Districts Division of the intent to request building permits 90 days prior to their issuance and the financial option selected. The financial option selected shall be in place prior to the issuance of certificate of occupancy. [California Government Code & Municipal Code]

131. The developer shall complete all public improvements in conformance with current City standards, except as noted in the Special Conditions, including but not limited to the following:

a. Street improvements including, but not limited to: pavement, base, curb and/or gutter, cross gutters, spandrel, sidewalks, drive approaches, pedestrian ramps, street lights, signing, striping, under sidewalk drains, landscaping and irrigation, medians, pavement tapers/transitions and traffic control devices as appropriate.

b. Storm drain facilities including, but not limited to: storm drain pipe, storm drain laterals, open channels, catch basins and local depressions.

c. City-owned utilities.

d. Sewer and water systems including, but not limited to: sanitary sewer, potable water and recycled water.

e. Under grounding of all existing and proposed utilities adjacent to and on-site. Prior to occupancy, all overhead utility lines less than 115,000 volts fronting or within the entire project site boundary shall be placed underground. [per Section 9.14.130C of the City Municipal Code]

f. Relocation of overhead electrical utility lines including, but not limited to: electrical, cable and telephone.

132. For phase construction, punch list work for improvements and capping of streets in that phase shall be completed and approved for acceptance by the City Engineer, prior to permit releases for another phase.

133. For commercial, industrial and multi-family projects, a "Stormwater Treatment Device and Control Measure Access and Maintenance Covenant" shall be recorded to provide public notice of the maintenance requirements to be implemented per the approved final project-specific WQMP. A boilerplate copy of the "Stormwater Treatment Device and Control Measure Access and Maintenance Covenant" can be obtained by contacting the Land Development Division.

134. The applicant shall ensure the following, pursuant to Section XII. I. of the 2010 NPDES Permit:

a. Field verification that structural Site Design, Source Control and Treatment Control BMPs are designed, constructed and functional in accordance with the approved Final Water Quality Management Plan (WQMP).

b. Certification of best management practices (BMPs) from a state licensed civil engineer. An original WQMP BMP Certification shall be submitted for review and approved by the City Engineer.

135. The Developer shall comply with the following water quality related items:

a. Notify the Land Development Division prior to construction and installation of all structural BMPs so that an inspection can be performed.

b. Demonstrate that all structural BMPs described in the approved final project-specific WQMP have been constructed and installed in conformance with the approved plans and specifications;

c. Demonstrate that Developer is prepared to implement all non-structural BMPs described in the approved final project-specific WQMP; and

d. Demonstrate that an adequate number of copies of the approved final project-specific WQMP are available for future owners/occupants.

e. Clean and repair the water quality BMP's, including re-grading to approved civil drawing if necessary.

f. Obtain approval and complete installation of the irrigation and landscaping.

136. The interior Street A (per TPM 37514 Lots G, H, and I), is a Local City Standard MVSI-107A-0 (56-foot RW / 36-foot CC). At the intersections with Krameria Avenue and Lassell Street, the road width is modified (72-foot RW/ 50-foot CC with a 12-foot wide median) per Moreno Valley Ranch Specific Plan. Improvements to be constructed shall consist of, but not be limited to, pavement, base, curb, gutter, sidewalk, pedestrian ramps, vehicle access, driveway approach per City Standard MVSI-112C-0, street light, utility relocations and undergrounding of overhead utilities less than 115,000 volts along project frontage.

Special Conditions

137. Krameria Avenue, Minor Arterial, City Standard MVSI-105A-0 (88-foot RW / 64-foot CC) shall be constructed to include missing improvements and replacement of damaged or non-standard improvements along project frontage. Improvements shall consist of, but not be limited to, pavement, sidewalk, curb and gutter, driveway approaches, drainage structures, pedestrian ramps, dry and wet utilities, relocation of any street light at conflict with proposed project entrance location, removal of the existing driveway approach opposite Quarter Horse Road including replacement access entrance per City Standard No. MVSI-112C-0, and abandonment of any existing storm drain lateral.

138. Project access entrances along Street A and Krameria Avenue shall be constructed per City Standard No. MVSI-112C-0. The final map shall show an additional 4-foot minimum right-of-way dedication along Krameria Avenue behind the driveway approaches or per a separate recorded document. No decorative pavers shall be placed within the public right-of-way.

Special Districts Division

139. The ongoing maintenance of any landscaping required to be installed behind the curb shall be the responsibility of the property owner.

140. Any damage to existing landscape areas maintained by the City of Moreno Valley due to project construction shall be repaired/replaced by the Developer, or Developer's successors in interest, at no cost to the City of Moreno Valley.

141. The Moreno Valley Community Services District Zone A (Parks & Community Services) tax is assessed per parcel or per dwelling unit for parcels with more than one dwelling unit. Upon the issuance of building permits, the Zone A tax will be assessed based on 112 dwelling units.

142. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks & Community Services), Zone C (Arterial Street Lighting) and LMD2014-02 Zn 03. All assessable parcels therein shall be subject to annual parcel taxes for Zone A, Zone C and LMD2014-02 Zn 03 for operations and capital improvements.

Prior to Building Permit

143. This project has been identified to potentially be included in the formation of a Map Act Area of Benefit Special District for the construction of major thoroughfares and/or freeway improvements. The property owner(s) shall participate in such District and pay any special tax, assessment, or fee levied upon the project property for such District. At the time of the public hearing to consider formation of the district, the property owner(s) will not protest the formation, but will retain the right to object any eventual assessment that is not equitable should the financial burden of the assessment not be reasonably proportionate to the benefit the affected property obtains from the improvements to be installed. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option when submitting an application for the first building permit to determine whether the development will be subjected to this condition. If subject to the condition, the special election requires a 90 day process in compliance with the provisions of Article 13C of the California Constitution. (Street & Highway Code,

GP Objective 2.14.2, MC 9.14.100).

144. This project is conditioned for a proposed district to provide a funding source for the operation and maintenance of public improvements and/or services associated with new development in that territory. The Developer shall satisfy this condition with one of the options outlined below.

a. Participate in a special election for maintenance/services and pay all associated costs of the election process and formation, if any. Financing may be structured through a Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or

b. Establish an endowment fund to cover the future maintenance and/or service costs.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the district has been or is in the process of being formed the Developer must inform the Special Districts Division of its selected financing option (a. or b. above). The option for participating in a special election requires 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the issuance of the first certificate of occupancy for the project.

145. This project has been conditioned to provide a funding source for the continued maintenance, enhancement, and or retrofit of neighborhood parks, open spaces, linear parks, and/or trails systems. The Developer shall satisfy this condition with one of the options below.

a. Participate in a special election for annexation into Community Facilities District No. 1 or other district and pay all associated costs with the special election process and formation, if any; or

b. Establish an endowment fund to cover future maintenance costs for new neighborhood parks.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance of its selected financial option. If option a. is selected, the special election will require a 90 day process prior to building permit issuance. This allows adequate time to be in compliance with the provisions of Article 13C of the

California Constitution.

Annexation to CFD No. 1 shall be completed or proof of payment to establish the endowment fund shall be provided prior to the issuance of the first certificate of occupancy for the project.

146. This project has been identified to be included in the formation of a Community Facilities District (Mello-Roos) for Public Safety services, including but not limited to Police, Fire Protection, Paramedic Services, Park Rangers, and Animal Control services. The property owner(s) shall not protest the formation; however, they retain the right to object to the rate and method of maximum special tax. In compliance with Proposition 218, the property owner shall agree to approve the mail ballot proceeding (special election) for either formation of the CFD or annexation into an existing district. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance to determine the requirement for participation. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the condition applies, the special election will require a minimum of 90 days prior to issuance of the first building permit. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution. (California Government Code Section 53313 et. seq.)

147. Residential (BP) If Land Development, a Division of the Public Works Department, requires this project to supply a funding source necessary to provide for, but not limited to, stormwater utilities services for the required continuous operation, maintenance, monitoring, system evaluations and enhancements, remediation and/or replacement of on-site facilities and performing annual inspections of the affected areas to ensure compliance with state mandated storm water regulations, a funding source needs to be established. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option for the National Pollution Discharge Elimination System (NPDES) program when submitting the application for the first building permit issuance. (see Land Development's related condition). Participating in a special election the process requires a 90 day period prior to the City's issuance of a building permit. This allows adequate time to be in compliance with the provisions of Article 13D of the California Constitution. (California Health and Safety Code Sections 5473 through 5473.8 (Ord. 708 Section 3.1, 2006) & City of Moreno Valley Municipal Code Title 3, Section 3.50.050.)

Transportation Engineering Division

148. Conditions of approval may be modified and/or added if the project is phased or altered from any approved plans.

149. The project driveways shall conform to City of Moreno Valley Standard No. MVSI-112C-0 for Commercial Driveway Approaches. Access to the project shall be allowed as follows:

- Lasselle Street: right-turn in/out only.
- Krameria Avenue: full access.

150. Any gated entrance shall be provided with the following, or as approved by the City Traffic Engineer:

A. A storage lane with a minimum of 60' provided for queuing.
B. A second storage lane for visitors to stop prior to the gate to utilize a call box (or other device) to receive permission to enter the site.
C. Signing and striping for A. and B.
D. A turnaround outside the gates of 38' radius.
E. No Parking Signs shall be posted in the turnaround areas.
F. A separate pedestrian entry.
G. Presence loop detectors (or another device) within 1 or 2 feet of the gates that ensures that the gates remain open while any vehicle is in the queue.

151. All on-site traffic signing and striping should be accordance with the latest version of the California Manual on Uniform Traffic Control Devices (CAMUTCD).

152. Sight distance at the proposed roadways and driveways shall conform to City of Moreno Valley Standard No. MVSI-164A,B,C-0 at the time of preparation of final grading, landscape, and street improvement plans.

153. Lasselle Street is designated as an Arterial (100'RW/76'CC) at the project location per City Standard Plan No. MVSI-104A-0. Any improvements undertaken by this project shall be consistent with the City's standards for this facility.

154. Krameria Avenue is designated as a minor arterial (88'RW/64'CC) at the project location per City Standard Plan No. MVSI-105A-1. Any improvements undertaken by this project shall be consistent with the City's standards for this facility.

155. Communication conduit along Lasselle Street project frontage may be required per City Standard Plan No. MVSI-186-0.

156. Prior to final approval of the landscape plans and construction plans for any type of fencing or monument sign, the project plans shall demonstrate that sight distance at the project driveways conforms to City Standard Plan No. MVSI-164A-0 through MVSI-164C-0. Trees, plants, shrubs, fence and monument signing shall not be located in an area that obstructs the drivers' line-of-sight.

157. Prior to the final approval of the street improvement plans, signing and striping plans

shall be prepared per City of Moreno Valley Standard Plans - Section 4 for all streets along the project frontages. Signing and striping plans shall be prepared per the latest edition of the California Manual on Uniform Traffic Control Devices (CAMUTCD) and current City of Moreno Valley Standard Plans by a qualified registered Civil or Traffic Engineer.

158. Prior to the final approval of the street improvement plans, a median improvement plan shall be prepared by a registered civil engineer for the existing landscaped median on Lasselle Street, north of Krameria Avenue. The median shall be designed per current City Standards to extend the existing southbound left-turn lane storage length to 300 feet at Lasselle Street/Krameria Avenue intersection.

159. Prior to the final approval of the street improvement plans, a bus turnout shall be designed per the latest City of Moreno Valley Standard Plans, or as approved by the City Engineer, for northbound traffic and shall be located on the east side of Lasselle Street, between the project access and Lasselle Street/Krameria Avenue intersection.

160. Prior to issuance of an encroachment permit for work within the public right-of-way, construction traffic control plans prepared by a qualified, registered Civil or Traffic Engineer shall be required for plan approval by the City Traffic Engineer.

Prior to Building Permit

161. Prior to the issuance of Building Permit, the project applicant shall make a fair-share payment to the City of Moreno Valley for improvements identified in the project Traffic Study.

Prior to Building Final or Occupancy

162. Prior to issuance of Certificate of Occupancy for the 1st unit of this project (including model apartment units/leasing office), improvements to extend the southbound left-turn lane at Lasselle Street/Krameria Avenue intersection shall be completed and fully operational per the approved plans to the satisfaction of the City Engineer. Median construction shall include but not be limited to: paving, concrete curbs, median hardscape, signing and striping.

163. Prior to issuance of Certificate of Occupancy for the 1st unit of this project (including model apartment units/leasing office), all signing and striping shall be installed per current City Standards and the approved plans.

164. Prior to issuance of Certificate of Occupancy for the 1st unit of this project (including model apartment units/leasing office), a bus turnout shall be installed for northbound

traffic and shall be located on the east side of Lasselle Street, between the project access and Lasselle Street/Krameria Avenue intersection. Applicant shall work with Riverside Transit Agency to relocate the existing bus stop for northbound Lasselle Street at Cahuilla Drive and any existing amenities to this location.

PARKS & COMMUNITY SERVICES DEPARTMENT

165. This project is subject to current Development Impact Fees.

166. This project is required to supply a funding source for the continued maintenance, enhancement, and or retrofit of neighborhood parks, open spaces, linear parks, and/or trails systems. This can be achieved through annexing into Community Facilities District No. 1 (Park Maintenance). Please contact the Special Districts Division at 951.413.3480 or specialdistricts@moval.org to complete the annexation process.

167. This project is subject to current Quimby Fees.

168. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks and Community Services). All assessable parcels therein shall be subject to the annual Zone 'A' charge for operations and capital improvements. Proof of such shall be supplied to Parks and Community Services upon Final Map and at Building Permits.

1.1 Project Design Features and Standard Conditions of Approval

The Modified Project includes several Project Design Features (PDFs) and Standard Conditions of Approval, which represent elements of the project design that have been included proactively either in response to prior mitigation measures/conditions or approval or in order to comply with City ordinances or State regulations. The following provides a summary of PDFs and Standard Conditions applicable to the Modified Project.

1.8.1 Air Quality

The following PDFs and Standard Conditions of Approval have been applied to the Modified Project to conform to standard rules applied by the South Coast Air Quality Management District and current technology for grading equipment.

PDF AQ-1: During the site preparation phase, construction equipment greater than 150 horsepower (>150 HP), the Construction Contractor shall use off-road diesel construction equipment that complies with EPA/CARB Tier 3 emissions standards and will ensure that all construction equipment be tuned and maintained in accordance with the manufacturer's specifications.

SC AQ-1: The following measures shall be incorporated into Project plans and specifications as implementation of Rule 403.

- All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 25 mph per SCAQMD guidelines in order to limit fugitive dust emissions.
- The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the Project are watered at least three (3) times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day.
- The contractor shall ensure that traffic speeds on unpaved roads and Project site areas are reduced to 15 miles per hour or less.

SC AQ-2: Only "Low-Volatile Organic Compounds" paints (no more than 50 gram/liter of VOC) and/or High- Pressure Low Volume (HPLV) applications consistent with South Coast Air Quality Management District Rule 1113 shall be used.

1.8.2 Cultural

The City of Moreno Valley has worked with local Native American tribes to streamline the consultation process on new development projects. As a result, the City applies the following standard conditions to new development projects.

SC CR-1: Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect

earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the Project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

a. Project grading and development scheduling;

b. The Project archeologist and the Consulting Tribes(s) as defined in CR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;

c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

SC CR-2: Prior to the issuance of a grading permit, the Developer shall secure agreements with the Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians for tribal monitoring. The Project Applicant is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2.

SC CR-3: In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

a) One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department:

i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.

ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CR-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CR-1.

SC CR-4: The City shall verify that the following note is included on the Grading Plan:

"If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."

SC CR-5: If potential historic or cultural resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person meeting the Secretary of the Interior's standards (36 CFR 61), Tribal Representatives, and all site monitors per the Standard Conditions above, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in CR-1 before any further work commences in the affected area.

SC CR-6: If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 5-days of the published finding to be given a reasonable opportunity to identify the "most likely descendant". The "most likely descendant" shall then make recommendations and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

EIR 190 on Page 102 included a mitigation measure requiring paleontological monitoring during grading in areas with the potential to produce paleontological resources. The potential for paleontological resources was evaluated and presented in the *Cultural and Paleontological Resources Assessment* prepared by Duke CRM, July 2018, and included in Appendix C. Given the potential for paleontological resources to be present on the Project site, the following PDF has been added to provide more clarity and definition to the original mitigation measures.

> **PDF CR-1:** A paleontological monitor shall be present to observe ground disturbing activities within the Project property. The monitor shall work under the direct supervision of a qualified paleontologist (B.S. /B.A. in geology, or related discipline with an emphasis in paleontology and demonstrated experience and competence in paleontological research, fieldwork, reporting, and curation).
>
> 1. The qualified paleontologist shall be on-site at the pre-construction meeting to discuss monitoring protocols.
>
> 2. Paleontological monitoring shall start at part-time. If no paleontological resources are discovered after half of the ground disturbance has occurred, monitoring can be reduced to spot-checking.
>
> 3. The monitor shall be empowered to temporarily halt or redirect grading efforts if paleontological resources are discovered.
>
> 4. In the event of a paleontological discovery the monitor shall flag the area and notify the construction crew immediately. No further disturbance in the flagged area shall occur until the qualified paleontologist has cleared the area.
>
> 5. In consultation with the qualified paleontologist the monitor shall quickly assess the nature and significance of the find. If the specimen is not significant it shall be quickly removed, and the area cleared.
>
> 6. If the discovery is significant the qualified paleontologist shall notify the applicant and the City immediately.
>
> 7. In consultation with the applicant, the qualified paleontologist shall develop a plan which will likely include salvage excavation and removal of the find, removal of sediment from around the specimen (in the laboratory), research to identify and categorize the find, curation of the find in a local qualified repository, and preparation of a report summarizing the find.

1.8.3 Geotechnical

Conditional of Approval 88 from EIR 190 Addendum No. 1 and SPA Amendment No. 1 requires a detailed geotechnical investigation and incorporation of recommendations presented in the study. Included in Appendix D is a *Geotechnical Investigation Update* prepared by GeoCon West Inc. dated March 2018. The following Standard Condition is included to require implementation of the recommendations included in the geotechnical report, consistent with Condition of Approval 88 from EIR 190 Addendum No. 1.

SC GEO-1: Prior to the issuance of a grading permit, the recommendations presented in the *Geotechnical Investigation Update* shall be incorporated into the final geotechnical report and on the grading plans.

1.8.4 Noise

EIR 190 Page 76 requires attainment of 45 dBA interior noise levels and EIR 190 on Page 75 includes a mitigation measure, "special construction techniques can be used to maintain interior noise levels at acceptable standards." In compliance with those measures and to provide greater specificity to the Modified Project, the following PDF is incorporated.

PDF NO-1: To meet the City of Moreno Valley 45 dBA CNEL interior noise standards the following on-site standard construction measures are required:

• Windows/Glass Doors: All units require windows and sliding glass doors that have well-fitted, well-weather-stripped assemblies, and minimum sound transmission class (STC) ratings of 27.

• Exterior Doors (Non-Glass): All exterior doors shall be well weather-stripped and have well-sealed perimeter gaps to achieve minimum sound transmission class (STC) ratings of 27.

• Exterior Walls: At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal.

• Roof: Roof sheathing of wood construction shall be per manufacturer's specification or caulked plywood of at least one-half inch thick. Ceilings shall be per manufacturer's specification or wellsealed gypsum board of at least one-half inch thick. Insulation with at least a rating of R-19 shall be used in the attic space.

• Ventilation: Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g. air conditioning) or active ventilation system (e.g. fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.

EIR 190 Page 75 also requires attenuation of construction noise. In addition to requiring compliance with established construction hours, EIR 190 also included noise reduction in the form of berms and walls. In compliance with those measures and to provide greater specificity to the Modified Project, the following PDF is incorporated.

PDF NO-2: The following PDFs are included in the Project design to reduce construction noise and vibration levels produced by the construction equipment to the nearby sensitive land uses.

• If R6 represents occupied residential use at the time of Project construction, install a minimum 10-foot high temporary construction noise barrier at the Project's site boundary adjacent to sensitive receiver location R6, shown on Exhibit ES-B, for the duration of

Project construction. The noise control barriers must have a solid face from top to bottom. The noise control barrier must meet the minimum height and be constructed as follows:

o The temporary noise barrier shall provide a minimum transmission loss of 20 dBA (Federal Highway Administration, Noise Barrier Design Handbook). The noise barrier shall be constructed using an acoustical blanket (e.g. vinyl acoustic curtains or quilted blankets) attached to the construction site perimeter fence or equivalent temporary fence posts. Example photos are provided in Appendix 11.2.;

o The noise barrier must be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired;

o The noise control barrier and associated elements shall be completely removed, and the site appropriately restored upon the conclusion of the construction activity.

• Large mobile equipment (greater than or equal to 80,000 pounds) (5) shall not be used within 50 feet of receiver locations R2 and R6 if occupied at the time of Project construction, as shown on Exhibit ES-B. Instead, smaller, rubber-tired mobile equipment (less than 80,000 pounds) or equivalent alternative equipment shall be used within this area during Project construction.

• Prior to approval of grading plans and/or issuance of building permits, plans shall include a note indicating that Project construction activities shall comply with the City of Moreno Valley Municipal Code requirements.

• During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.

• The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site during all Project construction (i.e., to the western center).

• The contractor shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.

1.8.5 Traffic

EIR 190 Addendum No. 1 includes several conditions of approval that require roadway improvements and payment of fees. Specifically, Condition of Approval No. 42(b) states: "The applicant/developer of any subdivision within Specific Plan 193 shall participate on a fair share basis in any mitigation and/or fee program designed to alleviate off site roadway and freeway interchange deficiencies."

An updated Traffic Impact Analysis (TIA) was prepared for the Modified Project (Appendix J). The TIA concluded that while the Modified Project would not cause any direct traffic impacts, two roadway deficiencies would occur in the future regardless of whether or not the Modified Project is constructed. In compliance with COA 42(b) and to provide greater specificity to the Modified Project, the following PDF is incorporated to require the Modified Project to contribute its fair-share to resolve future roadway deficiencies.

> **PDF TR-1**: Prior to the issuance of Certificates of Occupancy, the Applicant shall contribute fair share towards the following intersection improvements as specified in the 2018 TIA prepared for the Modified Project:

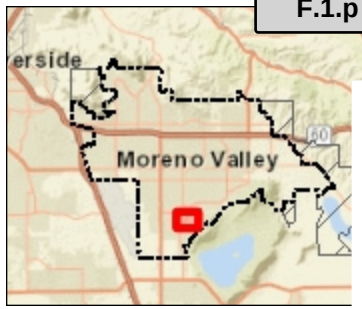
Improvement – Lasselle Street & Iris Avenue (#2)

- Implement a 130-second cycle length during the peak hours.

Improvement – Lasselle Street & Krameria Avenue (#5)

- Modify the median and striping to accommodate dual northbound left turn lanes, a through lane, and shared through-right turn lane.
- Restripe the eastbound approach with 2 lefts, 1 through, and 1 right turn lane.
- Modify the traffic signal to implement overlap phasing on the eastbound right turn lane.
- Implement a 130-second cycle length during the peak hours.

Continental Villages - Phase II
Location Map



Legend

- Public Facilities
  - Public Facilities
  - Fire Stations
- Parcels
- City Boundary
- Sphere of Influence

Notes

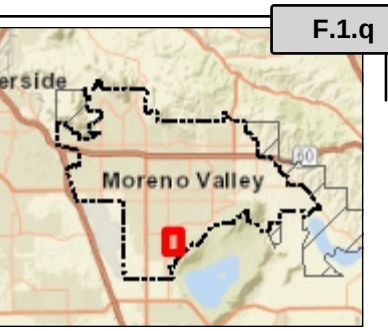
1,261.9 0 630.96 1,261.9 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

Print Date: 1/8/2019

DISCLAIMER: The information shown on this map was compiled from the City of Moreno Valley GIS and Riverside County GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map.

Continental East Phase II Apartments



Legend

- Public Facilities
  - Public Facilities
  - Fire Stations
- Parcels
- City Boundary
- Sphere of Influence

Notes

1,261.9 0 630.96 1,261.9 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

Print Date: 1/24/2019

DISCLAIMER: The information shown on this map was compiled from the City of Moreno Valley GIS and Riverside County GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map.

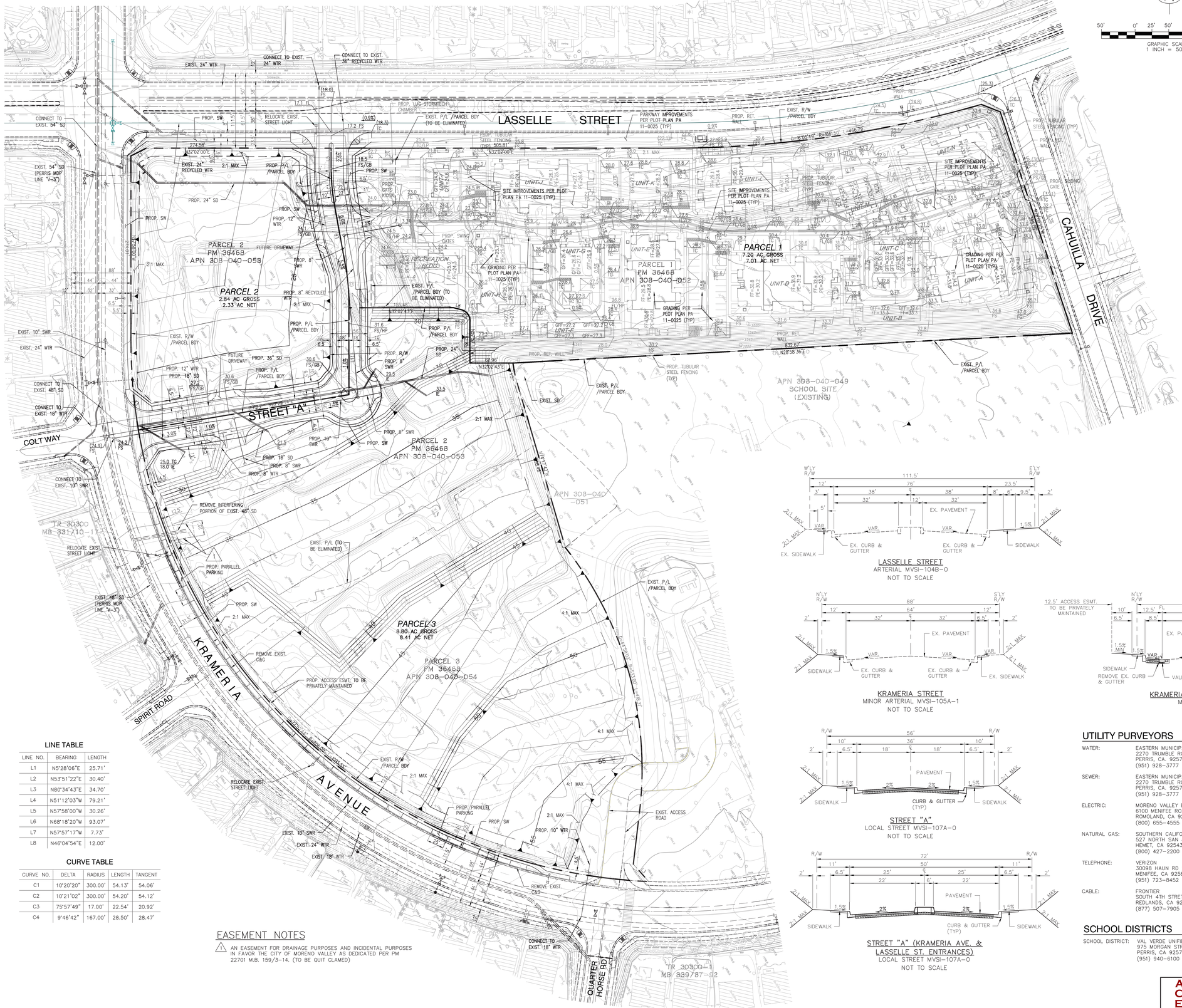
CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.

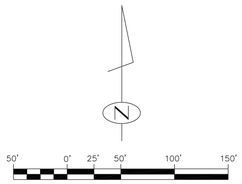
TENTATIVE PARCEL MAP NO. 37514

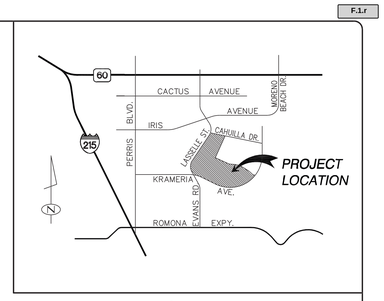
PARCEL 1 OF PARCEL MAP NO. 36468, IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP FILED IN BOOK 243, PAGES 27 THROUGH 29 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

ASSESSOR PARCEL NUMBERS 308-050-052, 308-050-053 AND 308-050-053

APRIL, 2018







VACINITY MAP
NOT TO SCALE

GENERAL NOTES

1. ASSESSOR PARCEL NUMBER (APN): 308-040-052, 308-040-053 AND 308-040-054.
2. THE PROPERTY SHOWN HEREON CONTAINS THE ENTIRE CONTIGUOUS OWNER.
3. TOTAL APPROXIMATE AREA: 18.84 AC GROSS
4. CONTOUR INTERVAL = 1 FOOT.
5. ALL SLOPES ARE 2:1 OR FLATTER.
6. NO REGULATED TREES EXIST ON SITE, UNLESS NOTED.
7. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THIS MAP ARE APPROXIMATE.
8. SOURCE OF TOPOGRAPHY: PACIFIC COAST LAND CONSULTANTS, INC., 25069 JEFFERSON AVE., SUITE D, MURRIETA, CA 92562. PERFORMED ON MARCH 25, 2011.
9. THIS PROJECT IS NOT LOCATED IN A SPECIAL STUDIES ZONE.
10. THIS PROPERTY IS NOT SUBJECT TO LIQUEFACTION OR OTHER GEOLOGIC HAZARDS AND IS NOT LOCATED IN A SPECIAL STUDIES ZONE.
11. THIS PROPERTY IS NOT SUBJECT TO OVERFLOW, INUNDATION OR OTHER FLOOD HAZARDS.
12. PROJECT IS LOCATED ON PAGE 747, J-3 OF THOMAS BROTHERS (RIVERSIDE COUNTY. 2015 EDITION).

EXISTING LAND USE NOTES

EXISTING ZONING: SP

EXISTING LAND USE: RESIDENTIAL

ADJACENT EXISTING LAND USE: RESIDENTIAL AND PUBLIC INSTITUTION

FLOOD ZONING

THIS AREA IS NOT WITHIN A FLOOD HAZARD AREA. THE AREA IS CONSIDERED A ZONE X (UNSHADED) FLOOD HAZARD WHICH IS OUTSIDE OF THE 100-YEAR FLOOD LIMITS.

LEGAL DESCRIPTION

PARCEL 1 OF PARCEL MAP NO. 36468, IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP FILED IN BOOK 243, PAGES 27 THROUGH 29 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

BENCHMARK

AT THE INTERSECTION OF PERRIS BOULEVARD AND IRIS AVENUE, 58.55 FEET SOUTHWEST OF A CHISELED "X" IN A 3" IRON CORNER POST; 40.89 FEET NORTHEAST OF NAIL AND TAG IN THE WEST SIDE OF POWER POLE #213136; 34.39 FEET NORTHWEST OF A NAIL AND TAG SET IN SOUTHWEST SIDE OF TELEPHONE POLE #15160; A 1" IRON PIPE AND TAG AND SURVEY IN A NADWELL MONUMENT; M-32, DATE 1963

PARCEL AREA SUMMARY

PARCEL 1: 7.20 AC GROSS, 7.01 AC NET

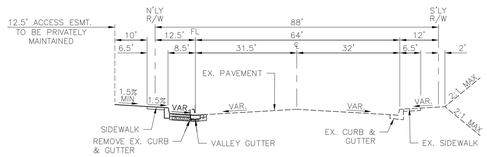
PARCEL 2: 2.84 AC GROSS, 2.33 AC NET

PARCEL 3: 8.80 AC GROSS, 8.41 AC NET

TOTAL ACREAGE: 18.84 AC GROSS, 17.75 AC NET

LASSELLE STREET
ARTERIAL MVSI-104B-0
NOT TO SCALE

KRAMERIA STREET
MINOR ARTERIAL MVSI-105A-1
NOT TO SCALE



KRAMERIA STREET (ON-STREET PARKING)
MINOR ARTERIAL MVSI-105A-1
NOT TO SCALE

STREET "A"
LOCAL STREET MVSI-107A-0
NOT TO SCALE

STREET "A" (KRAMERIA AVE. & LASSELLE ST. ENTRANCES)
LOCAL STREET MVSI-107A-0
NOT TO SCALE

LEGEND

(XX.XX)	EXISTING ELEVATION
	EXISTING PROPERTY LINE
	EXISTING RIGHT OF WAY
	RIGHT OF WAY
	PROJECT BOUNDARY
40	MAJOR CONTOUR
	MINOR CONTOUR
1.0%	SLOPE INDICATOR
	SLOPE (IF > 4:1)
	SANITARY SEWER
	POTABLE/RECYCLED WATER
	STORM DRAIN

LINE TABLE

LINE NO.	BEARING	LENGTH
L1	N5°28'06"E	25.71'
L2	N53°51'22"E	30.40'
L3	N80°34'43"E	34.70'
L4	N51°12'03"W	79.21'
L5	N57°58'00"W	30.26'
L6	N68°18'20"W	93.07'
L7	N57°57'17"W	7.73'
L8	N46°04'54"E	12.00'

CURVE TABLE

CURVE NO.	DELTA	RADIUS	LENGTH	TANGENT
C1	10°20'20"	300.00'	54.13'	54.06'
C2	10°21'02"	300.00'	54.20'	54.12'
C3	75°57'49"	17.00'	22.54'	20.92'
C4	9°46'42"	167.00'	28.50'	28.47'

EASEMENT NOTES

1. AN EASEMENT FOR DRAINAGE PURPOSES AND INCIDENTAL PURPOSES IN FAVOR THE CITY OF MORENO VALLEY AS DEDICATED PER PM 22701 M.B. 159/3-14. (TO BE QUIT CLAMED)

UTILITY PURVEYORS

WATER:	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBLE ROAD PERRIS, CA. 92572 (951) 928-3777
SEWER:	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBLE ROAD PERRIS, CA. 92572 (951) 928-3777
ELECTRIC:	MORENO VALLEY ELECTRIC DISTRICT 6100 MENIFEE ROAD ROMOLAND, CA 92585 (800) 655-4555
NATURAL GAS:	SOUTHERN CALIFORNIA GAS COMPANY 527 NORTH SAN JACINTO STREET HEMET, CA 92543 (800) 427-2200
TELEPHONE:	VERIZON 30098 HAUN RD #320 MENIFEE, CA 92584 (951) 723-8452
CABLE:	FRONTIER SOUTH 4TH STRET REDLANDS, CA 92373 (877) 507-7905

SCHOOL DISTRICTS

SCHOOL DISTRICT: VAL VERDE UNIFIED SCHOOL DISTRICT
975 MORGAN STREET
PERRIS, CA 92571
(951) 940-6100

ABBREVIATIONS

AC	ASPHALT CONCRETE	LP	LOW POINT
APN	ASSESSOR PARCEL NUMBER	PE	PAD ELEVATION
BDY	BOUNDARY	P/L	PROPERTY LINE
CB	CATCH BASIN	PM	PARCEL MAP
C/L	CENTERLINE	EXIST.	PROPOSED
DC	DOUBLE DETECTOR CHECK	R/W	RIGHT OF WAY
ESMT.	EASEMENT	SD	STORM DRAIN
EP	EDGE OF PAVEMENT	SW	SIDEWALK
EX., EXIST.	EXISTING	SWR	SANITARY SEWER
FG	FINISH GRADE	TC	TOP OF CURB
FF	FINISH FLOOR	TG	TOP OF GRATE
FL	FLOW LINE	TEMP	TEMPORARY
FS	FINISH SURFACE	TRW	TOP OF RETAINING WALL
GB	GRADE BREAK	WTR	POTABLE WATER
HP	HIGH POINT	VAR.	VARIES

OWNER

CONTINENTAL EAST FUND III, L.L.C.
25467 MEDICAL CENTER DR., SUITE 201
MURRIETA, CA 92562

ENGINEER

ANDERSON CONSULTING ENGINEERS, INC
12526 HIGH BLUFF DRIVE, SUITE 300
SAN DIEGO, CA 92130

CONTACT: JEFFERY A. ANDERSON
EMAIL: jeff@ace-civil.com
TELEPHONE: (858) 925-7918

APPLICANT

CONTINENTAL EAST FUND III, L.L.C.
25467 MEDICAL CENTER DR., SUITE 201
MURRIETA, CA 92562

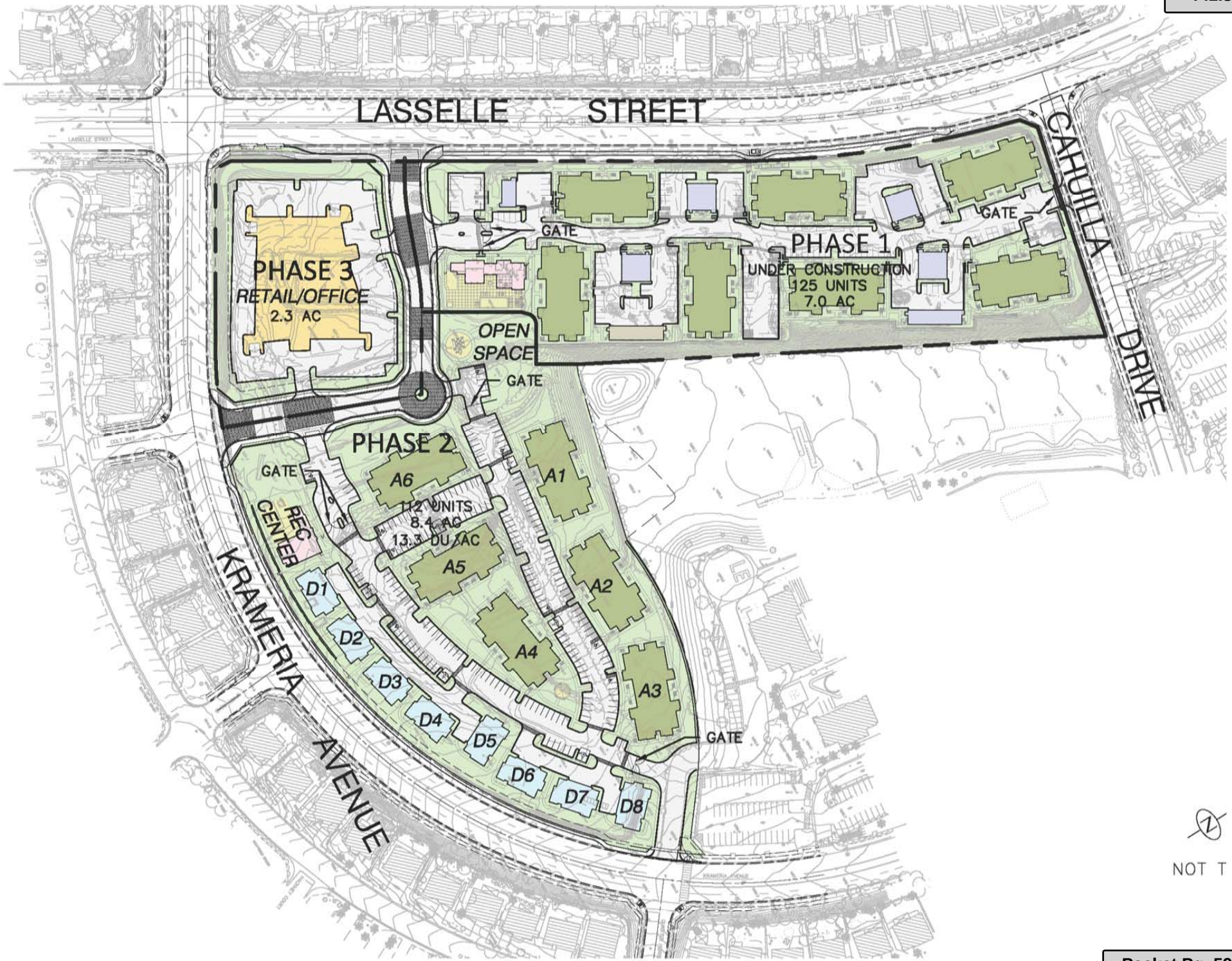
CONTACT: ANDREW SPOUSTA
EMAIL: aspousta@continentaldev.com
TELEPHONE: (951) 600-8600

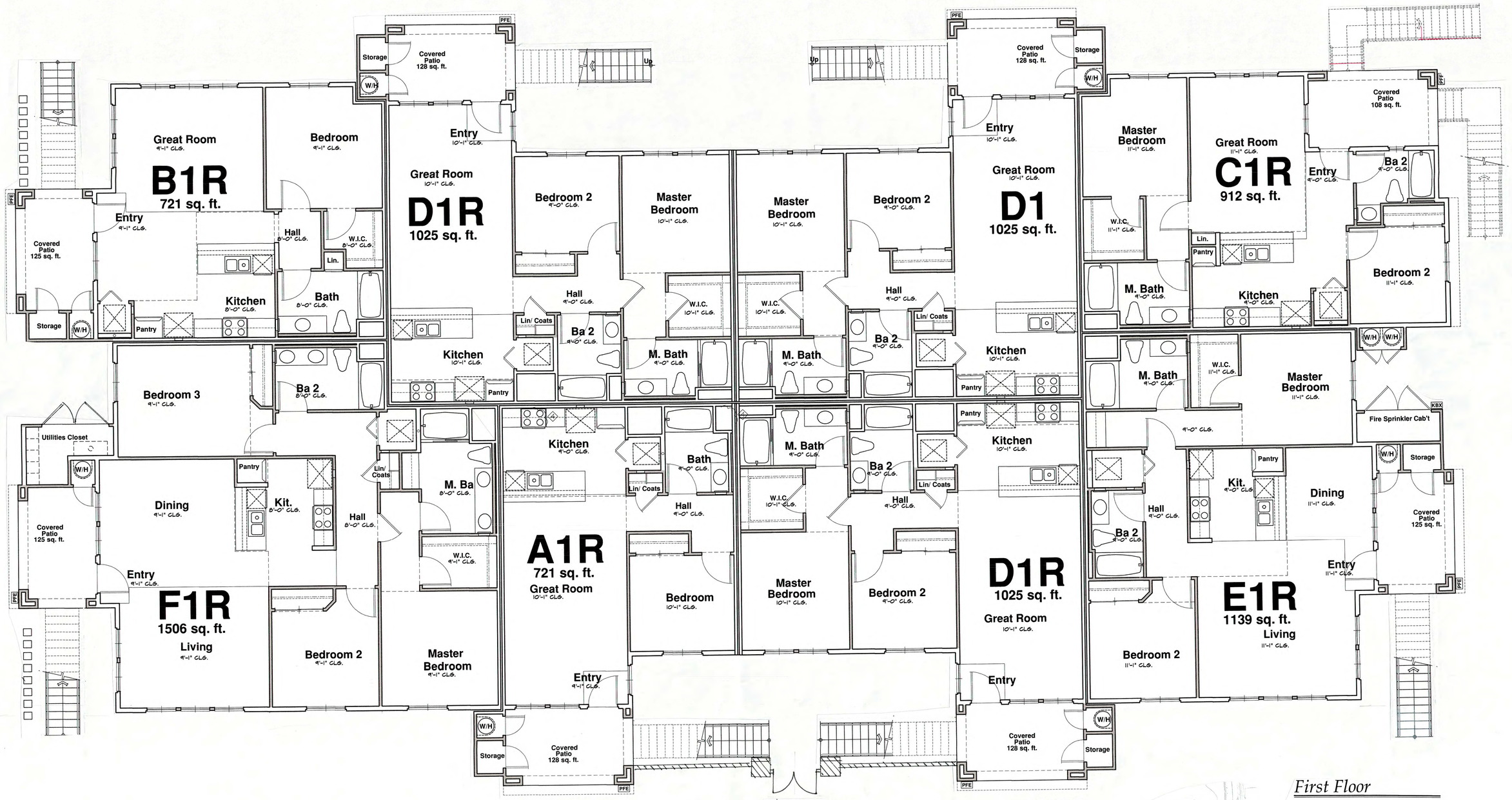
ANDERSON CONSULTING ENGINEERS, INC.
12526 HIGH BLUFF DR., SUITE 300
SAN DIEGO, CA 92130
(858) 925-7918

TENTATIVE PARCEL MAP NO. 37514
CITY OF MORENO VALLEY, STATE OF CALIFORNIA

SUBMITTALS:

DESIGNED BY: JAA
DRAWN BY: MC
CHECKED BY: JAA
SHEET 1 OF 1





8074 S.F. @ 1st FLOOR
8074 S.F. @ 2nd FLOOR
16,148 BUILDING TOATL SQUARE FOOTAGE

Site Plan

First Floor

Floor Plan

Scale: 1/4" = 1'-0"

Continental East Development
25467 Medical Center Drive, Suite 201
Murrieta, CA 92562
(951) 600-8600

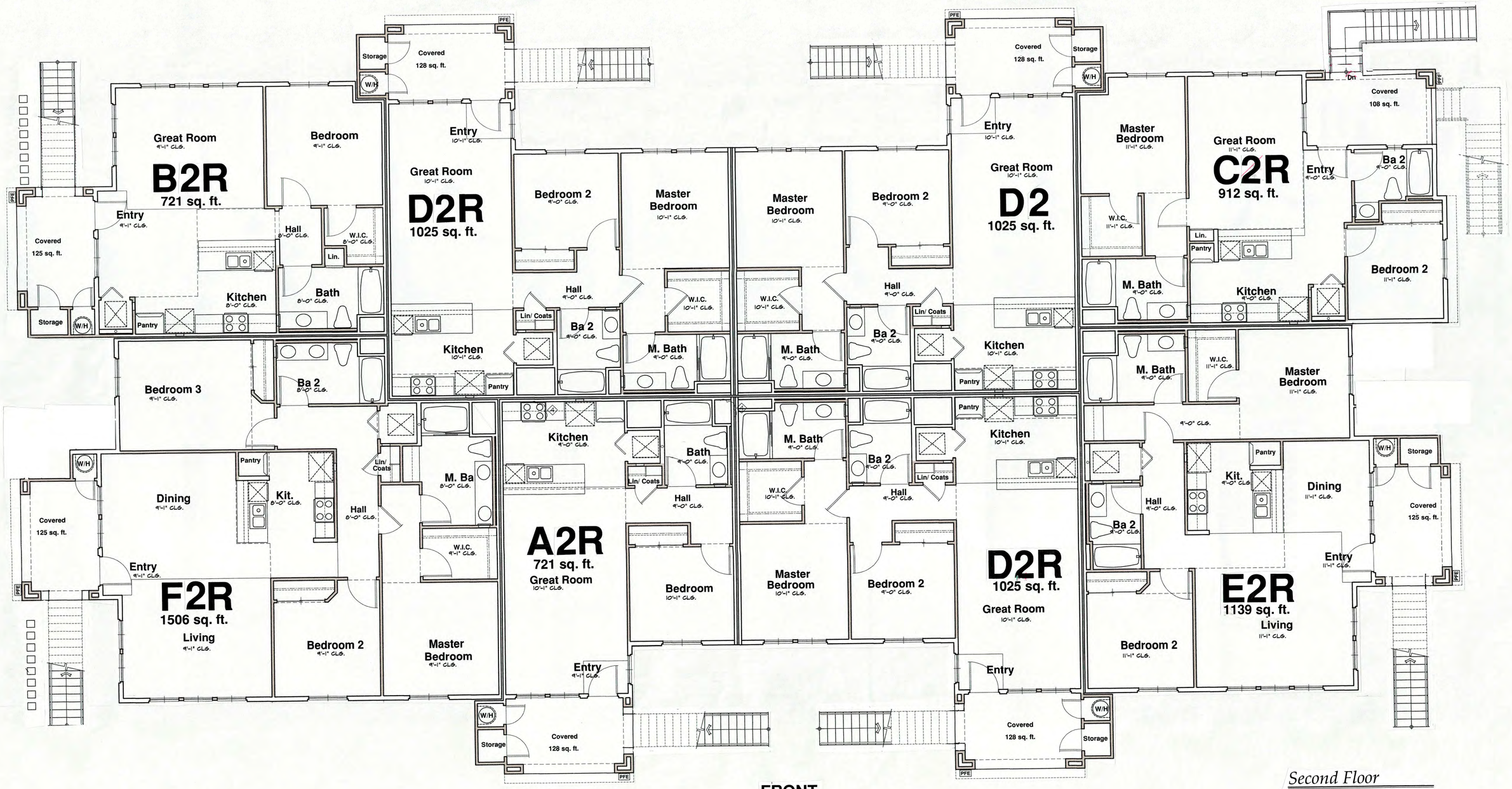
Apartments
Continental Villages

Moreno Valley, CA

PEKAREK architects, inc.
architecture • planning
31411 camino capistrano
suite 300
san juan capistrano
ca, 92675
(949) 487-2320

5-1-18 5-24-18

#18-12
PEN18-0107



FRONT

Second Floor

Floor Plan

Scale: 1/4" = 1'-0"

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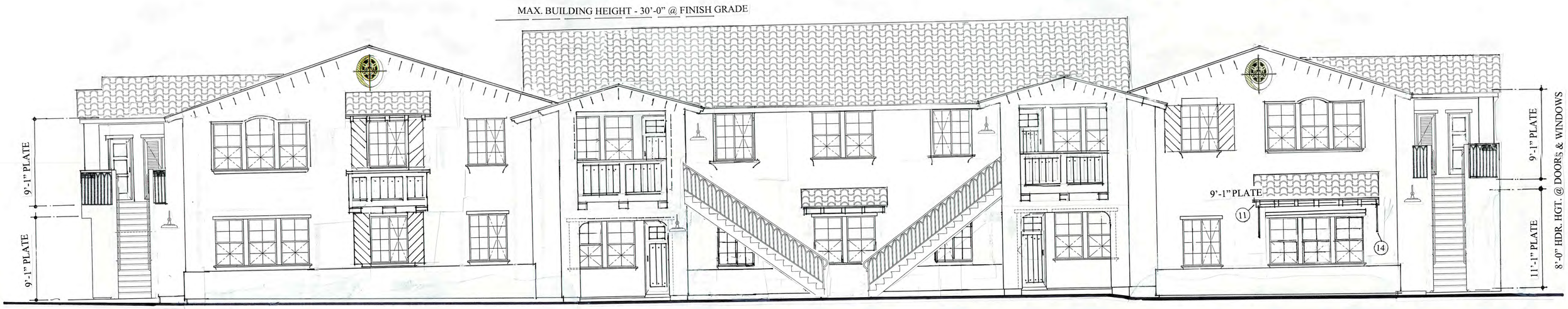
5-1-18 5-24-18

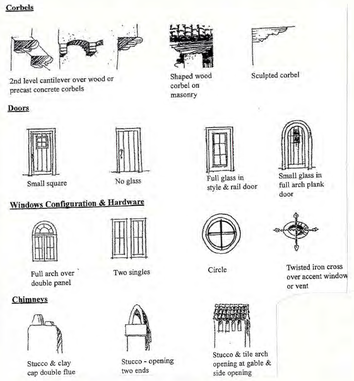
#18-12
PEN18-0107

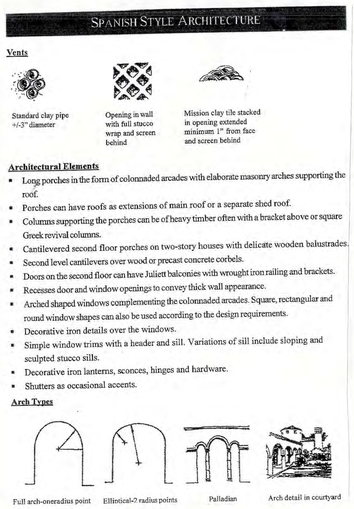


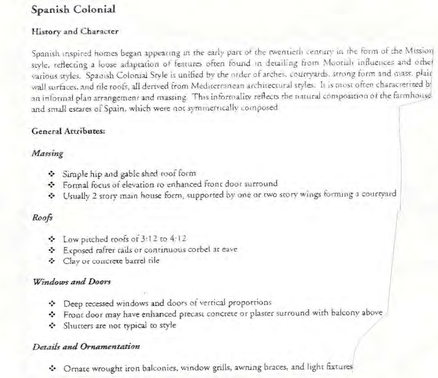
FRONT ELEVATION

EXTERIOR MATERIALS

1. CONCRETE 'S' ROOF TILE
2. STUCCO
3. 2x 6 FASCIA
4. 2 x 8 BARGE
5. METAL LOUVERED DOOR
6. SHAPED FOAM SILL W/ STUCCO OVER
7. DECORATIVE POLURETHANE SHUTTERS
8. METAL HANDRAIL @ STAIRS
9. "HARDIWOOD" SIDING @ DECKS
10. STUCCO OVER FOAM CORBELS
11. EXPOSED WOOD TAILS
12. FURRED BASE
13. METAL FINIAL @ GABLE
14. METAL BRACKETS @ SHED ROOF
15. STUCCO OVER FOAM TRIM @ WINDOWS & DOORS
16. MAX. BUILDING HEIGHT – 30'-0" @ FINISH GRADE







Elevation

Scale: 1/4" = 1'-0"

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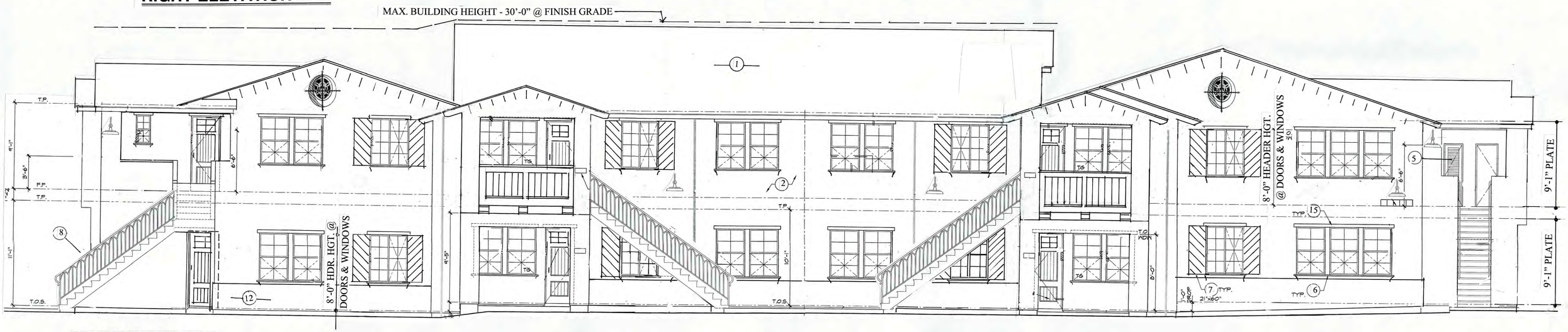
4-4-18 *5-24-18*

#18-12
PEN18-0107

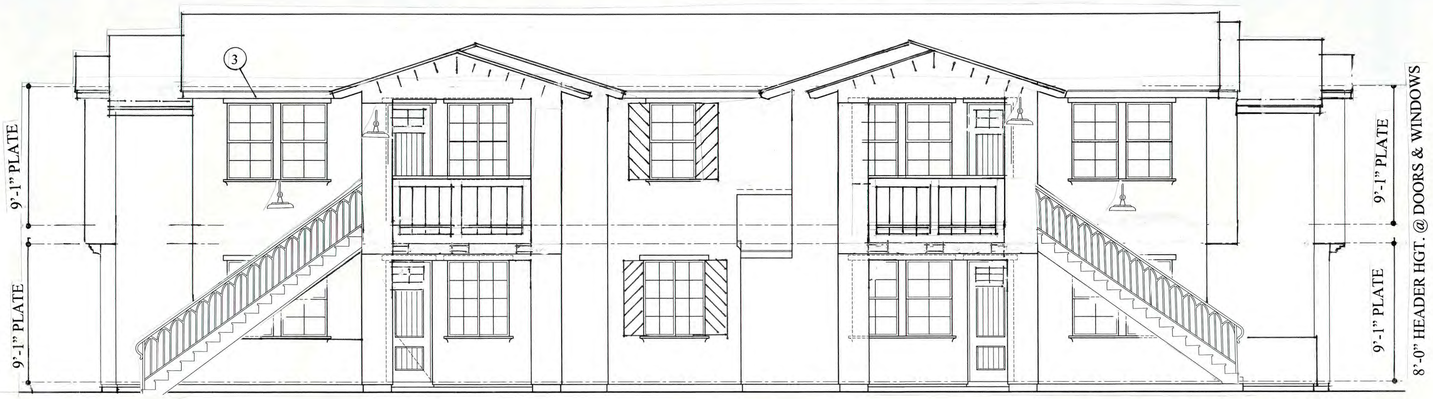
RIGHT ELEVATION

EXTERIOR MATERIALS

1. CONCRETE 'S' ROOF TILE
2. STUCCO
3. 2x 6 FASCIA
4. 2 x 8 BARGE
5. METAL LOUVERED DOOR
6. SHAPED FOAM SILL W/ STUCCO OVER
7. DECORATIVE POLURETHANE SHUTTERS
8. METAL HANDRAIL @ STAIRS
9. "HARDIWOOD" SIDING @ DECKS
10. STUCCO OVER FOAM CORBELS
11. EXPOSED WOOD TAILS
12. FURRED BASE
13. METAL FINIAL @ GABLE
14. METAL BRACKETS @ SHED ROOF
15. STUCCO OVER FOAM TRIM @ WINDOWS & DOORS
16. MAX. BUILDING HEIGHT – 30'-0" @ FINISH GRADE



REAR ELEVATION



LEFT ELEVATION

ROOF NOTES

1. 4:12 ROOF PITCH
2. 24" EAVE OVERHANG
3. 12" RAKE OVERHANG
4. CONCRETE 'S' TILE

Elevations

Scale: 1/4" = 1'-0"

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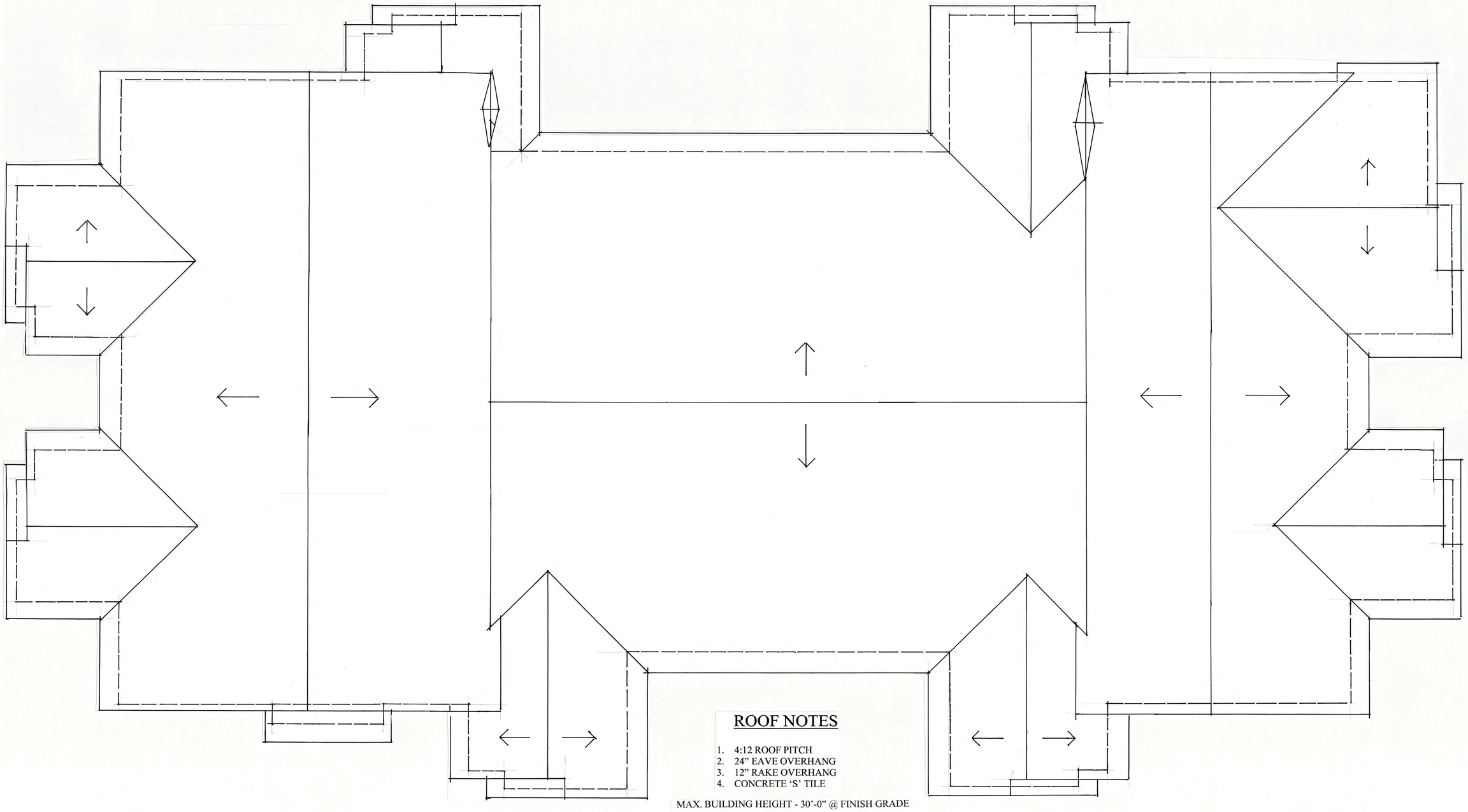
4-4-18 *5-24-18*

#18-12
PEN18-0107



ROOF NOTES

1. 4:12 ROOF PITCH
2. 24" EAVE OVERHANG
3. 12" RAKE OVERHANG
4. CONCRETE 'S' TILE

MAX. BUILDING HEIGHT - 30'-0" @ FINISH GRADE

Roof Plan

Scale: 1/4" = 1'-0"

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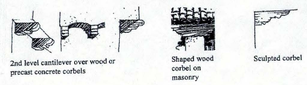
4-4-18 5-24-18 *#18-12*
PEN-0107

FRONT ELEVATION

Corbels

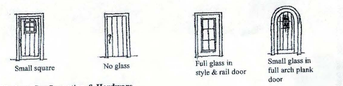


2nd level cantilever over wood or precast concrete corbels

Shaped wood corbel on masonry

Sculpted corbel

Doors



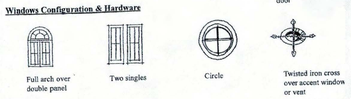
Small square

No glass

Full glass in style & rail door

Small glass in full arch plank door

Windows Configuration & Hardware



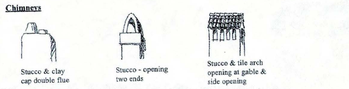
Full arch over double panel

Two singles

Circle

Twisted iron cross over accent window or vent

Chimneys



Stucco & clay cap double flue

Stucco - opening two ends

Stucco & tile arch opening at gable & side opening

SPANISH STYLE ARCHITECTURE

Vents

Standard clay pipe +/-3" diameter

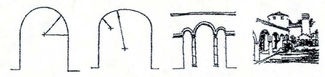
Opening in wall with full stucco wrap and screen behind

Mission clay tile stacked in opening extended minimum 1" from face and screen behind

Architectural Elements

- Long porches in the form of colonnaded arcades with elaborate masonry arches supporting the roof.
- Porches can have roofs as extensions of main roof or a separate shed roof.
- Columns supporting the porches can be of heavy timber often with a bracket above or square Greek revival columns.
- Cantilevered second floor porches on two-story houses with delicate wooden balustrades.
- Second level cantilevers over wood or precast concrete corbels.
- Doors on the second floor can have Juliett balconies with wrought iron railing and brackets.
- Recesses door and window openings to convey thick wall appearance.
- Arched shaped windows complementing the colonnaded arcades. Square, rectangular and round window shapes can also be used according to the design requirements.
- Decorative iron details over the windows.
- Simple window trims with a header and sill. Variations of sill include sloping and sculpted stucco sills.
- Decorative iron lanterns, sconces, hinges and hardware.
- Shutters as occasional accents.

Arch Types



Full arch-oneradius point

Elliotical-? radius points

Palladian

Arch detail in courtyard

Spanish Colonial

History and Character

Spanish inspired homes began appearing in the early part of the twentieth century in the form of the Mission style, reflecting a loose adaptation of features often found in detailing from Moorish influences and other various styles. Spanish Colonial Style is unified by the order of arches, courtyards, strong form and mass, plain wall surfaces, and tile roofs, all derived from Mediterranean architectural styles. It is most often characterized b an informal plan arrangement and massing. This informality reflects the natural composition of the farmhouse and small estates of Spain, which were not symmetrically composed.

General Attributes:

Massing

- Simple hip and gable shed roof form
- Formal focus of elevation to enhanced front door surround
- Usually 2 story main house form, supported by one or two story wings forming a courtyard

Roofs

- Low pitched roofs of 3:12 to 4:12
- Exposed rafter tails or continuous corbel at eave
- Clay or concrete barrel tile

Windows and Doors

- Deep recessed windows and doors of vertical proportions
- Front door may have enhanced precast concrete or plaster surround with balcony above
- Shutters are not typical to style

Details and Ornamentation

- Ornate wrought iron balconies, window grills, awning braces, and light fixtures

Elevation

Scale: 1/4" = 1'-0"

PEKAREK architects, inc.

architecture • planning
31411 camino capistrano
suite 300
san juan capistrano
ca, 92675
(949) 487-2320

Continental East Development

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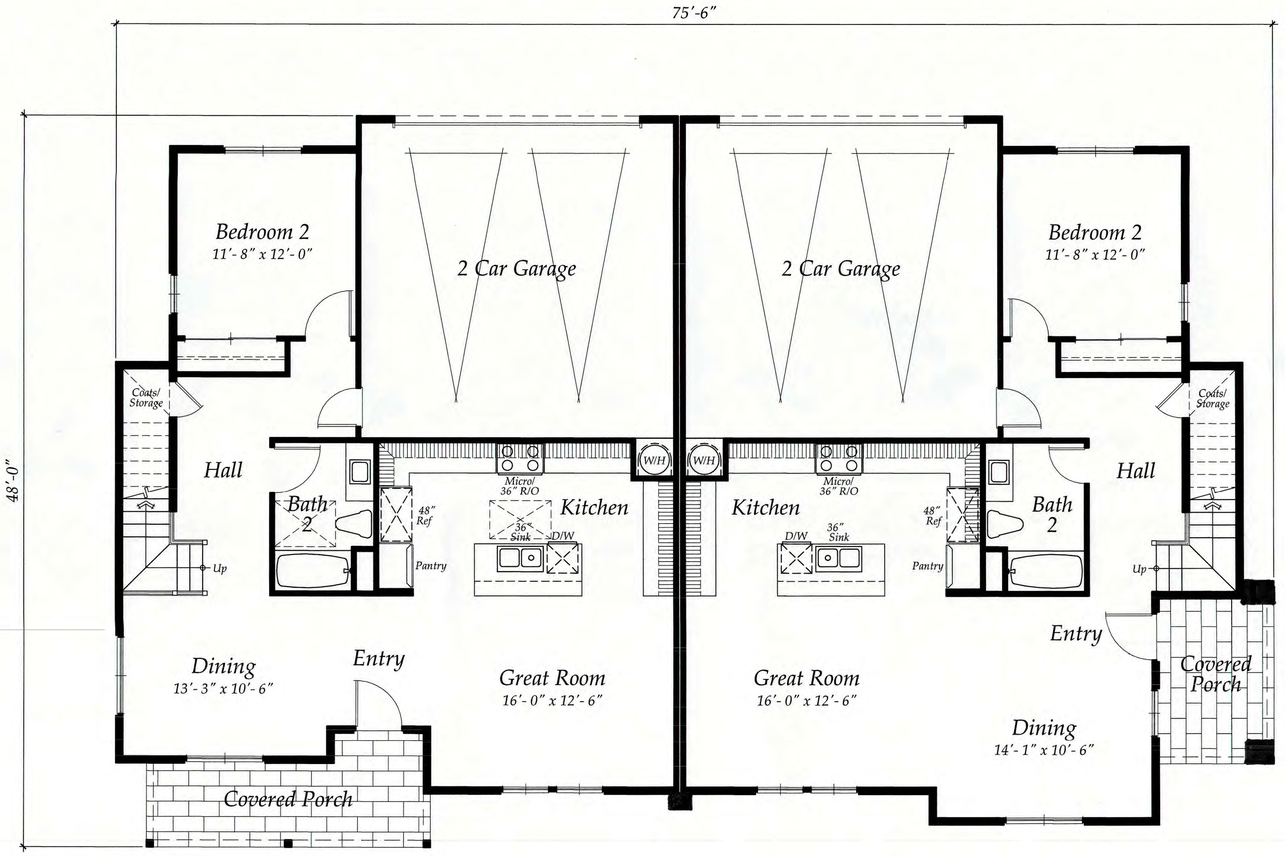
(951) 600-8600

Apartments
Continental Villages

Moreno Valley, CA

5-t-18 5-24-18

#18-12
PEN18-0107



Plan A
2,215 Sq. Ft.

Plan B
2,233 Sq. Ft.

First Floor

Scale: 1/4" = 1'-0"

Floor Plans

Scale: 1/4" = 1'-0"

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Duplexes
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Moreno Valley, CA

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2-7-18 5-24-18 #1B-10
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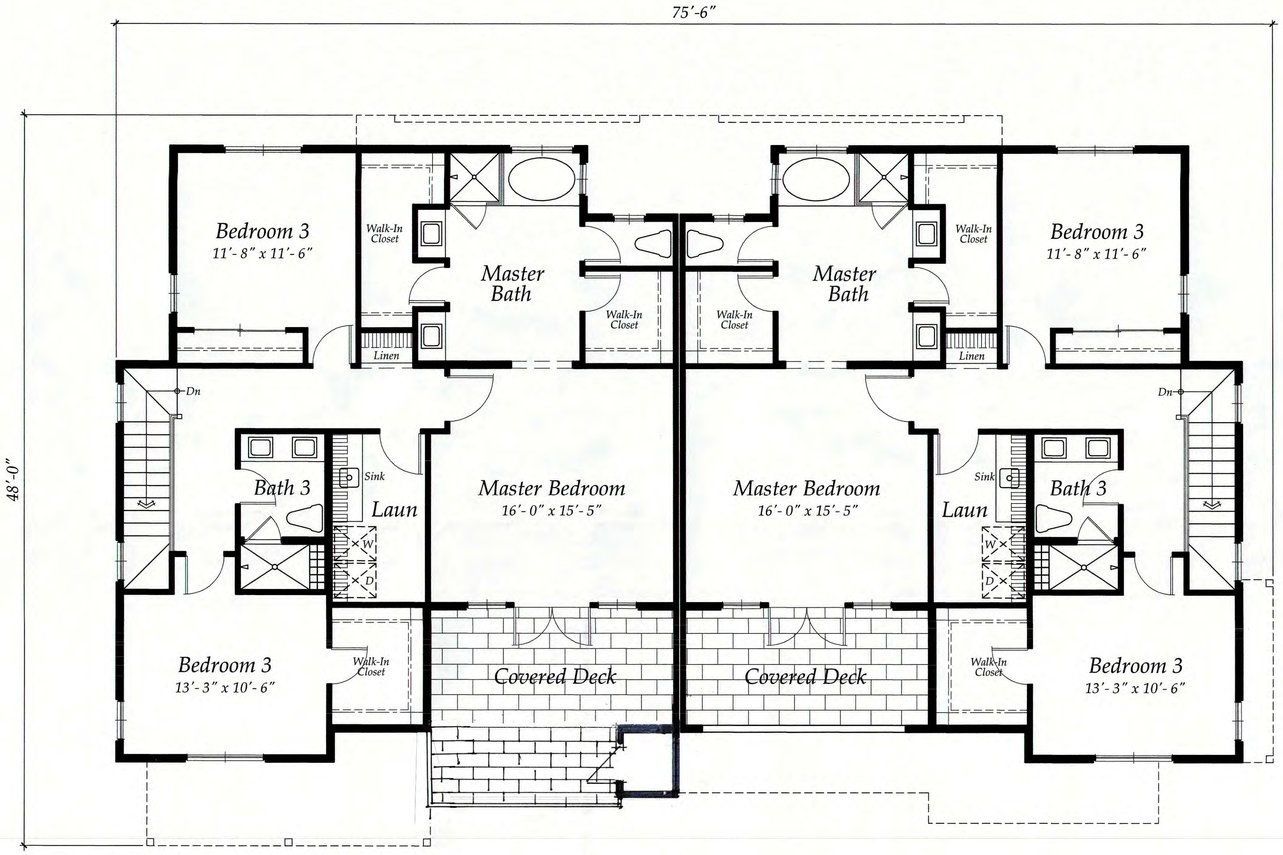

Plan A
2,215 Sq. Ft.

Plan B
2,233 Sq. Ft.

Second Floor

Scale: 1/4" = 1'-0"

Floor Plans

Scale: 1/4" = 1'-0"

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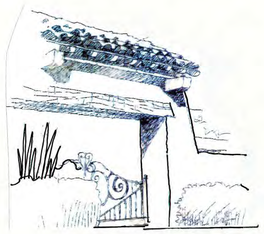

Front Elevation

SPANISH STYLE ARCHITECTURE

Vents

Standard clay pipe +/-3" diameter

Opening in wall with full stucco wrap and screen behind

Mission clay tile stacked in opening extended minimum 1" from face and screen behind

Architectural Elements

- Long porches in the form of colonnaded arcades with elaborate masonry arches supporting the roof.
- Porches can have roofs as extensions of main roof or a separate shed roof.
- Columns supporting the porches can be of heavy timber often with a bracket above or square Greek revival columns.
- Cantilevered second floor porches on two-story houses with delicate wooden balustrades
- Second level cantilevers over wood or precast concrete corbels.
- Doors on the second floor can have Juliett balconies with wrought iron railing and brackets.
- Recesses door and window openings to convey thick wall appearance.
- Arched shaped windows complementing the colonnaded arcades. Square, rectangular and round window shapes can also be used according to the design requirements.
- Decorative iron details over the windows.
- Simple window trims with a header and sill. Variations of sill include sloping and sculpted stucco sills.
- Decorative iron lanterns, sconces, hinges and hardware.
- Shutters as occasional accents.

Arch Types

Full arch-oneradius point

Elliptical-2 radius points

Palladian

Arch detail in courtyard

Right Elevation

Spanish Colonial

History and Character

Spanish inspired homes began appearing in the early part of the twentieth century as the form of the Mission style reflecting a local adaptation of features often found in dwelling from Moorish influences and other various styles. Spanish Colonial Style is unified by the color of stucco courtyards, strong form and color, plain wall surfaces, and tile roofs, all derived from Mediterranean architectural styles. It is also often characterized by an informal plan arrangement and massing. This informality reflects the natural composition of the farmhouses and small estates of Spain, which were not symmetrically composed.

General Attributes:

Massing

- Simple hip and gable shed roof form
- Formal focus of elevation or enhanced front door surround
- Usually 2 story main house form, supported by one or two story wings forming a courtyard

Roofs

- Low pitched roofs of 3:12 to 4:12
- Exposed rafter tails or continuous corbel at eave
- Clay or concrete barrel tile

Windows and Doors

- Deep recessed windows and doors of vertical proportion
- Front door may have enhanced precast concrete or plaster surround with balcony above
- Shutters are not typical to style

Details and Ornamentation

- Ornate wrought iron balconies, window grills, awning braces, and light fixtures.

EXTERIOR MATERIALS

1. CONCRETE 'S' TILE
2. FLAT CONCRETE TILE
3. POLYURETHANE SHUTTERS
4. CONCRETE FINIAL
5. STUCCO SCALLOPED RAKE DETAIL
6. POLYURETHANE 2 x 8 FASCIA BOARD
7. STUCCO OVER FOAM TRIM @ WINDOWS
8. FURRED BASE
9. METAL LIGHT FIXTURE
10. ROLL-UP GARAGE DOORS
11. POLYURETHANE 2 x 8 BARGE BOARD
12. METAL RAILING
13. 8 x 8 WOOD POST
14. STUCCO OVER FOAM CORBELS @ DECK
15. STUCCO
16. MAX. BUILDING HEIGHT – 28'-0" @ FINISH GRADE
17. 2 x 10 HEADER – STUCCO OVER FOAM

Elevations

Scale: 1/4" = 1'- 0"

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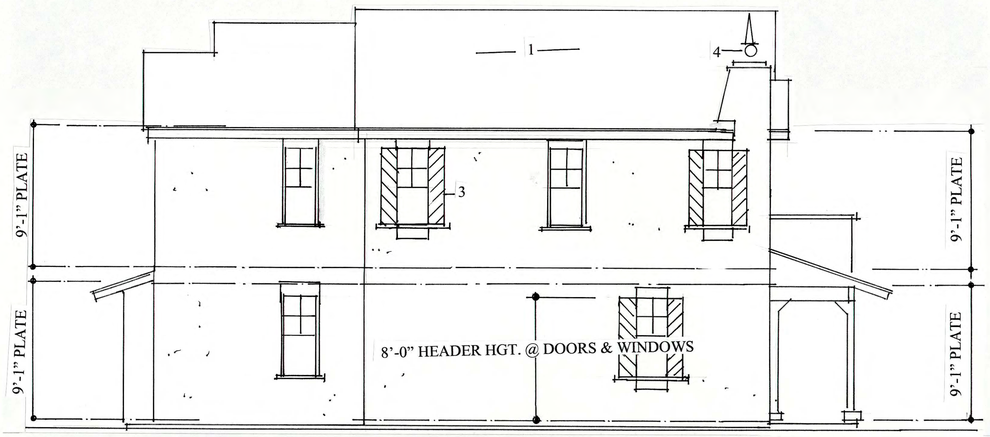
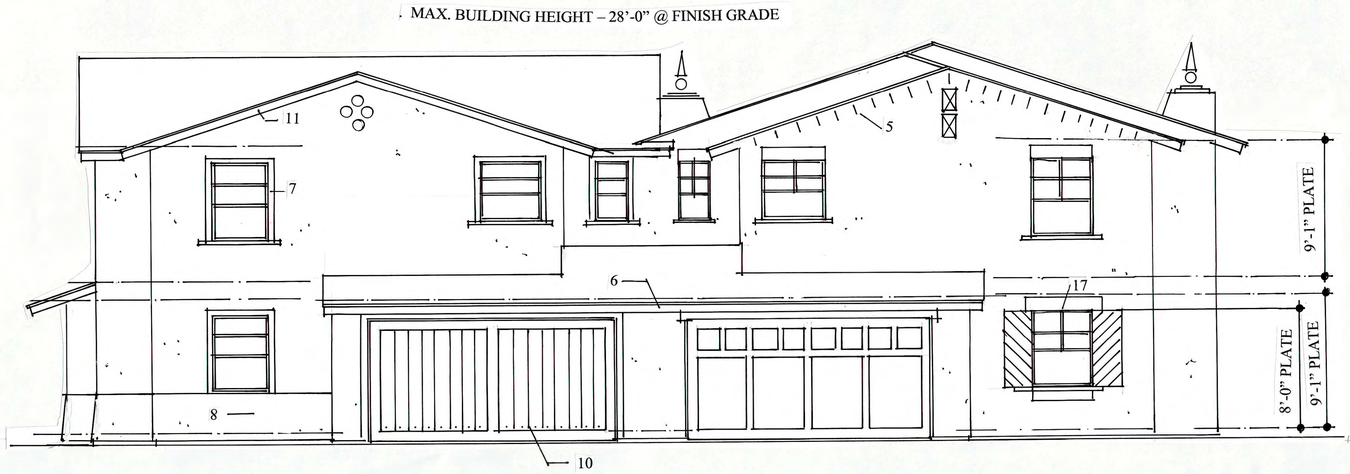
Duplexes
Continental Villages

Moreno Valley, CA

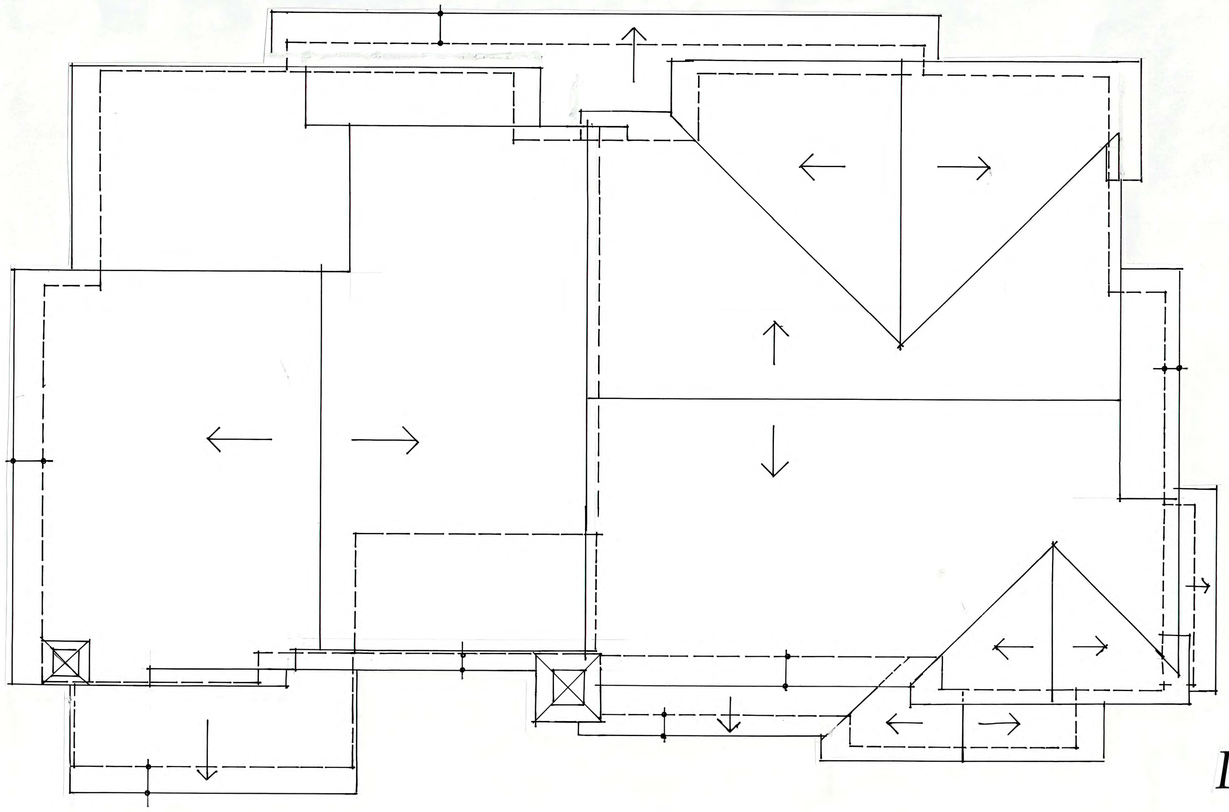
4-3-18 5-24-18 # 18-10
PEN18-0107



Left Elevation



Rear Elevation



Roof Plan

ROOF NOTES

1. 4:12 ROOF PITCH
2. 24" EAVE OVERHANG
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4. CONCRETE 'S' TILE

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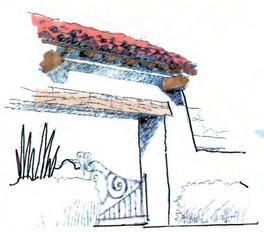

Spanish Style Architecture

Vents

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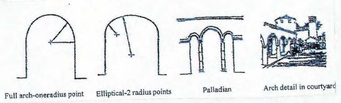
Arch Tynes



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Elevations

Scale: 1/4" = 1'- 0"

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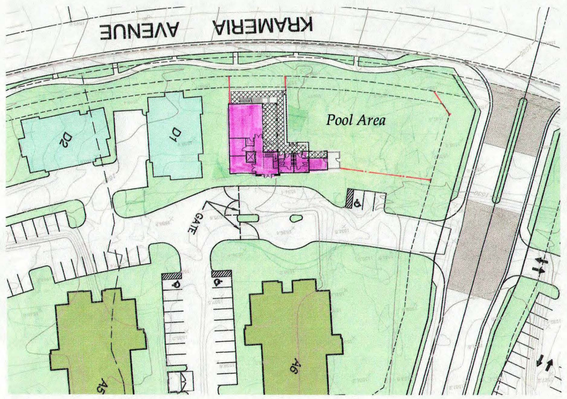
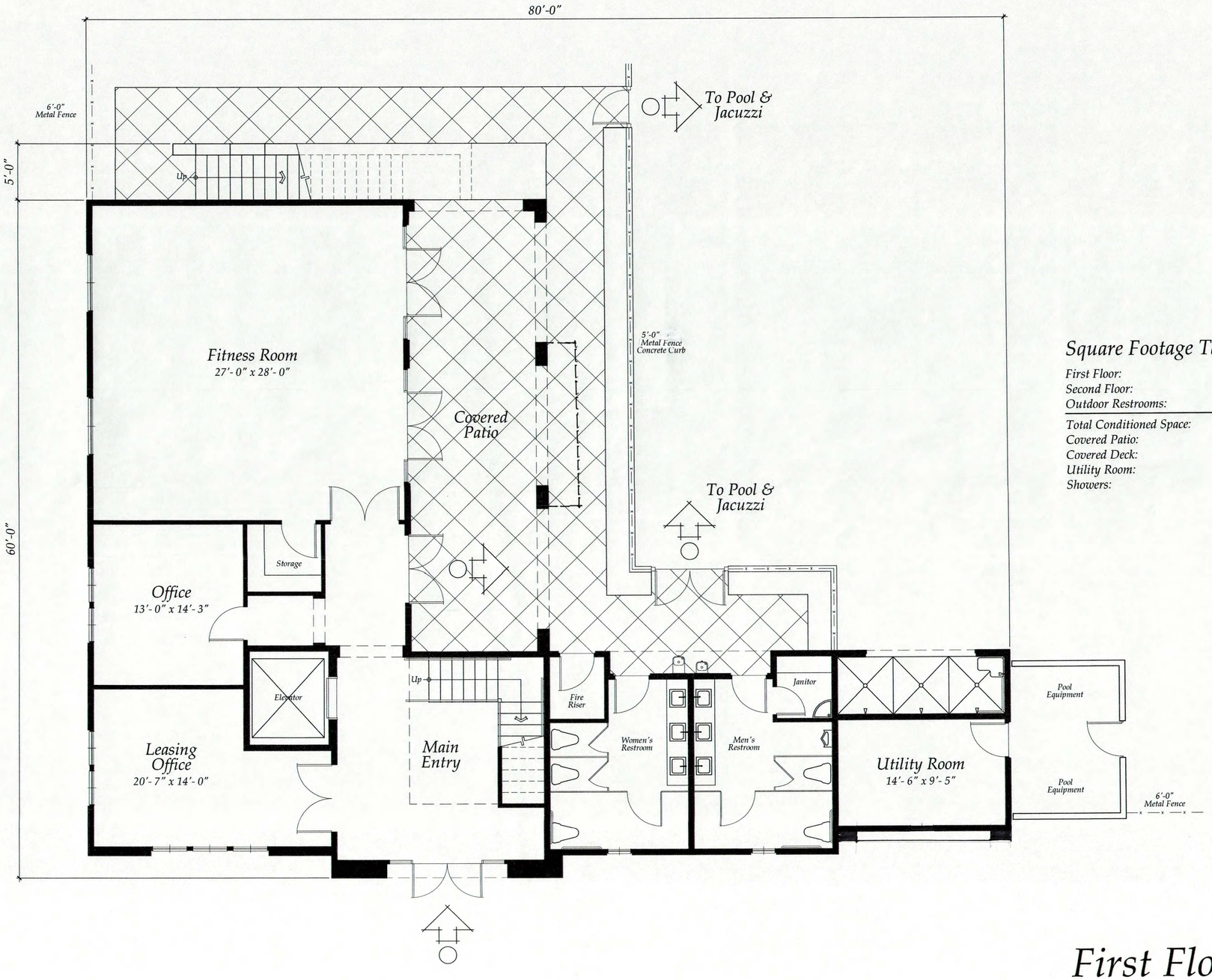
2-7-18 5-24-18 #10-10
PEN18-0107



Site Plan



Square Footage Tabulation

First Floor:	1,867 sq. ft.
Second Floor:	1,547 sq. ft.
Outdoor Restrooms:	422 sq. ft.
Total Conditioned Space:	3,836 sq. ft.
Covered Patio:	480 sq. ft.
Covered Deck:	480 sq. ft.
Utility Room:	155 sq. ft.
Showers:	85 sq. ft.

First Floor

Scale: 1/4" = 1'-0"

Continental East Development
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Recreation Building
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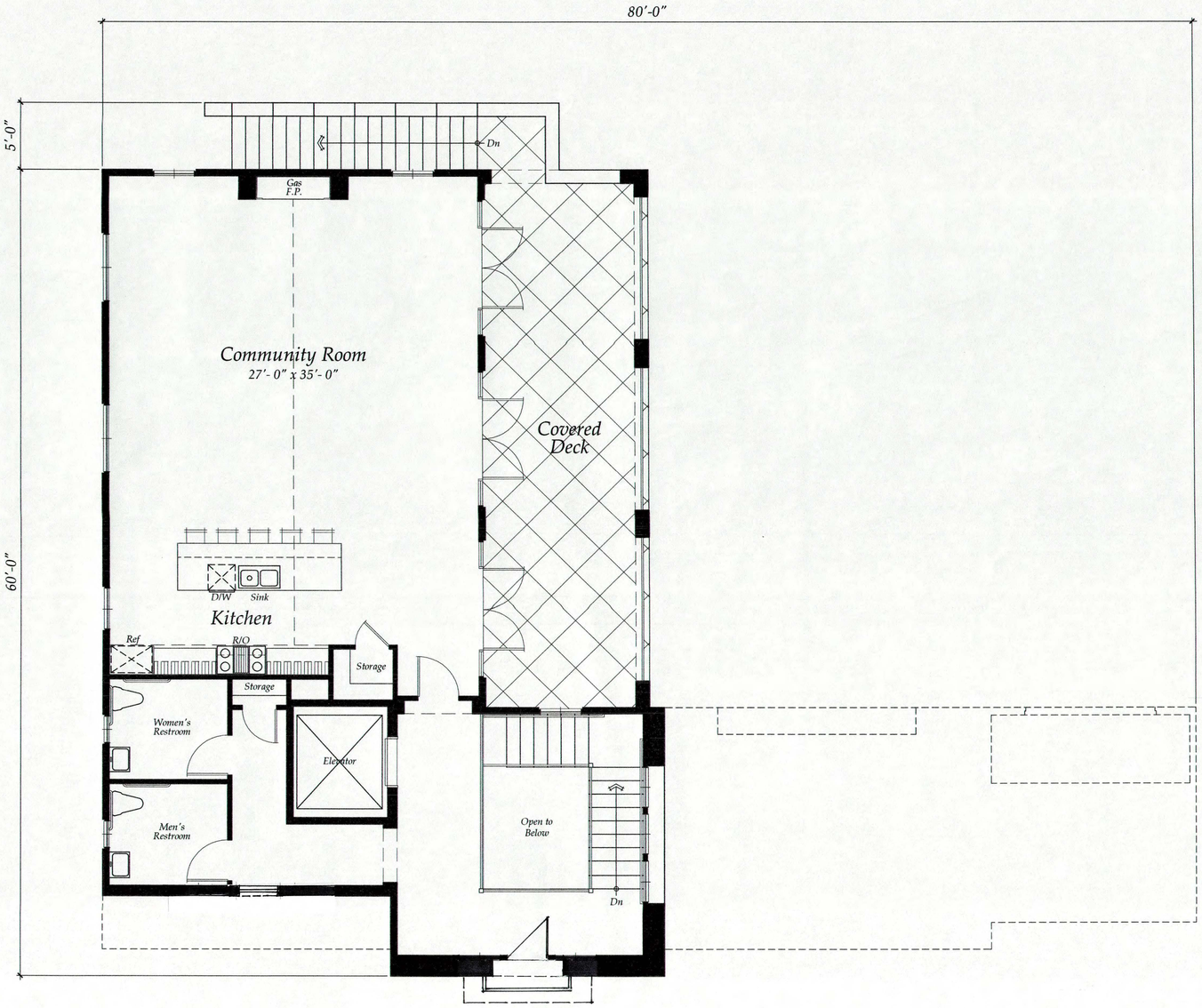
3-14-18 5-24-18

#18-11
PEN18-0107



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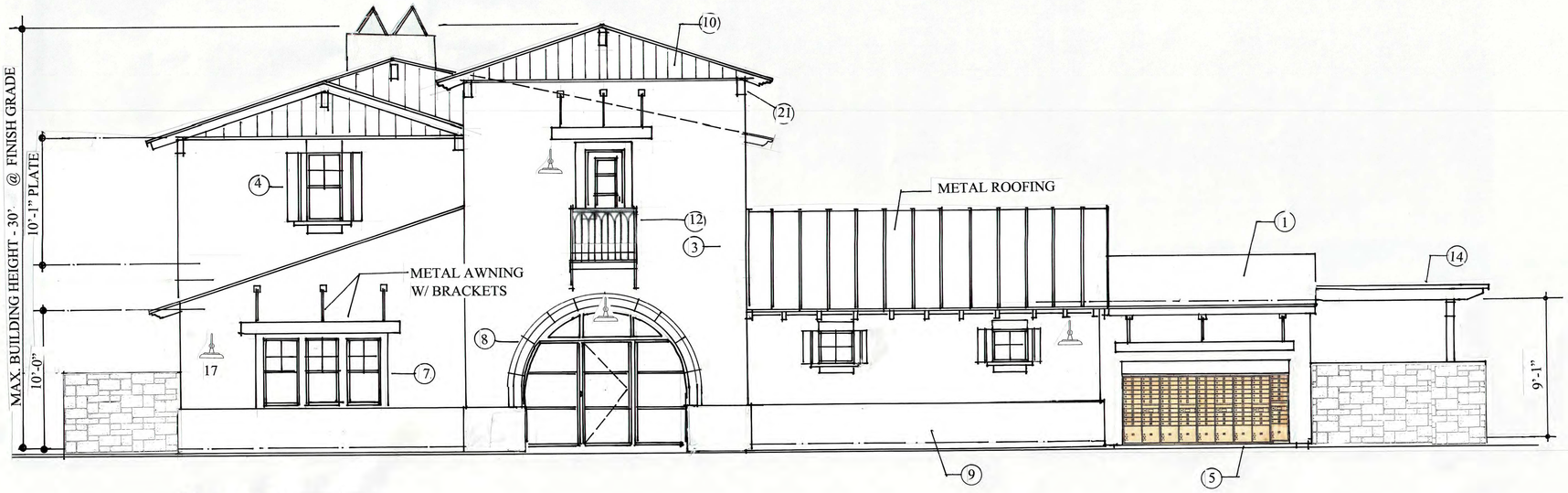
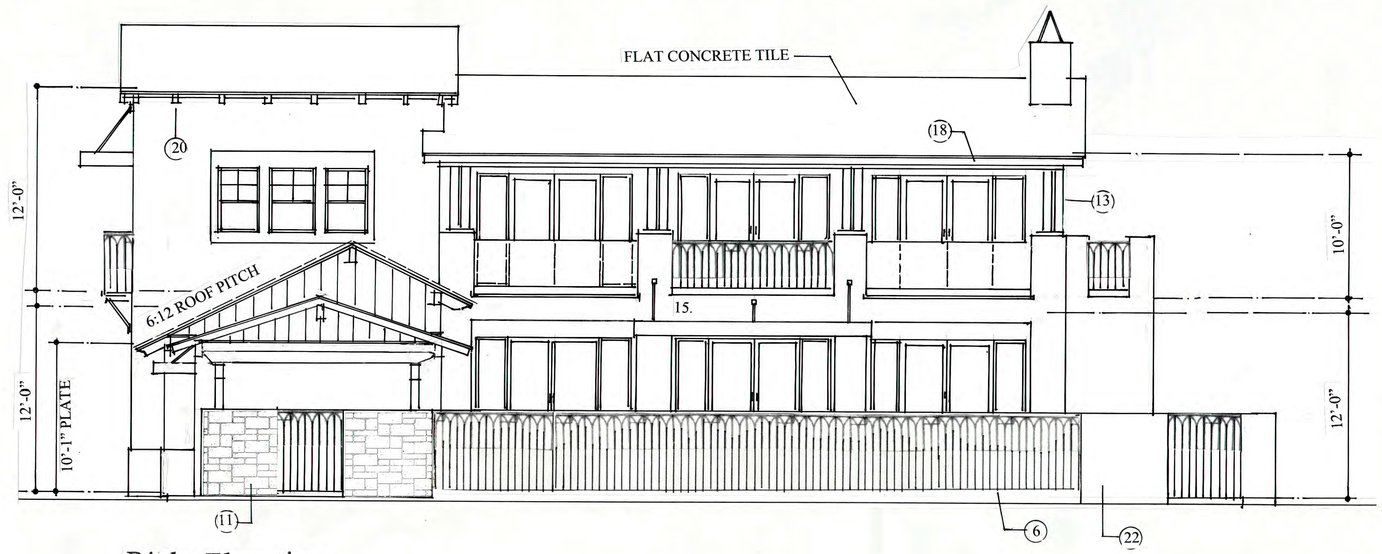
3-14-18 | 5-24-18 | #18-11 PEN18-0107



Front Elevation



Right Elevation

EXTERIOR MATERIALS

1. FLAT CONCRETE TILE ROOFING
2. METAL ROOFING
3. STUCCO
4. POLYURETHANE SHUTTERS
5. METAL MAIL BOXES
6. METAL FENCING & GATES
7. STUCCO OVER FOAM WINDOW TRIM
8. CONCRETE TRIM
9. FURRED BASE
10. WOOD SIDING – HARDIBOARD
11. STONE VENEER WALLS – 6'-0" HIGH
12. DECORATIVE METAL RAILING
13. 6 x 6 WOOD POSTS
14. WOOD TRELLIS
15. METAL AWNING W/ BRACKETS
16. TILE @ SHOWERS
17. METAL LIGHT FIXTURE
18. 2 x FASCIA
19. 2 x BARGE
20. EXPOSED WOOD TAILS
21. WOOD OUTLOOKERS
22. STUCCO WALL – 6'-0" HIGH
23. MAX. BUILDING HEIGHT - 30'-6" @ FINISH GRADE

Elevations

Scale: 1/4" = 1'-0"

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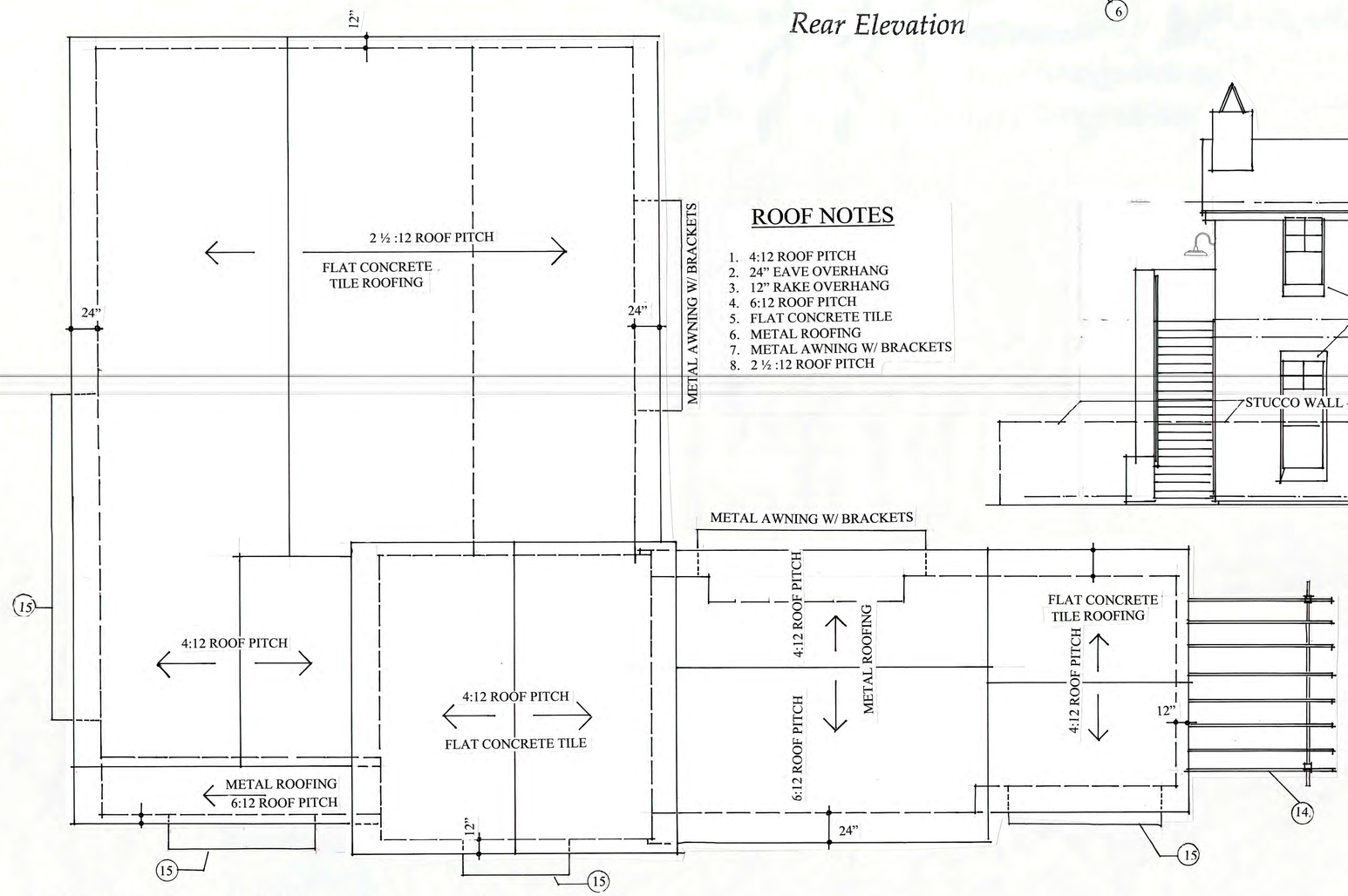
3-14-18 *5-24-18*

#18-11
PEN18-0107

Rear Elevation



ROOF NOTES

1. 4:12 ROOF PITCH
2. 24" EAVE OVERHANG
3. 12" RAKE OVERHANG
4. 6:12 ROOF PITCH
5. FLAT CONCRETE TILE
6. METAL ROOFING
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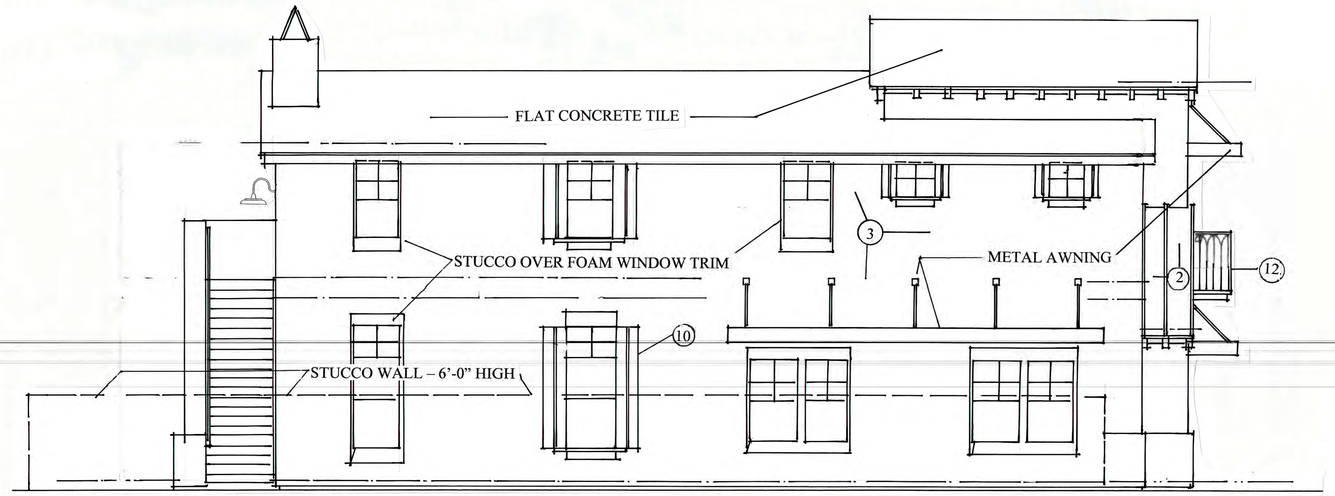
8. 2 ½ :12 ROOF PITCH



Left Elevation

EXTERIOR MATERIALS

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Roof Plan

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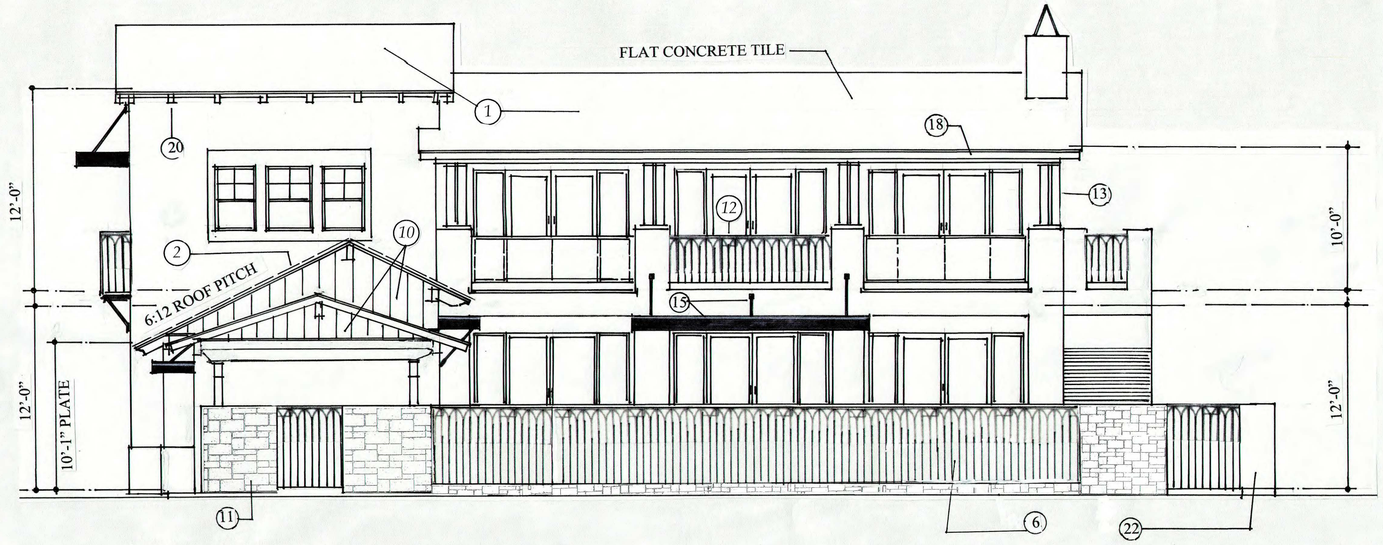
3-14-18 *5-24-18* *#18-11* *PEN18-0107*

Front Elevation



Right Elevation

EXTERIOR MATERIALS

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#18-11
PEN18-0107

URBAN CROSSROADS

Continental Villages

AIR QUALITY IMPACT ANALYSIS

CITY OF MORENO VALLEY

PREPARED BY:

Haseeb Qureshi, MES
hqureshi@urbanxroads.com
(949) 336-5987

Alyssa Tamase
atamase@urbanxroads.com
(949) 336-5988

NOVEMBER 16, 2018

TABLE OF CONTENTS

APPENDICES

LIST OF EXHIBITS

LIST OF TABLES

LIST OF ABBREVIATED TERMS

(1)	Reference
µg/m^3	Microgram per Cubic Meter
AADT	Annual Average Daily Trips
AQIA	Air Quality Impact Analysis
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
BACMs	Best Available Control Measures
BMPs	Best Management Practices
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DPM	Diesel Particulate Matter
EPA	Environmental Protection Agency
LST	Localized Significance Threshold
MMs	Mitigation Measures
NAAQS	National Ambient Air Quality Standards
NO_2	Nitrogen Dioxide
NO_X	Oxides of Nitrogen
Pb	Lead
PM_{10}	Particulate Matter 10 microns in diameter or less
$PM_{2.5}$	Particulate Matter 2.5 microns in diameter or less
PPM	Parts Per Million
Project	Continental Villages
ROG	Reactive Organic Gases
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SIPs	State Implementation Plans
SRA	Source Receptor Area

TAC	Toxic Air Contaminant
TIA	Traffic Impact Analysis
TOG	Total Organic Gases
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds

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EXECUTIVE SUMMARY

The results of this *Continental Villages Air Quality Impact Analysis* are summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines (1). Table ES-1 shows the findings of significance for each potential air quality impact under CEQA for the Project.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS (PROJECT)

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Regional Construction Emissions	3.4	*Less Than Significant*	*n/a*
Localized Construction Emissions	3.6	*Less Than Significant*	*n/a*
Regional Operational Emissions	3.5	*Less Than Significant*	*n/a*
Localized Operational Emissions	3.7	*Less Than Significant*	*n/a*
CO "Hot Spot" Analysis	3.8	*Less Than Significant*	*n/a*
Air Quality Management Plan	3.9	*Less Than Significant*	*n/a*
Sensitive Receptors	3.10	*Less Than Significant*	*n/a*
Odors	3.11	*Less Than Significant*	*n/a*
Cumulative Impacts	3.12	*Less Than Significant*	*n/a*

1 INTRODUCTION

This report presents the results of the air quality impact analysis (AQIA) prepared by Urban Crossroads, Inc., for the proposed Continental Villages development ("Project"). The purpose of this AQIA is to evaluate the potential impacts to air quality associated with construction and operation of the proposed Project and recommend measures to mitigate impacts considered potentially significant in comparison to thresholds established by the South Coast Air Quality Management District (SCAQMD).

1.1 SITE LOCATION

The proposed Continental Villages site is located on the northeast corner of Lasselle Street and Krameria Avenue in the City of Moreno Valley, as shown on Exhibit 1-A. Existing uses in the Project study area include existing residential homes northwest, south, and east of the Project site, the Lasselle Elementary School north of the Project site, and future residential uses, currently under construction, north of the Project site.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of up to 112 apartments/duplexes and 21,000 square feet of commercial retail use, as shown on Exhibit 1-B. The Project is anticipated to have an Opening Year of 2020[1].

1.3 STANDARD REGULATORY REQUIREMENTS/BEST AVAILABLE CONTROL MEASURES (BACMS)

Measures listed below (or equivalent language) shall appear on all Project grading plans, construction specifications and bid documents, and the City shall ensure such language is incorporated prior to issuance of any development permits.

SCAQMD Rules that are currently applicable during construction activity for this Project include but are not limited to: Rule 1113 (Architectural Coatings) (2) and Rule 403 (Fugitive Dust) (3).

BACM AQ-1

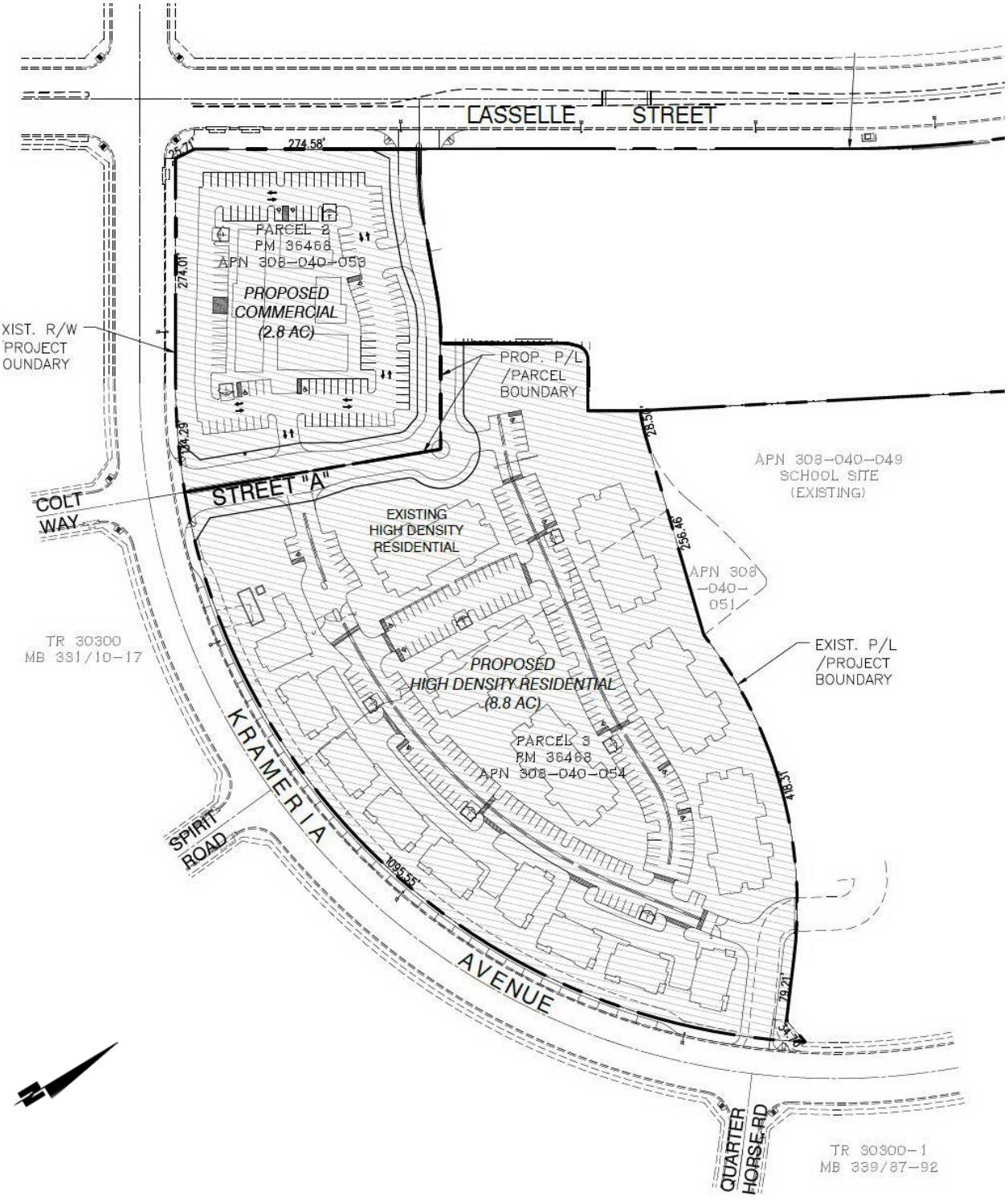
The following measures shall be incorporated into Project plans and specifications as implementation of Rule 403.

- All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 25 mph per SCAQMD guidelines in order to limit fugitive dust emissions.

[1] The Traffic Impact Analysis (TIA) prepared for the Project evaluates an Opening Year of 2023 since the City of Moreno Valley traffic study guidelines require the Opening Year to be a minimum of 5 years from baseline (2018) conditions. Utilizing a 2020 Opening Year for purposes of this AQIA would generate more emissions than if the Project utilized a 2023 Opening Year consistent with the traffic study because as the analysis year increases, vehicle emission factors would decrease as a result of emissions regulations becoming more stringent. Utilizing a 2020 Opening Year for purposes of the AQIA herein represents a conservative estimate of emissions compared to if a 2023 Opening Year, consistent with the traffic study, were utilized.

EXHIBIT 1-A: LOCATION MAP

EXHIBIT 1-B: SITE PLAN



- The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the Project are watered at least three (3) times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day.
- The contractor shall ensure that traffic speeds on unpaved roads and Project site areas are reduced to 15 miles per hour or less.

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Only "Low-Volatile Organic Compounds" paints (no more than 50 gram/liter of VOC) and/or High-Pressure Low Volume (HPLV) applications consistent with South Coast Air Quality Management District Rule 1113 shall be used.

1.4 Project Design Features

PDF AQ-1

During the site preparation phase, construction equipment greater than 150 horsepower (>150 HP), the Construction Contractor shall use off-road diesel construction equipment that complies with EPA/CARB Tier 3 emissions standards and will ensure that all construction equipment be tuned and maintained in accordance with the manufacturer's specifications.

1.5 Construction and Operational-Source Air Pollutant Emissions Mitigation Measures

Project construction and operational-source emissions will be less than significant. Therefore, no mitigation measures are required.

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2 AIR QUALITY SETTING

This section provides an overview of the existing air quality conditions in the Project area and region.

2.1 SOUTH COAST AIR BASIN

The Project site is located in the South Coast Air Basin (SCAB) within the jurisdiction of SCAQMD (4). The SCAQMD was created by the 1977 Lewis-Presley Air Quality Management Act, which merged four county air pollution control bodies into one regional district. Under the Act, the SCAQMD is responsible for bringing air quality in areas under its jurisdiction into conformity with federal and state air quality standards. As discussed above, the Project site is located within the South Coast Air Basin, a 6,745-square mile subregion of the SCAQMD, which includes portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County. The larger South Coast district boundary includes 10,743 square miles.

The SCAB is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Los Angeles County portion of the Mojave Desert Air Basin is bounded by the San Gabriel Mountains to the south and west, the Los Angeles / Kern County border to the north, and the Los Angeles / San Bernardino County border to the east. The Riverside County portion of the Salton Sea Air Basin is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley.

2.2 REGIONAL CLIMATE

The regional climate has a substantial influence on air quality in the SCAB. In addition, the temperature, wind, humidity, precipitation, and amount of sunshine influence the air quality.

The annual average temperatures throughout the SCAB vary from the low to middle 60s (degrees Fahrenheit). Due to a decreased marine influence, the eastern portion of the SCAB shows greater variability in average annual minimum and maximum temperatures. January is the coldest month throughout the SCAB, with average minimum temperatures of 47°F in downtown Los Angeles and 36°F in San Bernardino. All portions of the SCAB have recorded maximum temperatures above 100°F.

Although the climate of the SCAB can be characterized as semi-arid, the air near the land surface is quite moist on most days because of the presence of a marine layer. This shallow layer of sea air is an important modifier of SCAB climate. Humidity restricts visibility in the SCAB, and the conversion of sulfur dioxide to sulfates is heightened in air with high relative humidity. The marine layer provides an environment for that conversion process, especially during the spring and summer months. The annual average relative humidity within the SCAB is 71 percent along the coast and 59 percent inland. Since the ocean effect is dominant, periods of heavy early morning fog are frequent and low stratus clouds are a characteristic feature. These effects decrease with distance from the coast.

More than 90 percent of the SCAB's rainfall occurs from November through April. The annual average rainfall varies from approximately nine inches in Riverside to fourteen inches in downtown Los Angeles. Monthly and yearly rainfall totals are extremely variable. Summer rainfall usually consists of widely scattered thunderstorms near the coast and slightly heavier shower activity in the eastern portion of the SCAB with frequency being higher near the coast.

Due to its generally clear weather, about three-quarters of available sunshine is received in the SCAB. The remaining one-quarter is absorbed by clouds. The ultraviolet portion of this abundant radiation is a key factor in photochemical reactions. On the shortest day of the year, there are approximately 10 hours of possible sunshine, and on the longest day of the year there are approximately 14½ hours of possible sunshine.

The importance of wind to air pollution is considerable. The direction and speed of the wind determines the horizontal dispersion and transport of the air pollutants. During the late autumn to early spring rainy season, the SCAB is subjected to wind flows associated with the traveling storms moving through the region from the northwest. This period also brings five to ten periods of strong, dry offshore winds, locally termed "Santa Anas" each year. During the dry season, which coincides with the months of maximum photochemical smog concentrations, the wind flow is bimodal, typified by a daytime onshore sea breeze and a nighttime offshore drainage wind. Summer wind flows are created by the pressure differences between the relatively cold ocean and the unevenly heated and cooled land surfaces that modify the general northwesterly wind circulation over southern California. Nighttime drainage begins with the radiational cooling of the mountain slopes. Heavy, cool air descends the slopes and flows through the mountain passes and canyons as it follows the lowering terrain toward the ocean. Another characteristic wind regime in the SCAB is the "Catalina Eddy," a low level cyclonic (counterclockwise) flow centered over Santa Catalina Island which results in an offshore flow to the southwest. On most spring and summer days, some indication of an eddy is apparent in coastal areas.

In the SCAB, there are two distinct temperature inversion structures that control vertical mixing of air pollution. During the summer, warm high-pressure descending (subsiding) air is undercut by a shallow layer of cool marine air. The boundary between these two layers of air is a persistent marine subsidence/inversion. This boundary prevents vertical mixing which effectively acts as an impervious lid to pollutants over the entire SCAB. The mixing height for the inversion structure is normally situated 1,000 to 1,500 feet above mean sea level.

A second inversion-type forms in conjunction with the drainage of cool air off the surrounding mountains at night followed by the seaward drift of this pool of cool air. The top of this layer forms a sharp boundary with the warmer air aloft and creates nocturnal radiation inversions. These inversions occur primarily in the winter, when nights are longer and onshore flow is weakest. They are typically only a few hundred feet above mean sea level. These inversions effectively trap pollutants, such as NO_x and CO from vehicles, as the pool of cool air drifts seaward. Winter is therefore a period of high levels of primary pollutants along the coastline.

2.3 WIND PATTERNS AND PROJECT LOCATION

The distinctive climate of the Project area and the SCAB is determined by its terrain and geographical location. The Basin is located in a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean in the southwest quadrant with high mountains forming the remainder of the perimeter.

Wind patterns across the south coastal region are characterized by westerly and southwesterly on-shore winds during the day and easterly or northeasterly breezes at night. Winds are characteristically light although the speed is somewhat greater during the dry summer months than during the rainy winter season.

2.4 EXISTING AIR QUALITY

Existing air quality is measured at established SCAQMD air quality monitoring stations. Monitored air quality is evaluated and in the context of ambient air quality standards. These standards are the levels of air quality that are considered safe, with an adequate margin of safety, to protect the public health and welfare. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) currently in effect are shown in Table 2-2 (5).

The determination of whether a region's air quality is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to the state and federal standards presented in Table 2-2. The air quality in a region is considered to be in attainment by the state if the measured ambient air pollutant levels for O_3, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are not equaled or exceeded at any time in any consecutive three-year period; and the federal standards (other than O_3, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not exceeded more than once per year. The O_3 standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

TABLE 2-1: AMBIENT AIR QUALITY STANDARDS (1 OF 2)

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flouresecence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page ...

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (5/4/16)

TABLE 2-1: AMBIENT AIR QUALITY STANDARDS (2 OF 2)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (5/4/16)**

2.5 REGIONAL AIR QUALITY

The SCAQMD monitors levels of various criteria pollutants at 37 permanent monitoring stations and 5 single-pollutant source Lead (Pb) air monitoring sites throughout the air district (6). In 2017, the federal and state ambient air quality standards (NAAQS and CAAQS) were exceeded on one or more days for ozone, PM_{10}, and $PM_{2.5}$ at most monitoring locations. No areas of the SCAB exceeded federal or state standards for NO_2, SO_2, CO, sulfates or lead (6). See Table 2-2, for attainment designations for the SCAB (7) (8). Appendix 2.1 provides geographic representation of the state and federal attainment status for applicable criteria pollutants within the SCAB.

TABLE 2-2: ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SOUTH COAST AIR BASIN (SCAB)

Criteria Pollutant	State Designation	Federal Designation
Ozone - 1hour standard	Nonattainment	Nonattainment ("Extreme")
Ozone - 8 hour standard	Nonattainment	Nonattainment ("Extreme")
PM_{10}	Nonattainment	Attainment (Maintenance)
$PM_{2.5}$	Nonattainment	Nonattainment ("Serious")
Carbon Monoxide	Attainment	Attainment (Maintenance)
Nitrogen Dioxide	Attainment	Unclassifiable/Attainment
Sulfur Dioxide	Attainment	Unclassifiable/Attainment
Lead[2]	Attainment	Nonattainment (Partial)

Source: State/Federal designations were taken from http://www.arb.ca.gov/desig/adm/adm.htm
Note: See Appendix 2.1 for a detailed map of State/National Area Designations within the South Coast Air Basin

2.6 LOCAL AIR QUALITY

Relative to the Project site, the nearest long-term air quality monitoring site for Ozone (O_3) and Particulate Matter ≤ 10 Microns (PM_{10}) is the South Coast Air Quality Management District Perris Valley monitoring station (SRA 24), located approximately 6.24 miles south of the Project site (9). Data for Carbon Monoxide (CO), Nitrogen Dioxide (NO_2), Ultra-Fine Particulates ($PM_{2.5}$), and Sulfur Dioxide (SO_2) was obtained from the Metropolitan Riverside County 1 monitoring station (SRA 23), located approximately 14.40 miles northwest of the Project site, respectively. It should be noted that the Metropolitan Riverside County 1, station was utilized in lieu of the Perris Valley monitoring station only where data was not available from the nearest monitoring site.

The most recent three (3) years of data available is shown on Table 2-3 and identifies the number of days ambient air quality standards were exceeded for the study area, which is considered to be representative of the local air quality at the Project site. Data for O_3, NO_2, PM_{10}, and $PM_{2.5}$ for 2015 through 2017 was obtained from CARB's iADAM Air Quality Data Statistics (10). Data for CO was obtained from the SCAQMD Air Quality Data Tables (11). It should be noted that the CO data for 2017 is currently unavailable from both CARB and SCAQMD. Additionally, data for SO_2 has

[2] The Federal nonattainment designation for lead is only applicable towards the Los Angeles County portion of the SCAB.

been omitted as attainment is regularly met in the South Coast Air Basin and few monitoring stations measure SO_2 concentrations.

TABLE 2-3: PROJECT AREA AIR QUALITY MONITORING SUMMARY 2015-2017

POLLUTANT	STANDARD	YEAR		
		2015	2016	2017
Ozone				
Maximum Federal 1-Hour Concentration (ppm)		0.124	0.131	0.120
Maximum Federal 8-Hour Concentration (ppm)		0.102	0.098	0.105
Number of Days Exceeding Federal 1-Hour Standard		25	23	33
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm	50	56	86
Number of Days Exceeding Federal 8-Hour Standard	> 0.070 ppm	0	1	0
Number of Days Exceeding State 8-Hour Standard	> 0.070 ppm	49	55	80
Carbon Monoxide (CO)				
Maximum 1-Hour Concentration	> 35 ppm	2.5	1.7	--
Maximum 8-Hour Concentration	> 20 ppm	1.7	1.3	--
Nitrogen Dioxide (NO_2)				
Maximum Federal 1-Hour Concentration	> 0.100 ppm	0.057	0.073	0.063
Maximum State 1-Hour Concentration	> 0.18 ppm	0.057	0.073	0.063
Annual Federal Standard Design Value		14	15	15
Annual State Standard Design Value		15	15	14
Number of Days Exceeding Federal 1-Hour Standard	> 0.18 ppm	0	0	0
Number of Days Exceeding State 1-Hour Standard	> 0.18 ppm	0	0	0
Particulate Matter ≤ 10 Microns (PM_{10})				
Maximum Federal 24-Hour Concentration (µg/m^3)	> 150 µg/m^3	188.0	76.0	75.4
Annual Federal Arithmetic Mean (µg/m^3)		33.1	32.2	32.6
Number of Days Exceeding Federal 24-Hour Standard	> 150 µg/m^3	1	0	0
Particulate Matter ≤ 2.5 Microns ($PM_{2.5}$)				
Maximum Federal 24-Hour Concentration (µg/m^3)	> 35 µg/m^3	54.7	51.5	50.3
Maximum State 24-Hour Concentration (µg/m^3)		61.1	60.8	50.3
Annual Federal Arithmetic Mean (µg/m^3)		11.8	12.5	12.2
Number of Samples Exceeding Federal 24-Hour Standard	> 35 µg/m^3	9	5	7

Source: Data for O_3, NO_2, PM_{10}, and $PM_{2.5}$ was obtained from CARB's iADAM. Data for CO was obtained from SCAQMD Air Quality Data Tables.
-- = data not available from ARB or SCAQMD

Criteria pollutants are pollutants that are regulated through the development of human health based and/or environmentally based criteria for setting permissible levels. Criteria pollutants, their typical sources, and health effects are identified below (12):

- Carbon Monoxide (CO): Is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest during the winter morning, when little to no wind and surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, motor vehicles operating at slow speeds are the primary source of CO in the Basin. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.
- Sulfur Dioxide (SO_2): Is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfates (SO_4). Collectively, these pollutants are referred to as sulfur oxides (SO_X).
- Nitrogen Oxides (Oxides of Nitrogen, or NO_x): Nitrogen oxides (NO_x) consist of nitric oxide (NO), nitrogen dioxide (NO_2) and nitrous oxide (N_2O) and are formed when nitrogen (N_2) combines with oxygen (O_2). Their lifespan in the atmosphere ranges from one to seven days for nitric oxide and nitrogen dioxide, to 170 years for nitrous oxide. Nitrogen oxides are typically created during combustion processes, and are major contributors to smog formation and acid deposition. NO_2 is a criteria air pollutant, and may result in numerous adverse health effects; it absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility. Of the seven types of nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere. As ambient concentrations of NO_2 are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO_2 than those indicated by regional monitoring station.
- Ozone (O_3): Is a highly reactive and unstable gas that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NO_X), both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.
- PM_{10} (Particulate Matter less than 10 microns): A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the lungs where they may be deposited, resulting in adverse health effects. PM_{10} also causes visibility reduction and is a criteria air pollutant.
- $PM_{2.5}$ (Particulate Matter less than 2.5 microns): A similar air pollutant consisting of tiny solid or liquid particles which are 2.5 microns or smaller (which is often referred to as fine particles). These particles are formed in the atmosphere from primary gaseous emissions that include sulfates formed from SO_2 release from power plants and industrial facilities and nitrates that are formed from NO_X release from power plants, automobiles and other types of combustion sources. The chemical composition of fine particles highly depends on location, time of year, and weather conditions. $PM_{2.5}$ is a criteria air pollutant.
- Volatile Organic Compounds (VOC): Volatile organic compounds are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical

reactions and/or may be toxic. Compounds of carbon (also known as organic compounds) have different levels of reactivity; that is, they do not react at the same speed or do not form ozone to the same extent when exposed to photochemical processes. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. Exceptions to the VOC designation include: carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. VOCs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The SCAQMD uses the terms VOC and ROG (see below) interchangeably.

- Reactive Organic Gases (ROG): Similar to VOC, Reactive Organic Gases (ROG) are also precursors in forming ozone and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and nitrogen oxides react in the presence of sunlight. ROGs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The SCAQMD uses the terms ROG and VOC (see previous) interchangeably.
- Lead (Pb): Lead is a heavy metal that is highly persistent in the environment. In the past, the primary source of lead in the air was emissions from vehicles burning leaded gasoline. As a result of the removal of lead from gasoline, there have been no violations at any of the SCAQMD's regular air monitoring stations since 1982. Currently, emissions of lead are largely limited to stationary sources such as lead smelters. It should be noted that the Project is not anticipated to generate a quantifiable amount of lead emissions. Lead is a criteria air pollutant.

Health Effects of Air Pollutants

Ozone

Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the most susceptible sub-groups for ozone effects. Short-term exposure (lasting for a few hours) to ozone at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. Elevated ozone levels are associated with increased school absences. In recent years, a correlation between elevated ambient ozone levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple sports and live in communities with high ozone levels.

Ozone exposure under exercising conditions is known to increase the severity of the responses described above. Animal studies suggest that exposure to a combination of pollutants that includes ozone may be more toxic than exposure to ozone alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.

Carbon Monoxide

Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of decreased oxygen supply to the heart. Inhaled CO

has no direct toxic effect on the lungs, but exerts its effect on tissues by interfering with oxygen transport and competing with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include fetuses, patients with diseases involving heart and blood vessels, and patients with chronic hypoxemia (oxygen deficiency) as seen at high altitudes.

Reduction in birth weight and impaired neurobehavioral development have been observed in animals chronically exposed to CO, resulting in COHb levels similar to those observed in smokers. Recent studies have found increased risks for adverse birth outcomes with exposure to elevated CO levels; these include pre-term births and heart abnormalities.

Particulate Matter

A consistent correlation between elevated ambient fine particulate matter (PM_{10} and $PM_{2.5}$) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in life-span, and an increased mortality from lung cancer.

Daily fluctuations in $PM_{2.5}$ concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children, and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long term exposure to particulate matter.

The elderly, people with pre-existing respiratory or cardiovascular disease, and children appear to be more susceptible to the effects of high levels of PM_{10} and $PM_{2.5}$.

Nitrogen Dioxide

Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposure to NO_2 at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups.

In animals, exposure to levels of NO_2 considerably higher than ambient concentrations results in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of ozone exposure increases when animals are exposed to a combination of ozone and NO_2.

Sulfur Dioxide

A few minutes of exposure to low levels of SO_2 can result in airway constriction in some asthmatics, all of whom are sensitive to its effects. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2.

Animal studies suggest that despite SO_2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract.

Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. In these studies, efforts to separate the effects of SO_2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.

Lead

Fetuses, infants, and children are more sensitive than others to the adverse effects of Pb exposure. Exposure to low levels of Pb can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased Pb levels are associated with increased blood pressure.

Pb poisoning can cause anemia, lethargy, seizures, and death; although it appears that there are no direct effects of Pb on the respiratory system. Pb can be stored in the bone from early age environmental exposure, and elevated blood Pb levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of Pb because of previous environmental Pb exposure of their mothers.

Odors

The science of odor as a health concern is still new. Merely identifying the hundreds of VOCs that cause odors poses a big challenge. Offensive odors can potentially affect human health in several ways. First, odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. Second, studies have shown that the VOCs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects such as stress.

2.7 REGULATORY BACKGROUND

2.7.1 FEDERAL REGULATIONS

lead (13). The U.S. EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The U.S. EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of the CARB.

The Federal Clean Air Act (CAA) was first enacted in 1955 and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The CAA establishes the federal air quality standards, the NAAQS, and specifies future dates for achieving compliance (14). The CAA also mandates that states submit and implement State Implementation Plans (SIPs) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA that identify specific emission reduction goals for areas not meeting the NAAQS require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA most directly applicable to the development of the Project site include Title I (Non-Attainment Provisions) and Title II (Mobile Source Provisions). Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants O_3, NO_2, SO_2, PM_{10}, CO, $PM_{2.5}$, and lead. The NAAQS were amended in July 1997 to include an additional standard for O_3 and to adopt a NAAQS for $PM_{2.5}$. Table 3-1 (previously presented) provides the NAAQS within the basin.

Mobile source emissions are regulated in accordance with Title II provisions. These provisions require the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of hydrocarbons and nitrogen oxides (NO_x). NOx is a collective term that includes all forms of nitrogen oxides (NO, NO_2, NO_3) which are emitted as byproducts of the combustion process.

2.7.2 CALIFORNIA REGULATIONS

California Air Resource Board (CARB). The CARB, which became part of the California EPA in 1991, is responsible for ensuring implementation of the California Clean Air Act (AB 2595), responding to the federal CAA, and for regulating emissions from consumer products and motor vehicles. The California CAA mandates achievement of the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date. The CARB established the CAAQS for all pollutants for which the federal government has NAAQS and, in addition, establishes standards for sulfates, visibility, hydrogen sulfide, and vinyl chloride. However, at this time, hydrogen sulfide and vinyl chloride are not measured at any monitoring stations in the SCAB because they are not considered to be a regional air quality problem. Generally, the CAAQS are more stringent than the NAAQS (15) (13).

Local air quality management districts, such as the SCAQMD, regulate air emissions from stationary sources such as commercial and industrial facilities. All air pollution control districts have been formally designated as attainment or non-attainment for each CAAQS.

Serious non-attainment areas are required to prepare air quality management plans that include specified emission reduction strategies in an effort to meet clean air goals. These plans are required to include:

- Application of Best Available Retrofit Control Technology to existing sources;
- Developing control programs for area sources (e.g., architectural coatings and solvents) and indirect sources (e.g. motor vehicle use generated by residential and commercial development);
- A District permitting system designed to allow no net increase in emissions from any new or modified permitted sources of emissions;
- Implementing reasonably available transportation control measures and assuring a substantial reduction in growth rate of vehicle trips and miles traveled;
- Significant use of low emissions vehicles by fleet operators;
- Sufficient control strategies to achieve a five percent or more annual reduction in emissions or 15 percent or more in a period of three years for ROGs, NO_x, CO and PM_{10}. However, air basins may use alternative emission reduction strategy that achieves a reduction of less than five percent per year under certain circumstances.

Title 24 Energy Efficiency Standards and California Green Building Standards. California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2016 version of Title 24 was adopted by the California Energy Commission (CEC) and became effective on January 1, 2017 and is applicable to the Project.

The CEC indicates that the 2016 Title 24 standards will reduce energy consumption by 5 percent for nonresidential buildings above that achieved by the 2013 Title 24 (CEC 2015).

California Code of Regulations, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2011, and is administered by the California Building Standards Commission. CALGreen is updated on a regular basis, with the most recent update consisting of the 2016 California Green Building Code Standards that became effective January 1, 2017. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction and demolition ordinances and defers to them as the ruling guidance provided they establish a minimum 65 percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. The State Building Code provides the minimum standard that buildings must meet

in order to be certified for occupancy, which is generally enforced by the local building official. CALGreen requires:

- Short-term bicycle parking. If a commercial project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of tenant-occupied motorized vehicle parking capacity, with a minimum of one space (5.106.4.1.2).
- Designated parking. Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling (5.410.1).
- Construction waste. A minimum 65 percent diversion of construction and demolition waste from landfills, increasing voluntarily to 80 percent for new homes and commercial projects (5.408.1, A5.408.3.1 [nonresidential], A5.408.3.1 [residential]). All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled (5.408.3).
- Wastewater reduction. Each building shall reduce the generation of wastewater by one of the following methods:
    - The installation of water-conserving fixtures (5.303.3) or
    - Using nonpotable water systems (5.303.4).
- Water use savings. 20 percent mandatory reduction of indoor water use with voluntary goal standards for 30, 35 and 40 percent reductions (5.303.2, A5303.2.3 [nonresidential]).
- Water meters. Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day (5.303.1).
- Irrigation efficiency. Moisture-sensing irrigation systems for larger landscaped areas (5.304.3).
- Materials pollution control. Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particleboard (5.404).
- Building commissioning. Mandatory inspections of energy systems (i.e., heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies (5.410.2).

2.7.3 Air Quality Management Planning

Currently, the NAAQS and CAAQS are exceeded in most parts of the SCAB for PM_{10}, $PM_{2.5}$, and ozone. In response, the SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the state and federal ambient air quality standards (16). AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy. A detailed discussion on the AQMP and Project consistency with the AQMP is provided in Section 3.9.

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3 PROJECT AIR QUALITY IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will violate an air quality standard or contribute to an existing or projected air quality violation. Additionally, the Project has been evaluated to determine if it will result in a cumulatively considerable net increase of a criteria pollutant for which the SCAB is non-attainment under an applicable federal or state ambient air quality standard. The significance of these potential impacts is described in the following section.

3.2 STANDARDS OF SIGNIFICANCE

The SCAQMD has developed regional and localized significance thresholds for regulated pollutants, as summarized at Table 3-1 (17). The SCAQMD's CEQA Air Quality Significance Thresholds (March 2015) indicate that any projects in the SCAB with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact. It should be noted that the SCAQMD provides a threshold for emissions of lead, however for purposes of this analysis no lead emissions are calculated as there are no substantive sources of lead emissions. Additionally, the air quality modeling program (discussed below) does not calculate any emissions of lead from typical construction or operational activities.

TABLE 3-1: MAXIMUM DAILY EMISSIONS THRESHOLDS (1 OF 2)

Pollutant	Construction	Operations
Regional Thresholds		
NO_X	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_X	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day

Source: Regional Thresholds presented in this table are based on the SCAQMD Air Quality Significance Thresholds, March 2015

TABLE 3-1: MAXIMUM DAILY EMISSIONS THRESHOLDS[B] (2 OF 2)

Pollutant	Construction	Operations
Localized Thresholds		
NO_X	220 lbs/day (Site Preparation)	N/A
	237 lbs/day (Grading)	
CO	1,230 lbs/day (Site Preparation)	N/A
	1,346 lbs/day (Grading)	
PM_{10}	10 lbs/day (Site Preparation)	N/A
	11 lbs/day (Grading)	
$PM_{2.5}$	6 lbs/day (Site Preparation)	N/A
	7 lbs/day (Grading)	

Source: Localized Thresholds presented in this table are based on the SCAQMD Final Localized Significance Threshold Methodology, July 2008

3.3 CALIFORNIA EMISSIONS ESTIMATOR MODEL™ EMPLOYED TO ESTIMATE AQ EMISSIONS

Land uses such as the Project affect air quality through construction-source and operational-source emissions.

On October 17, 2017, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$) and greenhouse gas (GHG) emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (18). Accordingly, the latest version of CalEEMod™ has been used for this Project to determine construction and operational air quality emissions. Output from the model runs for both construction and operational activity are provided in Appendix 3.1 through 3.2.

3.4 CONSTRUCTION EMISSIONS

Construction activities associated with the Project will result in emissions of VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$. Construction related emissions are expected from the following construction activities:

- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

Construction is expected to commence in March 2019 and will last through August 2020. The duration of construction activity was estimated based on information provided by the client. The construction schedule utilized in the analysis, shown in Table 3-2, represents a "worst-case" analytical scenario. The reason this schedule represents a "worst-case" analytical scenario is due to the fact that emission factors for construction equipment and vehicles decrease as time passes and as the analysis year increases due to emission regulations becoming more stringent and the natural turnover of older fleets that are replaced by newer fleets that are less polluting[3]. A detailed summary of construction, shown in Table 3-2, was estimated based on past project experience and CalEEMod model defaults. The site specific construction fleet may vary due to specific project needs at the time of construction. The duration of construction activity and associated equipment both represent a reasonable approximation of the expected construction fleet as required per CEQA guidelines. Please refer to specific detailed modeling inputs/outputs contained in Appendix 3.1 through 3.2 of this analysis.

Dust is typically a major concern during rough grading activities. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions". Fugitive dust emissions rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). CalEEMod was utilized to calculate fugitive dust emissions resulting from this phase of activity.

Construction emissions for construction worker vehicles traveling to and from the Project site, as well as vendor trips (construction materials delivered to the Project site) were estimated based on CalEEMod.

TABLE 3-2: CONSTRUCTION DURATION

Phase Name	Start Date	End Date	Days
Site Preparation	03/01/2019	03/14/2019	10
Grading	03/15/2019	04/25/2019	30
Building Construction	04/26/2019	06/18/2020	300
Paving	06/19/2020	07/16/2020	20
Architectural Coating	06/19/2020	07/16/2020	20

[3] As shown in the California Emissions Estimator Model (CalEEMod) User's Guide Version 2016.3.2, Section 4.3"OFFROAD Equipment" as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.

TABLE 3-3: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Activity	Equipment	Number	Hours Per Day
Site Preparation	Crawler Tractors	4	8
	Rubber Tired Dozers	3	8
Grading	Crawler Tractors	2	8
	Excavators	2	8
	Graders	1	8
	Rubber Tired Dozer	1	8
	Scrapers	2	8
Building Construction	Cranes	1	8
	Crawler Tractors	3	8
	Forklifts	3	8
	Generator Sets	1	8
	Welders	1	8
Paving	Pavers	2	8
	Paver Equipment	2	8
	Rollers	2	8
Architectural Coating	Air Compressors	1	8

3.4.1 CONSTRUCTION EMISSIONS SUMMARY

The estimated maximum daily construction emissions without mitigation are summarized on Table 3-4. Detailed construction model outputs are presented in Appendix 3.1. Under the assumed scenarios, emissions resulting from the Project construction would not exceed criteria pollutant thresholds established by the SCAQMD for emissions of any criteria pollutants.

TABLE 3-4: EMISSIONS SUMMARY OF CONSTRUCTION (WITHOUT MITIGATION)

Year	Emissions (pounds per day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
2019	4.61	59.32	36.68	0.08	9.78	5.64
2020	50.59	37.83	28.11	0.08	3.93	2.07
Maximum Daily Emissions	**50.59**	**59.32**	**36.68**	**0.08**	**9.78**	**5.64**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the proposed Project will result in emissions of NO_X, VOC, PM_{10}, $PM_{2.5}$, SO_X, and CO. Operational emissions would be expected from the following primary sources:

- Area Source Emissions
- Energy Source Emissions
- Mobile Source Emissions

3.5.1 AREA SOURCE EMISSIONS

Architectural Coatings

Over a period of time the buildings that are part of this Project will be subject to emissions resulting from the evaporation of solvents contained in paints, varnishes, primers, and other surface coatings as part of Project maintenance. The emissions associated with architectural coatings were calculated using the CalEEMod model.

Consumer Products

Consumer products include, but are not limited to detergents, cleaning compounds, polishes, personal care products, and lawn and garden products. Many of these products contain organic compounds which when released in the atmosphere can react to form ozone and other photochemically reactive pollutants. The emissions associated with use of consumer products were calculated based on defaults provided within the CalEEMod model.

andscape Maintenance Equipment

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shedders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Project. The emissions associated with landscape maintenance equipment were calculated based on assumptions provided in the CalEEMod model.

3.5.2 ENERGY SOURCE EMISSIONS

Combustion Emissions Associated with Natural Gas and Electricity

Electricity and natural gas are used by almost every project. Criteria pollutant emissions are emitted through the generation of electricity and consumption of natural gas. However, because electrical generating facilities for the Project area are located either outside the region (state) or offset through the use of pollution credits (RECLAIM) for generation within the SCAB, criteria pollutant emissions from offsite generation of electricity is generally excluded from the evaluation of significance and only natural gas use is considered. The emissions associated with natural gas use were calculated using the CalEEMod model.

3.5.3 MOBILE SOURCE EMISSIONS

Vehicles

Project mobile source air quality impacts are dependent on both overall daily vehicle trip generation and the effect of the Project on peak hour traffic volumes and traffic operations in the vicinity of the Project. The Project-related operational air quality impacts are derived primarily from vehicle trips generated by the Project. Trip characteristics available from the report, *Continental Villages Traffic Impact Analysis* (Urban Crossroads, Inc. 2018) were utilized in this analysis (19). The proposed Project is anticipated to generate a net total of 2,056 trip-ends per day with 215 net AM peak hour trips and 167 net PM peak hour trips.

It should be noted that the due to the Project's proposed retail land use and the location of the Project to other residential land uses within a 1 to 2-mile radius of the Project site, and other fast-food and gasoline stations located in the project vicinity, an average trip length for customers of 3 miles was used in the assessment as opposed to the 8.4-mile model default trip length value. Additionally, 96% of all trips are assumed to be customer trips, 3% of all trips are assumed to be workers, and 1% of all trips are assumed to be other trips.

Fugitive Dust Related to Vehicular Travel

Vehicles traveling on paved roads would be a source of fugitive emissions due to the generation of road dust inclusive of tire wear particulates. The emissions estimates for travel on paved roads were calculated using the CalEEMod model.

3.5.4 OPERATIONAL EMISSIONS SUMMARY

Operational-source emissions are summarized on Table 3-5. Detailed construction model outputs are presented in Appendix 3.2. As indicated, the Project would not exceed the applicable regional thresholds of significance established by the SCAQMD for any criteria pollutant. Therefore, a less than significant impact would occur and no mitigation measures are required.

TABLE 3-5: SUMMARY OF OPERATIONAL EMISSIONS (1 OF 2)

Operational Activities – Summer Scenario	Emissions (pounds per day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area Source	3.93	1.97	10.12	0.01	0.20	0.20
Energy Source	0.05	0.45	0.20	2.89E-03	0.04	0.04
Mobile	4.93	31.81	38.26	0.14	8.81	2.44
Total Maximum Daily Emissions	**8.91**	**34.23**	**48.58**	**0.16**	**9.04**	**2.68**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

TABLE 3-5: SUMMARY OF OPERATIONAL EMISSIONS (2 OF 2)

Operational Activities – Winter Scenario	Emissions (pounds per day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area Source	3.93	1.97	10.12	0.01	0.20	0.20
Energy Source	0.05	0.45	0.20	2.89E-03	0.04	0.04
Mobile (Passenger Cars)	4.10	31.40	35.39	0.13	8.81	2.44
Total Maximum Daily Emissions	**8.08**	**33.82**	**45.71**	**0.14**	**9.05**	**2.68**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

3.6 LOCALIZED SIGNIFICANCE- CONSTRUCTION ACTIVITY

BACKGROUND ON LOCALIZED SIGNIFICANCE THRESHOLD (LST) DEVELOPMENT

The analysis makes use of methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (Methodology) (19). The SCAQMD has established that impacts to air quality are significant if there is a potential to contribute or cause localized exceedances of the federal and/or state ambient air quality standards (NAAQS/CAAQS). Collectively, these are referred to as Localized Significance Thresholds (LSTs).

The significance of localized emissions impacts depends on whether ambient levels in the vicinity of any given project are above or below State standards. In the case of CO and NO_2, if ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a state or federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. This would apply to PM_{10} and $PM_{2.5}$; both of which are non-attainment pollutants.

The SCAQMD established LSTs in response to the SCAQMD Governing Board's Environmental Justice Initiative I-4. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest residence or sensitive receptor. The SCAQMD states that lead agencies can use the LSTs as another indicator of significance in its air quality impact analyses.

LSTs were developed in response to environmental justice and health concerns raised by the public regarding exposure of individuals to criteria pollutants in local communities. To address the issue of localized significance, the SCAQMD adopted LSTs that show whether a project would cause or contribute to localized air quality impacts and thereby cause or contribute to potential localized adverse health effects. The analysis makes use of methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (LST Methodology) (20).

APPLICABILITY OF LSTS FOR THE PROJECT

For this Project, the appropriate Source Receptor Area (SRA) for the LST is the Perris Valley monitoring station (SRA 24). LSTs apply to carbon monoxide (CO), nitrogen dioxide (NO_2),

particulate matter ≤ 10 microns (PM_{10}), and particulate matter ≤ 2.5 microns ($PM_{2.5}$). The SCAQMD produced look-up tables for projects less than or equal to 5 acres in size.

In order to determine the appropriate methodology for determining localized impacts that could occur as a result of Project-related construction, the following process is undertaken:

- CalEEMod is utilized to determine the maximum daily on-site emissions that will occur during construction activity.
- The SCAQMD's Fact Sheet for Applying CalEEMod to Localized Significance Thresholds (21) is used to determine the maximum site acreage that is actively disturbed based on the construction equipment fleet and equipment hours as estimated in CalEEMod.
- If the total acreage disturbed is less than or equal to five acres per day, then the SCAQMD's screening look-up tables are utilized to determine if a project has the potential to result in a significant impact. The look-up tables establish a maximum daily emissions threshold in pounds per day that can be compared to CalEEMod outputs.
- If the total acreage disturbed is greater than five acres per day, then LST impacts are appropriately evaluated through dispersion modeling.

EMISSIONS CONSIDERED

SCAQMD's Methodology clearly states that "off-site mobile emissions from the Project should NOT be included in the emissions compared to LSTs (22)." Therefore, for purposes of the construction LST analysis only emissions included in the CalEEMod "on-site" emissions outputs were considered.

MAXIMUM DAILY DISTURBED-ACREAGE

Table 3-6 is used to determine the maximum daily disturbed-acreage for use in determining the applicability of the SCAQMD's LST look-up tables. Based on Table 3-6, the proposed Project could actively disturb 3.5 acres per day for the site preparation activities and 4 acres per day for the grading activities. The acres disturbed is based on the equipment list and days in for site preparation and grading according to the anticipated maximum number of acres a given piece of equipment can pass over in an 8-hour workday (as shown on Table 3-6). The equipment-specific grading rates are summarized in the CalEEMod user's guide, *Appendix A: Calculation Details for CalEEMod* (October 2017).

TABLE 3-6: MAXIMUM DAILY DISTURBED-ACREAGE (1 OF 2)

Construction Phase	Equipment Type	Equipment Quantity	Acres graded per 8-hour day	Operating Hours per Day	Acres graded per day
Site Preparation	Crawler Tractors	4	0.5	8	2
	Rubber Tired Dozers	3	0.5	8	1.5
Total acres disturbed per day during Site Preparation					3.5

TABLE 3-6: MAXIMUM DAILY DISTURBED-ACREAGE (2 OF 2)

Construction Phase	Equipment Type	Equipment Quantity	Acres graded per 8-hour day	Operating Hours per Day	Acres graded per day
Grading	Crawler Tractors	2	0.5	8	1
	Graders	1	0.5	8	0.5
	Rubber Tired Dozers	1	0.5	8	0.5
	Scrapers	2	1	8	2
Total acres disturbed per day during Site Preparation					4

Sensitive Receptors

To assess the potential for long-term operational and short-term construction impacts, the following six receiver locations, as shown on Exhibit 3-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Sensitive receptor land uses are generally considered to include: schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas.

Sensitive receptor near the Project site include existing residential homes, Lasselle Elementary School, and future residential homes currently under construction, as described below. The nearest sensitive receptor to the Project site Is R6, which are future residential homes currently under construction located approximately 30 feet/9.14 meters northwest of the project site. The SCAQMD recommends that the nearest sensitive receptor be considered when determining the Project's potential to cause an individual and cumulatively significant impact

R1: Located approximately 202 feet north of the Project site, R1 represents an existing baseball diamond and bleachers within Lasselle Elementary School.

R2: Location R2 represents an existing Lasselle Elementary School classroom building at roughly 109 feet north of the Project site.

R3: Location R3 represents the existing residential homes located south of the Project site at approximately 133 feet.

R4: Located approximately 123 feet south of the Project site, R4 represents the existing residential homes south of Krameria Avenue.

R5: Location R5 represents existing residential homes at roughly 148 feet west of the Project site.

R6: Location R6 represents the future residential homes currently under construction northwest of the Project site at approximately 30 feet.

As previously stated, the nearest sensitive receptor is located roughly 30 feet/9.14 meters northwest of the Project site boundary. The *Methodology* explicitly states that "*It is possible that a project may have receptors closer than 25 meters. Projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters* (23)." Consistent with the SCAQMD's Final LST Methodology, a 25-meter receptor distance is utilized in this analysis and provide for a conservative i.e. "health protective" standard of care.

EXHIBIT 3-A: RECEIVER LOCATIONS

CONSTRUCTION-SOURCE EMISSIONS LST ANALYSIS

Since the total acreage disturbed is less than five acres per day for the site preparation and grading phase of construction, the SCAQMD's screening look-up tables are utilized in determining impacts. A 25-meter receptor distance is conservatively utilized as a screening threshold to determine the LSTs for emissions of CO, NO_2, PM_{10}, and $PM_{2.5}$.

Impacts Without Mitigation Measures

Table 3-7 identifies the localized impacts at the nearest receptor location in the vicinity of the Project. Outputs from the model runs for construction LSTs are provided in Appendix 3.1. It should be noted that credit for BACMs AQ-1 and AQ-2 has been taken as well as PDF AQ-1. Without mitigation, localized construction emissions would not exceed the applicable SCAQMD LSTs during site preparation for emissions of any criteria pollutant. Outputs from the model runs for construction LSTs are provided in Appendix 3.1.

TABLE 3-7: LOCALIZED SIGNIFICANCE SUMMARY OF CONSTRUCTION

On-Site Site Preparation Emissions	**Emissions (pounds per day)**			
	NO_X	**CO**	**PM_{10}**	**$PM_{2.5}$**
Maximum Daily Emissions	**42.56**	**26.51**	**9.58**	**5.58**
SCAQMD Localized Threshold	220	1,230	10	6
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
On-Site Grading Emissions[4]	**Emissions (pounds per day)**			
	NO_X	**CO**	**PM_{10}**	**$PM_{2.5}$**
Maximum Daily Emissions	**65.79**	**33.92**	**6.47**	**3.91**
SCAQMD Localized Threshold	237	1,346	11	7
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

3.7 LOCALIZED SIGNIFICANCE – LONG-TERM OPERATIONAL ACTIVITY

The proposed project involves the construction and operation of 112 apartments/duplexes and 21,000 square feet of commercial retail use. According to SCAQMD LST methodology, LSTs would apply to the operational phase of a proposed project, if the project includes stationary sources, or attracts mobile sources that may spend long periods queuing and idling at the site (e.g., transfer facilities and warehouse buildings). The proposed project does not include such uses, and thus, due to the lack of significant stationary source emissions, no long-term localized significance threshold analysis is needed.

[4] Since MM AQ-1 applies to equipment operating during Site Preparation activities only, localized grading emissions will not be affected.

3.8 CO "HOT SPOT" ANALYSIS

As discussed below, the Project would not result in potentially adverse CO concentrations or "hot spots." Further, detailed modeling of Project-specific carbon monoxide (CO) "hot spots" is not needed to reach this conclusion.

An adverse CO concentration, known as a "hot spot", would occur if an exceedance of the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm were to occur. At the time of the 1993 Handbook, the SCAB was designated nonattainment under the California AAQS and National AAQS for CO (24).

It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. In response, vehicle emissions standards have become increasingly stringent in the last twenty years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the SCAB is now designated as attainment, as previously noted in Table 2-3. Also, CO concentrations in the Project vicinity have steadily declined, as indicated by historical emissions data presented previously at Table 2-4.

To establish a more accurate record of baseline CO concentrations affecting the SCAB, a CO "hot spot" analysis was conducted in 2003 for four busy intersections in Los Angeles at the peak morning and afternoon time periods. This "hot spot" analysis did not predict any violation of CO standards, as shown on Table 3-8.

TABLE 3-8: CO MODEL RESULTS

Intersection Location	Carbon Monoxide Concentrations (parts per million)		
	Morning 1-hour	Afternoon 1-hour	8-hour
Wilshire-Veteran	4.6	3.5	3.7
Sunset-Highland	4	4.5	3.5
La Cienega-Century	3.7	3.1	5.2
Long Beach-Imperial	3	3.1	8.4

Source: 2003 AQMP, Appendix V: Modeling and Attainment Demonstrations
Notes: Federal 1-hour standard is 35 ppm and the deferral 8-hour standard is 9.0 ppm.

Based on the SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SCAB were a result of unusual meteorological and topographical conditions and not a result of traffic volumes and congestion at a particular intersection. As evidence of this, for example, 8.4 ppm CO concentration measured at the Long Beach Blvd. and Imperial Hwy. intersection (highest CO generating intersection within the "hot spot" analysis), only 0.7 ppm was attributable to the traffic volumes and congestion at this intersection; the remaining 7.7 ppm were due to the ambient air measurements at the time the 2003 AQMP was prepared (24). Therefore, even if the traffic volumes for the proposed Project were double or even triple of the traffic volumes generated at the Long Beach Blvd. and

Imperial Hwy. intersection, coupled with the on-going improvements in ambient air quality, the Project would not be capable of resulting in a CO "hot spot" at any study area intersections.

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD) concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (25).

Traffic volumes generating the CO concentrations for the "hot spot" analysis is shown on Tables 3-9. The busiest intersection evaluated was that at Wilshire Blvd. and Veteran Ave., which has a daily traffic volume of approximately 100,000 vehicles per day and AM/PM traffic volumes of 8,062 vehicles per hour and 7,719 vehicles per hour respectively (24). The 2003 AQMP estimated that the 1-hour concentration for this intersection was 4.6 ppm; this indicates that, should the daily traffic volume increase four times to 400,000 vehicles per day, CO concentrations (4.6 ppm x 4= 18.4 ppm) would still not likely exceed the most stringent 1-hour CO standard (20.0 ppm).[5] At buildout of the Project, as shown on Exhibit 7-2 of the TIA, the highest average daily trips on a segment of road would be 46,601 daily trips on Lasselle Street and Iris Avenue, which is lower than the highest daily traffic volumes at Wilshire Blvd. and Veteran Ave. of 100,000 vehicles per day (19). Additionally, the 2003 AQMP determined that the highest traffic volumes on a segment of road is 8,674 vehicles per hour on La Cienega Boulevard and Century Boulevard. The highest trips on a segment of road for the Project is 6,586 vehicles per hour on Lasselle Street and Iris Avenue. As such, Project-related traffic volumes are less than the traffic volumes identified in the 2003 AQMP.

The proposed Project considered herein would not produce the volume of traffic required to generate a CO "hot spot" either in the context of the 2003 Los Angeles hot spot study, or based on representative BAAQMD CO threshold considerations, as shown on Table 3-10. Therefore, CO "hot spots" are not an environmental impact of concern for the proposed Project. Localized air quality impacts related to mobile-source emissions would therefore be less than significant.

TABLE 3-9: TRAFFIC VOLUMES

Intersection Location	Peak Traffic Volumes (vehicles per hour)				
	Eastbound (AM/PM)	Westbound (AM/PM)	Southbound (AM/PM)	Northbound (AM/PM)	Total (AM/PM)
Wilshire-Veteran	4,954/2,069	1,830/3,317	721/1,400	560/933	8,062/7,719
Sunset-Highland	1,417/1,764	1,342/1,540	2,304/1,832	1,551/2,238	6,614/5,374
La Cienega-Century	2,540/2,243	1,890/2,728	1,384/2,029	821/1,674	6,634/8,674
Long Beach-Imperial	1,217/2,020	1,760/1,400	479/944	756/1,150	4,212/5,514

Source: 2003 AQMP

5 Based on the ratio of the CO standard (20.0 ppm) and the modeled value (4.6 ppm).

TABLE 3-10: OPENING YEAR CUMULATIVE WITH PROJECT PEAK HOUR TRAFFIC VOLUMES

Intersection Location	Peak Traffic Volumes (vph)				
	Northbound (AM/PM)	Southbound (AM/PM)	Eastbound (AM/PM)	Westbound (AM/PM)	Total (AM/PM)
Kitching St./Krameria Av.	1,044/996	1,059/679	998/845	1,191/639	4,292/3,159
Lasselle St./Iris Av.	1,957/1,658	1,284/1,388	1,298/1,442	1,776/2,097	6,315/6,586
Lasselle St./Driveway 1	1,848/1,454	1,452/1,675	0/0	37/54	3,338/3,184
Lasselle St./Krameria Av.	2,059/1,328	1,452/1,675	1,198/610	485/267	5,195/3,881

Source: Continental Villages Traffic Impact Analysis (Urban Crossroads, 2018).

3.9 AIR QUALITY MANAGEMENT PLANNING

The Project site is located within the SCAB, which is characterized by relatively poor air quality. The SCAQMD has jurisdiction over an approximately 10,743 square-mile area consisting of the four-county Basin and the Los Angeles County and Riverside County portions of what use to be referred to as the Southeast Desert Air Basin. In these areas, the SCAQMD is principally responsible for air pollution control, and works directly with the Southern California Association of Governments (SCAG), county transportation commissions, local governments, as well as state and federal agencies to reduce emissions from stationary, mobile, and indirect sources to meet state and federal ambient air quality standards.

Currently, these state and federal air quality standards are exceeded in most parts of the Basin. In response, the SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the state and federal ambient air quality standards. AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy.

In March 2017, the AQMD released the Final 2016 AQMP. The 2016 AQMP continues to evaluate current integrated strategies and control measures to meet the NAAQS, as well as, explore new and innovative methods to reach its goals. Some of these approaches include utilizing incentive programs, recognizing existing co-benefit programs from other sectors, and developing a strategy with fair-share reductions at the federal, state, and local levels (26). Similar to the 2012 AQMP, the 2016 AQMP incorporates scientific and technological information and planning assumptions, including the 2016 RTP/SCS and updated emission inventory methodologies for various source categories (27). The Project's consistency with the AQMP will be determined using the 2016 AQMP is discussed below:

Criteria for determining consistency with the AQMP are defined in Chapter 12, Section 12.2 and Section 12.3 of the SCAQMD's CEQA Air Quality Handbook (1993) (28). These indicators are discussed below:

- Consistency Criterion No. 1: The proposed Project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

Construction Impacts

The violations that Consistency Criterion No. 1 refers to are the CAAQS and NAAQS. CAAQS and NAAQS violations would occur if localized significance thresholds (LSTs) or regional significance thresholds were exceeded. The Project would not exceed the applicable LST thresholds or regional significance thresholds for construction activity. Therefore, the Project would not conflict with the AQMP according to this criterion.

Operational Impacts

The Project would not exceed the applicable LST thresholds or regional significance thresholds for operational activity for emissions of any criteria pollutants. Therefore, the Project would not have the potential to conflict with the AQMP according to this criterion.

On the basis of the preceding discussion, the Project is consistent with the first criterion.

- Consistency Criterion No. 2: The Project will not exceed the assumptions in the AQMP based on the years of Project build-out phase.

Overview

The 2016 AQMP demonstrates that the applicable ambient air quality standards can be achieved within the timeframes required under federal law. Growth projections from local general plans adopted by cities in the district are provided to the Southern California Association of Governments (SCAG), which develops regional growth forecasts, which are then used to develop future air quality forecasts for the AQMP. Development consistent with the growth projections in City of Moreno Valley General Plan Update is considered to be consistent with the AQMP.

Construction Impacts

Peak day emissions generated by construction activities are largely independent of land use assignments, but rather are a function of development scope and maximum area of disturbance. Irrespective of the site's land use designation, development of the site to its maximum potential would likely occur, with disturbance of the entire site occurring during construction activities.

Operational Impacts

The City of Moreno Valley's General Plan Land Use designation for the Project site is "Residential: Max 20 du/ac" (R20). The R20 designation provides for a broad range of housing types in a more urban setting than is typically found within other areas of the City. The Project is proposed to consist of 112 apartments/duplexes and 21,000 square feet of commercial retail use. The Project's commercial retail land use and development is not consistent with the land use designation stated in the General Plan. As such, the Project would require a zoning change. However, since the Project construction and operational regional and localized emissions do not exceed the thresholds of significance, the Project would not cause an exceedance of an air quality violation and is therefore considered consistent with this criterion.

As per the *Continental Villages Trip Generation Evaluation* (Urban Crossroads 2018), the proposed Project is anticipated to result in a net reduction to the AM, PM, and daily trips

evaluated for the allowed land uses (29). The *Continental Villages Focused Air Quality and Greenhouse Gas Memorandum*, evaluates air quality emissions associated with the Project compared to the uses currently approved for the site. As per the Memorandum, the Project will result in a net decrease in NO_X, CO, SO_X, PM_{10}, $PM_{2.5}$ (30). As such, the proposed Project would result in fewer emissions and consequently fewer impacts beyond the impacts that occur with the allowed land uses.

On the basis of the preceding discussion, the Project is determined to be consistent with the second criterion.

AQMP Consistency Conclusion

The Project would not result in or cause NAAQS or CAAQS violations. Although the Project would not be consistent with the site land use and zoning designations, construction and operational-source impacts would not exceed the applicable SCAQMD regional and localized thresholds. As per the *Continental Villages Focused Air Quality and Greenhouse Gas Memorandum*, the air quality emissions associated with the Project are fewer as compared to the uses currently approved for the site. As such, the Project would not have a significant impact with respect to the AQMP.

3.10 Potential Impacts to Sensitive Receptors

The potential impact of Project-generated air pollutant emissions at sensitive receptors has also been considered. Sensitive receptors can include uses such as long-term health care facilities, rehabilitation centers, and retirement homes. Residences, schools, playgrounds, child care centers, and athletic facilities can also be considered as sensitive receptors.

Results of the LST analysis indicate that the Project will not exceed the SCAQMD localized significance thresholds during construction. Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations during Project construction.

Results of the LST analysis indicate that the Project will not exceed the SCAQMD localized significance thresholds during operational activity. Further Project traffic would not create or result in a CO "hotspot." Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations as the result of Project operations.

3.11 Odors

The potential for the Project to generate objectionable odors has also been considered. Land uses generally associated with odor complaints include:

- Agricultural uses (livestock and farming)
- Wastewater treatment plants
- Food processing plants
- Chemical plants
- Composting operations

- Refineries
- Landfills
- Dairies
- Fiberglass molding facilities

The Project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential sources of operational odors generated by the Project would include disposal of miscellaneous commercial refuse. Consistent with City requirements, all Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with solid waste regulations, thereby precluding substantial generation of odors due to temporary holding of refuse on-site Moreover, SCAQMD Rule 402 acts to prevent occurrences of odor nuisances (31).

3.12 CUMULATIVE IMPACTS

The Project area is designated as an extreme non-attainment area for ozone, and a non-attainment area for PM_{10}, $PM_{2.5}$, and lead.

The SCAQMD has published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (32). In this report the SCAQMD clearly states (Page D-3):

"…the SCAQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.

Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."

Therefore, this analysis assumes that individual projects that do not generate operational or construction emissions that exceed the SCAQMD's recommended daily thresholds for project-specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment, and, therefore, would not be considered to have a significant, adverse air quality impact. Alternatively, individual project-related construction and operational emissions that exceed SCAQMD thresholds for project-specific impacts would be considered cumulatively considerable.

Construction Impacts

Project construction-source air pollutant emissions would not exceed the SCAQMD regional thresholds for any criteria pollutant. Therefore, the Project would not result in a cumulatively considerable significant impact with respect to construction activity.

Operational Impacts

Project operational-source air pollutant emissions would not exceed applicable SCAQMD regional thresholds. Therefore, the Project would not result in a cumulatively considerable significant impact with respect to operational activity.

4 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2016.
2. **South Coast Air Quality Management District.** RULE 1113. Architectural Coatings. [Online] http://www.aqmd.gov/rules/reg/reg11/r1113.pdf.
3. —. RULE 403. Fugitive Dust. [Online] http://www.aqmd.gov/rules/reg/reg04/r403.pdf.
4. —. Southern California Air Basins. [Online] [Cited: November 13, 2013.] http://www.aqmd.gov/map/mapaqmd1.pdf.
5. **California Air Resources Board.** Ambient Air Quality Standards (AAQS). [Online] 2013. [Cited: April 6, 2015.] http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.
6. **South Coast Air Quality Management District.** Annual Air Quality Monitoring Network Plan. [Online] July 2018. http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-monitoring-network-plan/annual-air-quality-monitoring-network-plan-v2.pdf?sfvrsn=2.
7. **Air Resources Board.** Air Quality Standards and Area Designations. [Online] 2018. http://www.arb.ca.gov/desig/desig.htm.
8. **South Coast Air Quality Management District.** Final 2016 Air Quality Management Plan. *South Coast Air Quality Management District.* [Online] March 2017. http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf.
9. —. Map of Monitoring Areas. [Online] http://www.aqmd.gov/docs/default-source/default-document-library/map-of-monitoring-areas.pdf.
10. **California Air Resources Board.** iADAM: Air Quality Data Statistics. *California Air Resources Board.* [Online]
11. **District, South Coast Air Quality Management.** Air Quality Data Tables. [Online] https://www.aqmd.gov/home/air-quality/air-quality-data-studies/historical-data-by-year.
12. **South Coast Air Quality Management District.** *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.* 2005.
13. **Environmental Protection Agency.** National Ambient Air Quality Standards (NAAQS). [Online] 1990. [Cited: April 16, 2018.] https://www.epa.gov/environmental-topics/air-topics.
14. —. Air Pollution and the Clean Air Act. [Online] [Cited: November 13, 2013.] http://www.epa.gov/air/caa/.
15. **Air Resources Board.** California Ambient Air Quality Standards (CAAQS). [Online] 2009. [Cited: April 16, 2018.] http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm.
16. **South Coast Air Quality Management District.** 2012 Air Quality Management Plan (AQMP). [Online] 2012. [Cited: November 13, 2013.] http://www.aqmd.gov/aqmp/2012aqmp/draft/index.html.
17. **South Coast Air Quality Management District (SCAQMD).** SCAQMD Air Quality Significance Thresholds. [Online] [Cited: November 2, 2017.] http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2.
18. **California Air Pollution Control Officers Association (CAPCOA).** California Emissions Estimator Model (CalEEMod). [Online] September 2016. www.caleemod.com.
19. **Urban Crossroads, Inc.** *Continental Villages Traffic Impact Analysis.* 2018.

20. **Lake Environmental.** US EPA Models. *Lake Environmental.* [Online] http://www.weblakes.com/download/us_epa.html.

21. **South Coast Air Quality Management District.** Fact Sheet for Applying CalEEMod to Localized Significance Thresholds. [Online] [Cited: December 9, 2013.] http://aqmd.gov/ceqa/handbook/LST/CalEEModguidance.pdf.

22. —. *Localized Significance Thresholds Methodology.* s.l. : South Coast Air Quality Managment District, 2003.

23. —. *Localized Significance Thresholds Methodology.* s.l. : South Coast Air Quality Managment District, 2003.

24. —. 2003 Air Quality Management Plan. [Online] 2003. http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2003-air-quality-management-plan/2003-aqmp-appendix-v.pdf.

25. **Bay Area Air Quality Management District.** [Online] http://www.baaqmd.gov/.

26. **South Coast Air Quality Management District.** Final 2016 Air Quality Management Plan (AQMP). [Online] March 2017. http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=11.

27. **Southern California Association of Governments.** 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy. [Online] April 2016. http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf.

28. **South coast Air Quality Management District.** CEQA Air Quality Handbook (1993). [Online] 1993. [Cited: November 13, 2013.] http://www.aqmd.gov/ceqa/oldhdbk.html.

29. **Urban Crossroads, Inc.** *Continental Villages Trip Generation Evaluation .* 2018.

30. —. *Continental Villages Focused Air Quality and Greenhouse Gas Memorandum.* 2018.

31. **South Coast Air Quality Management District.** RULE 402. Nuisance. [Online] May 7, 1976. [Cited: November 13, 2013.] http://www.aqmd.gov/rules/reg/reg04/r402.pdf.

32. **Goss, Tracy A and Kroeger, Amy.** White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution. [Online] South Coast Air Quality Management District, 2003. http://www.aqmd.gov/rules/ciwg/final_white_paper.pdf.

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5 CERTIFICATION

The contents of this air study report represent an accurate depiction of the environmental impacts associated with the proposed Continental Villages Project. The information contained in this air quality impact report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

Haseeb Qureshi
Senior Associate
URBAN CROSSROADS, INC.
260 E. Baker, Suite 200
Costa Mesa, CA 92626
(949) 336-5987
hqureshi@urbanxroads.com

EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May, 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June, 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Environmental Site Assessment – American Society for Testing and Materials • June, 2013
Planned Communities and Urban Infill – Urban Land Institute • June, 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April, 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August, 2007
AB2588 Regulatory Standards – Trinity Consultants • November, 2006
Air Dispersion Modeling – Lakes Environmental • June, 2006

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APPENDIX 2.1:

STATE/FEDERAL ATTAINMENT STATUS OF CRITERIA POLLUTANTS

TABLE 2-3

National Ambient Air Quality Standards (NAAQS) Attainment Status - South Coast Air Basin

Criteria Pollutant	Averaging Time	Designation[a]	Attainment Date[b]
Ozone (O_3)	(1979) **1-Hour** (0.12 ppm)[c]	Nonattainment ("extreme")	2/26/2023 (revised deadline)
	(2015) **8-Hour** (0.070 ppm)[d]	Pending – Expect Nonattainment ("extreme")	Pending (beyond 2032)
	(2008) **8-Hour** (0.075 ppm)[d]	Nonattainment ("extreme")	7/20/2032
	(1997) **8-Hour** (0.08 ppm)[d]	Nonattainment ("extreme")	6/15/2024
PM2.5[e]	(2006) **24-Hour** (35 µg/m³)	Nonattainment ("serious")	12/31/2019
	(2012) **Annual** (12.0 µg/m³)	Nonattainment ("moderate")	12/31/2021
	(1997) **Annual** (15.0 µg/m³)	Attainment (final determination pending)	4/5/2015 (attained 2013)
PM10[f]	(1987) **24-hour** (150 µg/m³)	Attainment (Maintenance)	7/26/2013 (attained)
Lead (Pb)[g]	(2008) **3-Months Rolling** (0.15 µg/m³)	Nonattainment (Partial) (Attainment determination to be requested)	12/31/2015
CO	(1971) **1-Hour** (35 ppm)	Attainment (Maintenance)	6/11/2007 (attained)
	(1971) **8-Hour** (9 ppm)	Attainment (Maintenance)	6/11/2007 (attained)
NO_2[h]	(2010) **1-Hour** (100 ppb)	Unclassifiable/Attainment	N/A (attained)
	(1971) **Annual** (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (attained)
SO_2[i]	(2010) **1-Hour** (75 ppb)	Designations Pending (expect Unclassifiable/Attainment)	N/A (attained)
	(1971) **24-Hour** (0.14 ppm) (1971) **Annual** (0.03 ppm)	Unclassifiable/Attainment	3/19/1979 (attained)

a) U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable

b) A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for an attainment demonstration

c) The 1979 1-hour ozone NAAQS (0.12 ppm) was revoked, effective 6/15/05 ; however, the Basin has not attained this standard and therefore has some continuing obligations with respect to the revoked standard; original attainment date was 11/15/2010; the revised attainment date is 2/6/23

d) The 2008 8-hour ozone NAAQS (0.075 ppm) was revised to 0.070 ppm, effective 12/28/15 with classifications and implementation goals to be finalized by 10/1/17; the 1997 8-hour ozone NAAQS (0.08 ppm) was revoked in the 2008 ozone NAAQS implementation rule, effective 4/6/15; there are continuing obligations under the revoked 1997 and revised 2008 ozone NAAQS until they are attained

e) The attainment deadline for the 2006 24-hour PM2.5 NAAQS was 12/31/15 for the former "moderate" classification; U.S.EPA approved reclassification to "serious," effective 2/12/16 with an attainment deadline of 12/31/2019; the 2012 (proposal year) annual PM2.5 NAAQS was revised on 1/15/13, effective 3/18/13, from 15 to 12 µg/m³; new annual designations were final 1/15/15, effective 4/15/15; on July 25, 2016 U.S. EPA finalized a determination that the Basin attained the 1997 annual (15.0 µg/m³) and 24-hour PM2.5 (65 µg/m³) NAAQS, effective August 24, 2016

f) The annual PM10 NAAQS was revoked, effective 12/18/06; the 24-hour PM10 NAAQS deadline was 12/31/2006; the Basin's Attainment Re-designation Request and PM10 Maintenance Plan was approved by U.S. EPA on 6/26/13, effective 7/26/13

g) Partial Nonattainment designation – Los Angeles County portion of the Basin only for near-source monitors; expect to remain in attainment based on current monitoring data; attainment re-designation request pending

h) New 1-hour NO_2 NAAQS became effective 8/2/10, with attainment designations 1/20/12; annual NO_2 NAAQS retained

i) The 1971 annual and 24-hour SO2 NAAQS were revoked, effective 8/23/10; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO2 1-hour NAAQS; final area designations expected by 12/31/20 due to new source-specific monitoring requirements; Basin expected to be in attainment due to ongoing clean data

TABLE 2-4

National Ambient Air Quality Standards (NAAQS) Attainment Status

Coachella Valley Portion of the Salton Sea Air Basin

Criteria Pollutant	Averaging Time	Designation[a]	Attainment Date[b]
Ozone (O_3)	(1979) **1-Hour** (0.12 ppm)[c]	Attainment	11/15/2007 (attained 12/31/2013)
	(2015) **8-Hour** (0.070 ppm)[d]	Pending – Expect Nonattainment (Severe)	Pending
	(2008) **8-Hour** (0.075 ppm)[d]	Nonattainment (Severe-15)	7/20/2027
	(1997) **8-Hour** (0.08 ppm)[d]	Nonattainment (Severe-15)	6/15/2019
PM2.5[e]	(2006) **24-Hour** (35 µg/m^3)	Unclassifiable/Attainment	N/A (attained)
	(2012) **Annual** (12.0 µg/m^3)	Unclassifiable/Attainment	N/A (attained)
	(1997) **Annual** (15.0 µg/m^3)	Unclassifiable/Attainment	N/A (attained)
PM10[f]	(1987) **24-hour** (150 µg/m^3)	Nonattainment ("serious")	12/31/2006
Lead (Pb)	(2008) **3-Months Rolling** (0.15 µg/m^3)	Unclassifiable/Attainment	Unclassifiable/ Attainment
CO	(1971) **1-Hour** (35 ppm)	Unclassifiable/Attainment	N/A (attained)
	(1971) **8-Hour** (9 ppm)	Unclassifiable/Attainment	N/A (attained)
NO_2[g]	(2010) **1-Hour** (100 ppb)	Unclassifiable/Attainment	N/A (attained)
	(1971) **Annual** (0.053 ppm)	Unclassifiable/Attainment	N/A (attained)
SO_2[h]	(2010) **1-Hour** (75 ppb)	Designations Pending	N/A
	(1971) **24-Hour** (0.14 ppm) (1971) **Annual** (0.03 ppm)	Unclassifiable/Attainment	Unclassifiable/ Attainment

a) U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable

b) A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for an attainment demonstration

c) The 1979 1-hour ozone NAAQS (0.12 ppm) was revoked, effective 6/15/05; the Southeast Desert Modified Air Quality Management Area, including the Coachella Valley, had not timely attained this standard by the 11/15/07 "severe-17" deadline, based on 2005-2007 data; on 8/25/14, U.S. EPA proposed a clean data finding based on 2011–2013 data and a determination of attainment for the former 1-hour ozone NAAQS for the Southeast Desert nonattainment area; this rule was finalized by U.S. EPA on 4/15/15, effective 5/15/15, that included preliminary 2014 data

d) The 2008 8-hour ozone NAAQS (0.075 ppm) was revised to 0.070 ppm, effective 12/28/15 with classifications and implementation goals to be finalized by 10/1/17; the 1997 8-hour ozone NAAQS (0.08 ppm) was revoked in the 2008 ozone NAAQS implementation rule, effective 4/6/15; there are continuing obligations under the 1997 and 2008 ozone NAAQS until they are attained

e) The annual PM2.5 standard was revised on 1/15/13, effective 3/18/13, from 15 to 12 µg/m^3

f) The annual PM10 standard was revoked, effective 12/18/06; the 24-hour PM10 NAAQS attainment deadline was 12/31/2006; the Coachella Valley Attainment Re-designation Request and PM10 Maintenance Plan was postponed by U.S. EPA pending additional monitoring and analysis in the southeastern Coachella Valley

g) New 1-hour NO_2 NAAQS became effective 8/2/10; attainment designations 1/20/12; annual NO_2 NAAQS retained

h) The 1971 Annual and 24-hour SO_2 NAAQS were revoked, effective 8/23/10; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO_2 1-hour standard; final area designations expected by 12/31/2020 with SSAB expected to be designated Unclassifiable/Attainment

The current status of CAAQS attainment for the pollutants with State standards is presented in Table 2-5 for the Basin and the Riverside County portion of the SSAB (Coachella Valley).

TABLE 2-5

California Ambient Air Quality Standards (CAAQS) Attainment Status
South Coast Air Basin and Coachella Valley portion of Salton Sea Air Basin

Pollutant	Averaging Time and Level[b]	Designation[a]	
		South Coast Air Basin	Coachella Valley
Ozone (O_3)	**1-Hour** (0.09 ppm)[c]	Nonattainment	Nonattainment
	8-Hour (0.070 ppm)[d]	Nonattainment	Nonattainment
PM2.5	**Annual** (12.0 µg/m^3)	Nonattainment	Attainment
PM10	**24-Hour** (50 µg/m^3)	Nonattainment	Nonattainment
	Annual (20 µg/m^3)	Nonattainment	Nonattainment
Lead (Pb)	**30-Day Average** (1.5 µg/m^3)	Attainment	Attainment
CO	**1-Hour** (20 ppm)	Attainment	Attainment
	8-Hour (9.0 ppm)	Attainment	Attainment
NO_2	**1-Hour** (0.18 ppm)	Attainment	Attainment
	Annual (0.030 ppm)	Attainment	Attainment
SO_2	**1-Hour** (0.25 ppm)	Attainment	Attainment
	24-Hour (0.04 ppm)	Attainment	Attainment
Sulfates	**24-Hour** (25 µg/m^3)	Attainment	Attainment
H_2S[c]	**1-Hour** (0.03 ppm)	Unclassified	Unclassified [c)]

a) CA State designations shown were updated by CARB in 2016, based on the 2013–2015 3-year period; stated designations are based on a 3-year data period after consideration of outliers and exceptional events; Source: http://www.arb.ca.gov/desig/statedesig.htm#current

b) CA State standards, or CAAQS, for ozone, CO, SO_2, NO_2, PM10 and PM2.5 are values not to be exceeded; lead, sulfates, and H_2S standards are values not to be equaled or exceeded; CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations

c) SCAQMD began monitoring H_2S in the southeastern Coachella Valley in November 2013 due to odor events related to the Salton Sea; three full years of data are not yet available for a State designation, but nonattainment is anticipated for the H_2S CAAQS in at least part of the Coachella Valley

The 1979 federal 1-hour ozone standard (0.12 ppm) was revoked by the U.S. EPA and replaced by the 8-hour average ozone standard (0.08 ppm), effective June 15, 2005. However, the Basin and the former Southeast Desert Modified Air Quality Management Area (which included the Coachella Valley) had not attained the 1-hour federal ozone NAAQS by the attainment dates in 2010 and 2007, respectively, and, therefore, had continuing obligations under the former standard. On August 25, 2014, U.S. EPA

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APPENDIX 3.1:

CALEEMOD CONSTRUCTION EMISSIONS MODEL OUTPUTS (UNMITIGATED)

Continental Villages (Construction - Unmitigated)

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	112.00	Dwelling Unit	5.48	132,472.00	320
Regional Shopping Center	21.00	1000sqft	0.87	21,000.00	0
Parking Lot	593.00	Space	5.30	237,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Area is 11.64 acres.

Construction Phase -

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Off-road Equipment -

Off-road Equipment - Hours are based on an 8-hour workday.

Grading -

Architectural Coating - Rule 1113

Vehicle Trips - Construction Run Only.

Woodstoves - Construction Run Only.

Energy Use - Construction Run Only.

Water And Wastewater - Construction Run Only.

Solid Waste - Construction Run Only.

Construction Off-road Equipment Mitigation - All equipment operating >150 HP are required to be equipped with Tier 3 or better engines.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	100.00	50.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	PhaseEndDate	9/10/2020	7/16/2020
tblConstructionPhase	PhaseEndDate	7/16/2020	6/18/2020

tblConstructionPhase	PhaseEndDate	5/23/2019	4/25/2019
tblConstructionPhase	PhaseEndDate	8/13/2020	7/16/2020
tblConstructionPhase	PhaseEndDate	4/11/2019	3/14/2019
tblConstructionPhase	PhaseStartDate	8/14/2020	6/19/2020
tblConstructionPhase	PhaseStartDate	5/24/2019	4/26/2019
tblConstructionPhase	PhaseStartDate	4/12/2019	3/15/2019
tblConstructionPhase	PhaseStartDate	7/17/2020	6/19/2020
tblConstructionPhase	PhaseStartDate	3/29/2019	3/1/2019
tblEnergyUse	LightingElect	810.36	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	5.61	0.00
tblEnergyUse	NT24E	3,172.76	0.00
tblEnergyUse	NT24E	2.44	0.00
tblEnergyUse	NT24NG	6,030.00	0.00
tblEnergyUse	NT24NG	0.30	0.00
tblEnergyUse	T24E	877.14	0.00
tblEnergyUse	T24E	4.58	0.00
tblEnergyUse	T24NG	9,544.50	0.00
tblEnergyUse	T24NG	1.92	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	95.20	0.00
tblFireplaces	NumberNoFireplace	11.20	0.00
tblFireplaces	NumberWood	5.60	0.00
tblGrading	MaterialExported	0.00	3,000.00
tblLandUse	LandUseSquareFeet	112,000.00	132,472.00

tblLandUse	LotAcreage	7.00	5.48
tblLandUse	LotAcreage	0.48	0.87
tblLandUse	LotAcreage	5.34	5.30
tblOffRoadEquipment	LoadFactor	0.43	0.43
tblOffRoadEquipment	LoadFactor	0.43	0.43
tblOffRoadEquipment	LoadFactor	0.43	0.43
tblOffRoadEquipment	OffRoadEquipmentType		Crawler Tractors
tblOffRoadEquipment	OffRoadEquipmentType		Crawler Tractors
tblOffRoadEquipment	OffRoadEquipmentType		Crawler Tractors
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	51.52	0.00
tblSolidWaste	SolidWasteGenerationRate	22.05	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TTP	64.70	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TTP	16.30	0.00
tblVehicleTrips	DV_TP	11.00	0.00

tblVehicleTrips	DV_TP	35.00	0.00
tblVehicleTrips	HO_TL	8.70	0.00
tblVehicleTrips	HO_TTP	40.60	0.00
tblVehicleTrips	HS_TL	5.90	0.00
tblVehicleTrips	HS_TTP	19.20	0.00
tblVehicleTrips	HW_TL	14.70	0.00
tblVehicleTrips	HW_TTP	40.20	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	11.00	0.00
tblVehicleTrips	PR_TP	86.00	0.00
tblVehicleTrips	PR_TP	54.00	0.00
tblVehicleTrips	ST_TR	7.16	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	SU_TR	6.07	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	WD_TR	6.59	0.00
tblVehicleTrips	WD_TR	42.70	0.00
tblWater	IndoorWaterUseRate	7,297,250.87	0.00
tblWater	IndoorWaterUseRate	1,555,522.95	0.00
tblWater	OutdoorWaterUseRate	4,600,440.77	0.00
tblWater	OutdoorWaterUseRate	953,385.03	0.00
tblWoodstoves	NumberCatalytic	5.60	0.00
tblWoodstoves	NumberNoncatalytic	5.60	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	5.9350	69.0844	35.0878	0.0829	20.3885	2.9699	23.3584	10.2131	2.7323	12.9454	0.0000	8,273.9620	8,273.9620	2.3134	0.0000	8,331.7978
2020	50.5944	42.7239	25.8973	0.0751	2.4360	1.6796	4.1156	0.6539	1.5691	2.2230	0.0000	7,387.4255	7,387.4255	1.2958	0.0000	7,419.8214
Maximum	**50.5944**	**69.0844**	**35.0878**	**0.0829**	**20.3885**	**2.9699**	**23.3584**	**10.2131**	**2.7323**	**12.9454**	**0.0000**	**8,273.9620**	**8,273.9620**	**2.3134**	**0.0000**	**8,331.7978**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.6116	59.3187	36.6773	0.0829	8.0742	2.2180	9.7837	4.0156	2.0601	5.6359	0.0000	8,273.9620	8,273.9620	2.3134	0.0000	8,331.7978
2020	50.5944	37.8303	28.1091	0.0751	2.4360	1.4964	3.9325	0.6539	1.4155	2.0694	0.0000	7,387.4255	7,387.4255	1.2958	0.0000	7,419.8214
Maximum	**50.5944**	**59.3187**	**36.6773**	**0.0829**	**8.0742**	**2.2180**	**9.7837**	**4.0156**	**2.0601**	**5.6359**	**0.0000**	**8,273.9620**	**8,273.9620**	**2.3134**	**0.0000**	**8,331.7978**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**2.34**	**13.11**	**-6.23**	**0.00**	**53.95**	**20.11**	**50.08**	**57.03**	**19.20**	**49.20**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.7095	0.1078	9.3340	4.9000e-004		0.0512	0.0512		0.0512	0.0512	0.0000	16.7722	16.7722	0.0166	0.0000	17.1868
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.7095**	**0.1078**	**9.3340**	**4.9000e-004**	**0.0000**	**0.0512**	**0.0512**	**0.0000**	**0.0512**	**0.0512**	**0.0000**	**16.7722**	**16.7722**	**0.0166**	**0.0000**	**17.1868**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.7095	0.1078	9.3340	4.9000e-004		0.0512	0.0512		0.0512	0.0512	0.0000	16.7722	16.7722	0.0166	0.0000	17.1868
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.7095**	**0.1078**	**9.3340**	**4.9000e-004**	**0.0000**	**0.0512**	**0.0512**	**0.0000**	**0.0512**	**0.0512**	**0.0000**	**16.7722**	**16.7722**	**0.0166**	**0.0000**	**17.1868**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/1/2019	3/14/2019	5	10	
2	Grading	Grading	3/15/2019	4/25/2019	5	30	
3	Building Construction	Building Construction	4/26/2019	6/18/2020	5	300	
4	Paving	Paving	6/19/2020	7/16/2020	5	20	
5	Architectural Coating	Architectural Coating	6/19/2020	7/16/2020	5	20	

Acres of Grading (Site Preparation Phase): 20

Acres of Grading (Grading Phase): 105

Acres of Paving: 5.3

Residential Indoor: 268,256; Residential Outdoor: 89,419; Non-Residential Indoor: 31,500; Non-Residential Outdoor: 10,500; Striped Parking Area: 14,232 (Architectural Coating – sqft)

OffRoad Equipment

Continental Villages (Construction - Unmitigated) - Riverside-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	8.00	78	0.48
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Grading	Crawler Tractors	2	8.00	212	0.43
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Building Construction	Crawler Tractors	3	8.00	212	0.43
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	375.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	187.00	54.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.1873	0.0000	20.1873	10.1597	0.0000	10.1597			0.0000			0.0000
Off-Road	5.8382	68.1103	23.1420	0.0569		2.9687	2.9687		2.7312	2.7312		5,636.7406	5,636.7406	1.7834		5,681.3258
Total	**5.8382**	**68.1103**	**23.1420**	**0.0569**	**20.1873**	**2.9687**	**23.1559**	**10.1597**	**2.7312**	**12.8909**		**5,636.7406**	**5,636.7406**	**1.7834**		**5,681.3258**

3.2 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0968	0.0630	0.6481	1.8400e-003	0.2012	1.2400e-003	0.2024	0.0534	1.1400e-003	0.0545		183.6931	183.6931	4.9800e-003		183.8177
Total	**0.0968**	**0.0630**	**0.6481**	**1.8400e-003**	**0.2012**	**1.2400e-003**	**0.2024**	**0.0534**	**1.1400e-003**	**0.0545**		**183.6931**	**183.6931**	**4.9800e-003**		**183.8177**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8730	0.0000	7.8730	3.9623	0.0000	3.9623			0.0000			0.0000
Off-Road	3.0233	42.5552	26.5058	0.0569		1.7083	1.7083		1.6191	1.6191	0.0000	5,636.7406	5,636.7406	1.7834		5,681.3258
Total	**3.0233**	**42.5552**	**26.5058**	**0.0569**	**7.8730**	**1.7083**	**9.5813**	**3.9623**	**1.6191**	**5.5814**	**0.0000**	**5,636.7406**	**5,636.7406**	**1.7834**		**5,681.3258**

3.2 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0968	0.0630	0.6481	1.8400e-003	0.2012	1.2400e-003	0.2024	0.0534	1.1400e-003	0.0545		183.6931	183.6931	4.9800e-003		183.8177
Total	**0.0968**	**0.0630**	**0.6481**	**1.8400e-003**	**0.2012**	**1.2400e-003**	**0.2024**	**0.0534**	**1.1400e-003**	**0.0545**		**183.6931**	**183.6931**	**4.9800e-003**		**183.8177**

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.7465	0.0000	9.7465	3.7129	0.0000	3.7129			0.0000			0.0000
Off-Road	5.4905	65.7890	33.9162	0.0714		2.6718	2.6718		2.4581	2.4581		7,075.1634	7,075.1634	2.2385		7,131.1260
Total	**5.4905**	**65.7890**	**33.9162**	**0.0714**	**9.7465**	**2.6718**	**12.4183**	**3.7129**	**2.4581**	**6.1710**		**7,075.1634**	**7,075.1634**	**2.2385**		**7,131.1260**

3.3 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0738	3.2254	0.4514	9.3800e-003	0.2187	0.0118	0.2304	0.0600	0.0112	0.0712		994.6953	994.6953	0.0694		996.4299
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1076	0.0700	0.7201	2.0500e-003	0.2236	1.3800e-003	0.2249	0.0593	1.2700e-003	0.0606		204.1034	204.1034	5.5400e-003		204.2419
Total	**0.1814**	**3.2954**	**1.1716**	**0.0114**	**0.4422**	**0.0131**	**0.4554**	**0.1192**	**0.0125**	**0.1318**		**1,198.7987**	**1,198.7987**	**0.0749**		**1,200.6718**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.8011	0.0000	3.8011	1.4480	0.0000	1.4480			0.0000			0.0000
Off-Road	4.4301	56.0233	35.5057	0.0714		2.2049	2.2049		2.0476	2.0476	0.0000	7,075.1634	7,075.1634	2.2385		7,131.1260
Total	**4.4301**	**56.0233**	**35.5057**	**0.0714**	**3.8011**	**2.2049**	**6.0060**	**1.4480**	**2.0476**	**3.4957**	**0.0000**	**7,075.1634**	**7,075.1634**	**2.2385**		**7,131.1260**

3.3 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0738	3.2254	0.4514	9.3800e-003	0.2187	0.0118	0.2304	0.0600	0.0112	0.0712		994.6953	994.6953	0.0694		996.4299
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1076	0.0700	0.7201	2.0500e-003	0.2236	1.3800e-003	0.2249	0.0593	1.2700e-003	0.0606		204.1034	204.1034	5.5400e-003		204.2419
Total	**0.1814**	**3.2954**	**1.1716**	**0.0114**	**0.4422**	**0.0131**	**0.4554**	**0.1192**	**0.0125**	**0.1318**		**1,198.7987**	**1,198.7987**	**0.0749**		**1,200.6718**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6389	39.6094	19.1231	0.0430		1.8139	1.8139		1.6949	1.6949		4,181.0255	4,181.0255	1.1342		4,209.3809
Total	**3.6389**	**39.6094**	**19.1231**	**0.0430**		**1.8139**	**1.8139**		**1.6949**	**1.6949**		**4,181.0255**	**4,181.0255**	**1.1342**		**4,209.3809**

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1888	6.1330	1.3393	0.0137	0.3458	0.0473	0.3931	0.0996	0.0452	0.1448		1,441.4686	1,441.4686	0.1331		1,444.7962
Worker	1.0060	0.6541	6.7330	0.0192	2.0902	0.0129	2.1031	0.5543	0.0119	0.5662		1,908.3671	1,908.3671	0.0518		1,909.6616
Total	**1.1948**	**6.7871**	**8.0724**	**0.0328**	**2.4360**	**0.0602**	**2.4962**	**0.6539**	**0.0571**	**0.7110**		**3,349.8357**	**3,349.8357**	**0.1849**		**3,354.4579**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.0895	33.9966	21.2301	0.0430		1.6034	1.6034		1.5160	1.5160	0.0000	4,181.0255	4,181.0255	1.1342		4,209.3809
Total	**3.0895**	**33.9966**	**21.2301**	**0.0430**		**1.6034**	**1.6034**		**1.5160**	**1.5160**	**0.0000**	**4,181.0255**	**4,181.0255**	**1.1342**		**4,209.3809**

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1888	6.1330	1.3393	0.0137	0.3458	0.0473	0.3931	0.0996	0.0452	0.1448		1,441.4686	1,441.4686	0.1331		1,444.7962
Worker	1.0060	0.6541	6.7330	0.0192	2.0902	0.0129	2.1031	0.5543	0.0119	0.5662		1,908.3671	1,908.3671	0.0518		1,909.6616
Total	**1.1948**	**6.7871**	**8.0724**	**0.0328**	**2.4360**	**0.0602**	**2.4962**	**0.6539**	**0.0571**	**0.7110**		**3,349.8357**	**3,349.8357**	**0.1849**		**3,354.4579**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3583	36.6146	18.6077	0.0430		1.6350	1.6350		1.5268	1.5268		4,108.1936	4,108.1936	1.1258		4,136.3391
Total	**3.3583**	**36.6146**	**18.6077**	**0.0430**		**1.6350**	**1.6350**		**1.5268**	**1.5268**		**4,108.1936**	**4,108.1936**	**1.1258**		**4,136.3391**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1588	5.5271	1.1902	0.0136	0.3458	0.0320	0.3778	0.0996	0.0306	0.1302		1,431.2309	1,431.2309	0.1241		1,434.3339
Worker	0.9319	0.5822	6.0994	0.0185	2.0902	0.0127	2.1029	0.5543	0.0117	0.5660		1,848.0009	1,848.0009	0.0459		1,849.1485
Total	**1.0907**	**6.1093**	**7.2896**	**0.0321**	**2.4360**	**0.0446**	**2.4807**	**0.6539**	**0.0423**	**0.6961**		**3,279.2319**	**3,279.2319**	**0.1700**		**3,283.4824**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8503	31.7211	20.8195	0.0430		1.4518	1.4518		1.3732	1.3732	0.0000	4,108.1936	4,108.1936	1.1258		4,136.3391
Total	**2.8503**	**31.7211**	**20.8195**	**0.0430**		**1.4518**	**1.4518**		**1.3732**	**1.3732**	**0.0000**	**4,108.1936**	**4,108.1936**	**1.1258**		**4,136.3391**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1588	5.5271	1.1902	0.0136	0.3458	0.0320	0.3778	0.0996	0.0306	0.1302		1,431.2309	1,431.2309	0.1241		1,434.3339
Worker	0.9319	0.5822	6.0994	0.0185	2.0902	0.0127	2.1029	0.5543	0.0117	0.5660		1,848.0009	1,848.0009	0.0459		1,849.1485
Total	**1.0907**	**6.1093**	**7.2896**	**0.0321**	**2.4360**	**0.0446**	**2.4807**	**0.6539**	**0.0423**	**0.6961**		**3,279.2319**	**3,279.2319**	**0.1700**		**3,283.4824**

3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.6943					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.0509**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.5 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0748	0.0467	0.4893	1.4900e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		148.2354	148.2354	3.6800e-003		148.3274
Total	**0.0748**	**0.0467**	**0.4893**	**1.4900e-003**	**0.1677**	**1.0200e-003**	**0.1687**	**0.0445**	**9.3000e-004**	**0.0454**		**148.2354**	**148.2354**	**3.6800e-003**		**148.3274**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.6943					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.0509**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.5 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0748	0.0467	0.4893	1.4900e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		148.2354	148.2354	3.6800e-003		148.3274
Total	**0.0748**	**0.0467**	**0.4893**	**1.4900e-003**	**0.1677**	**1.0200e-003**	**0.1687**	**0.0445**	**9.3000e-004**	**0.0454**		**148.2354**	**148.2354**	**3.6800e-003**		**148.3274**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.9615					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3229	2.2451	2.4419	3.9600e-003		0.1479	0.1479		0.1479	0.1479		375.2641	375.2641	0.0291		375.9904
Total	**48.2844**	**2.2451**	**2.4419**	**3.9600e-003**		**0.1479**	**0.1479**		**0.1479**	**0.1479**		**375.2641**	**375.2641**	**0.0291**		**375.9904**

3.6 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1844	0.1152	1.2068	3.6700e-003	0.4136	2.5000e-003	0.4161	0.1097	2.3100e-003	0.1120		365.6472	365.6472	9.0800e-003		365.8743
Total	**0.1844**	**0.1152**	**1.2068**	**3.6700e-003**	**0.4136**	**2.5000e-003**	**0.4161**	**0.1097**	**2.3100e-003**	**0.1120**		**365.6472**	**365.6472**	**9.0800e-003**		**365.8743**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.9615					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3229	2.2451	2.4419	3.9600e-003		0.1479	0.1479		0.1479	0.1479	0.0000	375.2641	375.2641	0.0291		375.9904
Total	**48.2844**	**2.2451**	**2.4419**	**3.9600e-003**		**0.1479**	**0.1479**		**0.1479**	**0.1479**	**0.0000**	**375.2641**	**375.2641**	**0.0291**		**375.9904**

3.6 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1844	0.1152	1.2068	3.6700e-003	0.4136	2.5000e-003	0.4161	0.1097	2.3100e-003	0.1120		365.6472	365.6472	9.0800e-003		365.8743
Total	**0.1844**	**0.1152**	**1.2068**	**3.6700e-003**	**0.4136**	**2.5000e-003**	**0.4161**	**0.1097**	**2.3100e-003**	**0.1120**		**365.6472**	**365.6472**	**9.0800e-003**		**365.8743**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Regional Shopping Center	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120
Parking Lot	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120
Regional Shopping Center	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.7095	0.1078	9.3340	4.9000e-004		0.0512	0.0512		0.0512	0.0512	0.0000	16.7722	16.7722	0.0166	0.0000	17.1868
Unmitigated	3.7095	0.1078	9.3340	4.9000e-004		0.0512	0.0512		0.0512	0.0512	0.0000	16.7722	16.7722	0.0166	0.0000	17.1868

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2985					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.1228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2882	0.1078	9.3340	4.9000e-004		0.0512	0.0512		0.0512	0.0512		16.7722	16.7722	0.0166		17.1868
Total	**3.7095**	**0.1078**	**9.3340**	**4.9000e-004**		**0.0512**	**0.0512**		**0.0512**	**0.0512**	**0.0000**	**16.7722**	**16.7722**	**0.0166**	**0.0000**	**17.1868**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2985					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.1228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2882	0.1078	9.3340	4.9000e-004		0.0512	0.0512		0.0512	0.0512		16.7722	16.7722	0.0166		17.1868
Total	**3.7095**	**0.1078**	**9.3340**	**4.9000e-004**		**0.0512**	**0.0512**		**0.0512**	**0.0512**	**0.0000**	**16.7722**	**16.7722**	**0.0166**	**0.0000**	**17.1868**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Continental Villages (Construction - Unmitigated)

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	112.00	Dwelling Unit	5.48	132,472.00	320
Regional Shopping Center	21.00	1000sqft	0.87	21,000.00	0
Parking Lot	593.00	Space	5.30	237,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Area is 11.64 acres.

Construction Phase -

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Off-road Equipment -

Off-road Equipment - Hours are based on an 8-hour workday.

Grading -

Architectural Coating - Rule 1113

Vehicle Trips - Construction Run Only.

Woodstoves - Construction Run Only.

Energy Use - Construction Run Only.

Water And Wastewater - Construction Run Only.

Solid Waste - Construction Run Only.

Construction Off-road Equipment Mitigation - All equipment operating >150 HP are required to be equipped with Tier 3 or better engines.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	100.00	50.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	PhaseEndDate	9/10/2020	7/16/2020
tblConstructionPhase	PhaseEndDate	7/16/2020	6/18/2020

tblConstructionPhase	PhaseEndDate	5/23/2019	4/25/2019
tblConstructionPhase	PhaseEndDate	8/13/2020	7/16/2020
tblConstructionPhase	PhaseEndDate	4/11/2019	3/14/2019
tblConstructionPhase	PhaseStartDate	8/14/2020	6/19/2020
tblConstructionPhase	PhaseStartDate	5/24/2019	4/26/2019
tblConstructionPhase	PhaseStartDate	4/12/2019	3/15/2019
tblConstructionPhase	PhaseStartDate	7/17/2020	6/19/2020
tblConstructionPhase	PhaseStartDate	3/29/2019	3/1/2019
tblEnergyUse	LightingElect	810.36	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	5.61	0.00
tblEnergyUse	NT24E	3,172.76	0.00
tblEnergyUse	NT24E	2.44	0.00
tblEnergyUse	NT24NG	6,030.00	0.00
tblEnergyUse	NT24NG	0.30	0.00
tblEnergyUse	T24E	877.14	0.00
tblEnergyUse	T24E	4.58	0.00
tblEnergyUse	T24NG	9,544.50	0.00
tblEnergyUse	T24NG	1.92	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	95.20	0.00
tblFireplaces	NumberNoFireplace	11.20	0.00
tblFireplaces	NumberWood	5.60	0.00
tblGrading	MaterialExported	0.00	3,000.00
tblLandUse	LandUseSquareFeet	112,000.00	132,472.00

tblLandUse	LotAcreage	7.00	5.48
tblLandUse	LotAcreage	0.48	0.87
tblLandUse	LotAcreage	5.34	5.30
tblOffRoadEquipment	LoadFactor	0.43	0.43
tblOffRoadEquipment	LoadFactor	0.43	0.43
tblOffRoadEquipment	LoadFactor	0.43	0.43
tblOffRoadEquipment	OffRoadEquipmentType		Crawler Tractors
tblOffRoadEquipment	OffRoadEquipmentType		Crawler Tractors
tblOffRoadEquipment	OffRoadEquipmentType		Crawler Tractors
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	51.52	0.00
tblSolidWaste	SolidWasteGenerationRate	22.05	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TTP	64.70	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TTP	16.30	0.00
tblVehicleTrips	DV_TP	11.00	0.00

tblVehicleTrips	DV_TP	35.00	0.00
tblVehicleTrips	HO_TL	8.70	0.00
tblVehicleTrips	HO_TTP	40.60	0.00
tblVehicleTrips	HS_TL	5.90	0.00
tblVehicleTrips	HS_TTP	19.20	0.00
tblVehicleTrips	HW_TL	14.70	0.00
tblVehicleTrips	HW_TTP	40.20	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	11.00	0.00
tblVehicleTrips	PR_TP	86.00	0.00
tblVehicleTrips	PR_TP	54.00	0.00
tblVehicleTrips	ST_TR	7.16	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	SU_TR	6.07	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	WD_TR	6.59	0.00
tblVehicleTrips	WD_TR	42.70	0.00
tblWater	IndoorWaterUseRate	7,297,250.87	0.00
tblWater	IndoorWaterUseRate	1,555,522.95	0.00
tblWater	OutdoorWaterUseRate	4,600,440.77	0.00
tblWater	OutdoorWaterUseRate	953,385.03	0.00
tblWoodstoves	NumberCatalytic	5.60	0.00
tblWoodstoves	NumberNoncatalytic	5.60	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	5.9373	69.0498	35.1888	0.0834	20.3885	2.9699	23.3584	10.2131	2.7323	12.9454	0.0000	8,322.6575	8,322.6575	2.3083	0.0000	8,380.3637
2020	50.5998	42.7336	27.1643	0.0778	2.4360	1.6793	4.1153	0.6539	1.5687	2.2226	0.0000	7,655.2864	7,655.2864	1.2902	0.0000	7,687.5404
Maximum	**50.5998**	**69.0498**	**35.1888**	**0.0834**	**20.3885**	**2.9699**	**23.3584**	**10.2131**	**2.7323**	**12.9454**	**0.0000**	**8,322.6575**	**8,322.6575**	**2.3083**	**0.0000**	**8,380.3637**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.6105	59.2841	36.7782	0.0834	8.0742	2.2178	9.7837	4.0156	2.0599	5.6359	0.0000	8,322.6575	8,322.6575	2.3083	0.0000	8,380.3637
2020	50.5998	37.8400	29.3761	0.0778	2.4360	1.4961	3.9321	0.6539	1.4151	2.0690	0.0000	7,655.2864	7,655.2864	1.2902	0.0000	7,687.5404
Maximum	**50.5998**	**59.2841**	**36.7782**	**0.0834**	**8.0742**	**2.2178**	**9.7837**	**4.0156**	**2.0599**	**5.6359**	**0.0000**	**8,322.6575**	**8,322.6575**	**2.3083**	**0.0000**	**8,380.3637**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**2.35**	**13.11**	**-6.10**	**0.00**	**53.95**	**20.12**	**50.08**	**57.03**	**19.20**	**49.20**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.7095	0.1078	9.3340	4.9000e-004		0.0512	0.0512		0.0512	0.0512	0.0000	16.7722	16.7722	0.0166	0.0000	17.1868
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.7095**	**0.1078**	**9.3340**	**4.9000e-004**	**0.0000**	**0.0512**	**0.0512**	**0.0000**	**0.0512**	**0.0512**	**0.0000**	**16.7722**	**16.7722**	**0.0166**	**0.0000**	**17.1868**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.7095	0.1078	9.3340	4.9000e-004		0.0512	0.0512		0.0512	0.0512	0.0000	16.7722	16.7722	0.0166	0.0000	17.1868
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.7095**	**0.1078**	**9.3340**	**4.9000e-004**	**0.0000**	**0.0512**	**0.0512**	**0.0000**	**0.0512**	**0.0512**	**0.0000**	**16.7722**	**16.7722**	**0.0166**	**0.0000**	**17.1868**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/1/2019	3/14/2019	5	10	
2	Grading	Grading	3/15/2019	4/25/2019	5	30	
3	Building Construction	Building Construction	4/26/2019	6/18/2020	5	300	
4	Paving	Paving	6/19/2020	7/16/2020	5	20	
5	Architectural Coating	Architectural Coating	6/19/2020	7/16/2020	5	20	

Acres of Grading (Site Preparation Phase): 20

Acres of Grading (Grading Phase): 105

Acres of Paving: 5.3

Residential Indoor: 268,256; Residential Outdoor: 89,419; Non-Residential Indoor: 31,500; Non-Residential Outdoor: 10,500; Striped Parking Area: 14,232 (Architectural Coating – sqft)

OffRoad Equipment

Continental Villages (Construction - Unmitigated) - Riverside-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	8.00	78	0.48
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Grading	Crawler Tractors	2	8.00	212	0.43
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Building Construction	Crawler Tractors	3	8.00	212	0.43
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	375.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	187.00	54.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.1873	0.0000	20.1873	10.1597	0.0000	10.1597			0.0000			0.0000
Off-Road	5.8382	68.1103	23.1420	0.0569		2.9687	2.9687		2.7312	2.7312		5,636.7406	5,636.7406	1.7834		5,681.3258
Total	**5.8382**	**68.1103**	**23.1420**	**0.0569**	**20.1873**	**2.9687**	**23.1559**	**10.1597**	**2.7312**	**12.8909**		**5,636.7406**	**5,636.7406**	**1.7834**		**5,681.3258**

3.2 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0991	0.0608	0.7997	2.0600e-003	0.2012	1.2400e-003	0.2024	0.0534	1.1400e-003	0.0545		204.7540	204.7540	5.7300e-003		204.8973
Total	**0.0991**	**0.0608**	**0.7997**	**2.0600e-003**	**0.2012**	**1.2400e-003**	**0.2024**	**0.0534**	**1.1400e-003**	**0.0545**		**204.7540**	**204.7540**	**5.7300e-003**		**204.8973**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8730	0.0000	7.8730	3.9623	0.0000	3.9623			0.0000			0.0000
Off-Road	3.0233	42.5552	26.5058	0.0569		1.7083	1.7083		1.6191	1.6191	0.0000	5,636.7406	5,636.7406	1.7834		5,681.3258
Total	**3.0233**	**42.5552**	**26.5058**	**0.0569**	**7.8730**	**1.7083**	**9.5813**	**3.9623**	**1.6191**	**5.5814**	**0.0000**	**5,636.7406**	**5,636.7406**	**1.7834**		**5,681.3258**

3.2 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0991	0.0608	0.7997	2.0600e-003	0.2012	1.2400e-003	0.2024	0.0534	1.1400e-003	0.0545		204.7540	204.7540	5.7300e-003		204.8973
Total	**0.0991**	**0.0608**	**0.7997**	**2.0600e-003**	**0.2012**	**1.2400e-003**	**0.2024**	**0.0534**	**1.1400e-003**	**0.0545**		**204.7540**	**204.7540**	**5.7300e-003**		**204.8973**

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.7465	0.0000	9.7465	3.7129	0.0000	3.7129			0.0000			0.0000
Off-Road	5.4905	65.7890	33.9162	0.0714		2.6718	2.6718		2.4581	2.4581		7,075.1634	7,075.1634	2.2385		7,131.1260
Total	**5.4905**	**65.7890**	**33.9162**	**0.0714**	**9.7465**	**2.6718**	**12.4183**	**3.7129**	**2.4581**	**6.1710**		**7,075.1634**	**7,075.1634**	**2.2385**		**7,131.1260**

3.3 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0702	3.1933	0.3840	9.6200e-003	0.2187	0.0115	0.2302	0.0600	0.0110	0.0710		1,019.9897	1,019.9897	0.0634		1,021.5740
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1101	0.0676	0.8885	2.2900e-003	0.2236	1.3800e-003	0.2249	0.0593	1.2700e-003	0.0606		227.5045	227.5045	6.3700e-003		227.6637
Total	**0.1803**	**3.2608**	**1.2725**	**0.0119**	**0.4422**	**0.0129**	**0.4552**	**0.1192**	**0.0123**	**0.1316**		**1,247.4941**	**1,247.4941**	**0.0697**		**1,249.2377**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.8011	0.0000	3.8011	1.4480	0.0000	1.4480			0.0000			0.0000
Off-Road	4.4301	56.0233	35.5057	0.0714		2.2049	2.2049		2.0476	2.0476	0.0000	7,075.1634	7,075.1634	2.2385		7,131.1260
Total	**4.4301**	**56.0233**	**35.5057**	**0.0714**	**3.8011**	**2.2049**	**6.0060**	**1.4480**	**2.0476**	**3.4957**	**0.0000**	**7,075.1634**	**7,075.1634**	**2.2385**		**7,131.1260**

3.3 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0702	3.1933	0.3840	9.6200e-003	0.2187	0.0115	0.2302	0.0600	0.0110	0.0710		1,019.9897	1,019.9897	0.0634		1,021.5740
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1101	0.0676	0.8885	2.2900e-003	0.2236	1.3800e-003	0.2249	0.0593	1.2700e-003	0.0606		227.5045	227.5045	6.3700e-003		227.6637
Total	**0.1803**	**3.2608**	**1.2725**	**0.0119**	**0.4422**	**0.0129**	**0.4552**	**0.1192**	**0.0123**	**0.1316**		**1,247.4941**	**1,247.4941**	**0.0697**		**1,249.2377**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6389	39.6094	19.1231	0.0430		1.8139	1.8139		1.6949	1.6949		4,181.0255	4,181.0255	1.1342		4,209.3809
Total	**3.6389**	**39.6094**	**19.1231**	**0.0430**		**1.8139**	**1.8139**		**1.6949**	**1.6949**		**4,181.0255**	**4,181.0255**	**1.1342**		**4,209.3809**

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1799	6.1470	1.1519	0.0142	0.3458	0.0467	0.3925	0.0996	0.0447	0.1442		1,497.4341	1,497.4341	0.1198		1,500.4295
Worker	1.0296	0.6319	8.3076	0.0214	2.0902	0.0129	2.1031	0.5543	0.0119	0.5662		2,127.1667	2,127.1667	0.0596		2,128.6555
Total	**1.2095**	**6.7789**	**9.4595**	**0.0356**	**2.4360**	**0.0596**	**2.4956**	**0.6539**	**0.0566**	**0.7105**		**3,624.6009**	**3,624.6009**	**0.1794**		**3,629.0850**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.0895	33.9966	21.2301	0.0430		1.6034	1.6034		1.5160	1.5160	0.0000	4,181.0255	4,181.0255	1.1342		4,209.3809
Total	**3.0895**	**33.9966**	**21.2301**	**0.0430**		**1.6034**	**1.6034**		**1.5160**	**1.5160**	**0.0000**	**4,181.0255**	**4,181.0255**	**1.1342**		**4,209.3809**

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1799	6.1470	1.1519	0.0142	0.3458	0.0467	0.3925	0.0996	0.0447	0.1442		1,497.4341	1,497.4341	0.1198		1,500.4295
Worker	1.0296	0.6319	8.3076	0.0214	2.0902	0.0129	2.1031	0.5543	0.0119	0.5662		2,127.1667	2,127.1667	0.0596		2,128.6555
Total	**1.2095**	**6.7789**	**9.4595**	**0.0356**	**2.4360**	**0.0596**	**2.4956**	**0.6539**	**0.0566**	**0.7105**		**3,624.6009**	**3,624.6009**	**0.1794**		**3,629.0850**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3583	36.6146	18.6077	0.0430		1.6350	1.6350		1.5268	1.5268		4,108.1936	4,108.1936	1.1258		4,136.3391
Total	**3.3583**	**36.6146**	**18.6077**	**0.0430**		**1.6350**	**1.6350**		**1.5268**	**1.5268**		**4,108.1936**	**4,108.1936**	**1.1258**		**4,136.3391**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1505	5.5562	1.0165	0.0141	0.3458	0.0316	0.3774	0.0996	0.0302	0.1298		1,487.1110	1,487.1110	0.1115		1,489.8995
Worker	0.9516	0.5628	7.5401	0.0207	2.0902	0.0127	2.1029	0.5543	0.0117	0.5660		2,059.9818	2,059.9818	0.0528		2,061.3019
Total	**1.1021**	**6.1189**	**8.5566**	**0.0348**	**2.4360**	**0.0443**	**2.4803**	**0.6539**	**0.0419**	**0.6958**		**3,547.0928**	**3,547.0928**	**0.1643**		**3,551.2013**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8503	31.7211	20.8195	0.0430		1.4518	1.4518		1.3732	1.3732	0.0000	4,108.1936	4,108.1936	1.1258		4,136.3391
Total	**2.8503**	**31.7211**	**20.8195**	**0.0430**		**1.4518**	**1.4518**		**1.3732**	**1.3732**	**0.0000**	**4,108.1936**	**4,108.1936**	**1.1258**		**4,136.3391**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1505	5.5562	1.0165	0.0141	0.3458	0.0316	0.3774	0.0996	0.0302	0.1298		1,487.1110	1,487.1110	0.1115		1,489.8995
Worker	0.9516	0.5628	7.5401	0.0207	2.0902	0.0127	2.1029	0.5543	0.0117	0.5660		2,059.9818	2,059.9818	0.0528		2,061.3019
Total	**1.1021**	**6.1189**	**8.5566**	**0.0348**	**2.4360**	**0.0443**	**2.4803**	**0.6539**	**0.0419**	**0.6958**		**3,547.0928**	**3,547.0928**	**0.1643**		**3,551.2013**

3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.6943					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.0509**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.5 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0763	0.0451	0.6048	1.6600e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		165.2392	165.2392	4.2400e-003		165.3451
Total	**0.0763**	**0.0451**	**0.6048**	**1.6600e-003**	**0.1677**	**1.0200e-003**	**0.1687**	**0.0445**	**9.3000e-004**	**0.0454**		**165.2392**	**165.2392**	**4.2400e-003**		**165.3451**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.6943					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.0509**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.5 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0763	0.0451	0.6048	1.6600e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		165.2392	165.2392	4.2400e-003		165.3451
Total	**0.0763**	**0.0451**	**0.6048**	**1.6600e-003**	**0.1677**	**1.0200e-003**	**0.1687**	**0.0445**	**9.3000e-004**	**0.0454**		**165.2392**	**165.2392**	**4.2400e-003**		**165.3451**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.9615					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3229	2.2451	2.4419	3.9600e-003		0.1479	0.1479		0.1479	0.1479		375.2641	375.2641	0.0291		375.9904
Total	**48.2844**	**2.2451**	**2.4419**	**3.9600e-003**		**0.1479**	**0.1479**		**0.1479**	**0.1479**		**375.2641**	**375.2641**	**0.0291**		**375.9904**

3.6 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1883	0.1114	1.4919	4.0900e-003	0.4136	2.5000e-003	0.4161	0.1097	2.3100e-003	0.1120		407.5900	407.5900	0.0105		407.8512
Total	**0.1883**	**0.1114**	**1.4919**	**4.0900e-003**	**0.4136**	**2.5000e-003**	**0.4161**	**0.1097**	**2.3100e-003**	**0.1120**		**407.5900**	**407.5900**	**0.0105**		**407.8512**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.9615					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3229	2.2451	2.4419	3.9600e-003		0.1479	0.1479		0.1479	0.1479	0.0000	375.2641	375.2641	0.0291		375.9904
Total	**48.2844**	**2.2451**	**2.4419**	**3.9600e-003**		**0.1479**	**0.1479**		**0.1479**	**0.1479**	**0.0000**	**375.2641**	**375.2641**	**0.0291**		**375.9904**

3.6 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1883	0.1114	1.4919	4.0900e-003	0.4136	2.5000e-003	0.4161	0.1097	2.3100e-003	0.1120		407.5900	407.5900	0.0105		407.8512
Total	**0.1883**	**0.1114**	**1.4919**	**4.0900e-003**	**0.4136**	**2.5000e-003**	**0.4161**	**0.1097**	**2.3100e-003**	**0.1120**		**407.5900**	**407.5900**	**0.0105**		**407.8512**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Regional Shopping Center	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120
Parking Lot	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120
Regional Shopping Center	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.7095	0.1078	9.3340	4.9000e-004		0.0512	0.0512		0.0512	0.0512	0.0000	16.7722	16.7722	0.0166	0.0000	17.1868
Unmitigated	3.7095	0.1078	9.3340	4.9000e-004		0.0512	0.0512		0.0512	0.0512	0.0000	16.7722	16.7722	0.0166	0.0000	17.1868

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2985					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.1228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2882	0.1078	9.3340	4.9000e-004		0.0512	0.0512		0.0512	0.0512		16.7722	16.7722	0.0166		17.1868
Total	**3.7095**	**0.1078**	**9.3340**	**4.9000e-004**		**0.0512**	**0.0512**		**0.0512**	**0.0512**	**0.0000**	**16.7722**	**16.7722**	**0.0166**	**0.0000**	**17.1868**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2985					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.1228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2882	0.1078	9.3340	4.9000e-004		0.0512	0.0512		0.0512	0.0512		16.7722	16.7722	0.0166		17.1868
Total	**3.7095**	**0.1078**	**9.3340**	**4.9000e-004**		**0.0512**	**0.0512**		**0.0512**	**0.0512**	**0.0000**	**16.7722**	**16.7722**	**0.0166**	**0.0000**	**17.1868**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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APPENDIX 3.2:

CALEEMOD OPERATIONAL EMISSIONS MODEL OUTPUTS

Continental Village (Operations)

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	593.00	Space	5.30	237,200.00	0
Apartments Low Rise	112.00	Dwelling Unit	5.48	132,472.00	320
Regional Shopping Center	21.00	1000sqft	0.87	21,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Area is 11.64 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Trip Rates are based on information provided in the the TIA by Urban Crossroads (2018).

Woodstoves - Rule 445

Mobile Land Use Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	1.00
tblFireplaces	NumberGas	95.20	112.00
tblFireplaces	NumberNoFireplace	11.20	0.00
tblFireplaces	NumberWood	5.60	0.00
tblLandUse	LandUseSquareFeet	112,000.00	132,472.00
tblLandUse	LotAcreage	5.34	5.30
tblLandUse	LotAcreage	7.00	5.48
tblLandUse	LotAcreage	0.48	0.87
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TTP	64.70	96.00
tblVehicleTrips	CNW_TTP	19.00	1.00
tblVehicleTrips	CW_TTP	16.30	3.00
tblVehicleTrips	PB_TP	11.00	34.00
tblVehicleTrips	PR_TP	54.00	31.00
tblVehicleTrips	ST_TR	7.16	8.14
tblVehicleTrips	ST_TR	49.97	89.15
tblVehicleTrips	SU_TR	6.07	6.28
tblVehicleTrips	SU_TR	25.24	89.15
tblVehicleTrips	WD_TR	6.59	7.32
tblVehicleTrips	WD_TR	42.70	89.15
tblWoodstoves	NumberCatalytic	5.60	0.00
tblWoodstoves	NumberNoncatalytic	5.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9269	1.9657	10.1245	0.0124		0.2014	0.2014		0.2014	0.2014	0.0000	2,388.5369	2,388.5369	0.0620	0.0435	2,403.0458
Energy	0.0529	0.4529	0.1979	2.8900e-003		0.0366	0.0366		0.0366	0.0366		577.2648	577.2648	0.0111	0.0106	580.6952
Mobile	4.1005	31.3981	35.3873	0.1292	8.6857	0.1230	8.8087	2.3242	0.1159	2.4401		13,209.6213	13,209.6213	1.0885		13,236.8340
Total	**8.0804**	**33.8168**	**45.7097**	**0.1444**	**8.6857**	**0.3610**	**9.0467**	**2.3242**	**0.3539**	**2.6781**	**0.0000**	**16,175.4230**	**16,175.4230**	**1.1616**	**0.0541**	**16,220.5749**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9269	1.9657	10.1245	0.0124		0.2014	0.2014		0.2014	0.2014	0.0000	2,388.5369	2,388.5369	0.0620	0.0435	2,403.0458
Energy	0.0529	0.4529	0.1979	2.8900e-003		0.0366	0.0366		0.0366	0.0366		577.2648	577.2648	0.0111	0.0106	580.6952
Mobile	4.1005	31.3981	35.3873	0.1292	8.6857	0.1230	8.8087	2.3242	0.1159	2.4401		13,209.6213	13,209.6213	1.0885		13,236.8340
Total	**8.0804**	**33.8168**	**45.7097**	**0.1444**	**8.6857**	**0.3610**	**9.0467**	**2.3242**	**0.3539**	**2.6781**	**0.0000**	**16,175.4230**	**16,175.4230**	**1.1616**	**0.0541**	**16,220.5749**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/1/2019	3/1/2019	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 5.3

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.1005	31.3981	35.3873	0.1292	8.6857	0.1230	8.8087	2.3242	0.1159	2.4401		13,209.6213	13,209.6213	1.0885		13,236.8340
Unmitigated	4.1005	31.3981	35.3873	0.1292	8.6857	0.1230	8.8087	2.3242	0.1159	2.4401		13,209.6213	13,209.6213	1.0885		13,236.8340

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	819.84	911.68	703.36	2,789,489	2,789,489
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	1,872.15	1,872.15	1872.15	956,898	956,898
Total	2,691.99	2,783.83	2,575.51	3,746,387	3,746,387

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	3.00	6.90	3.00	96.00	1.00	31	35	34

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120
Parking Lot	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120
Regional Shopping Center	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0529	0.4529	0.1979	2.8900e-003		0.0366	0.0366		0.0366	0.0366		577.2648	577.2648	0.0111	0.0106	580.6952
NaturalGas Unmitigated	0.0529	0.4529	0.1979	2.8900e-003		0.0366	0.0366		0.0366	0.0366		577.2648	577.2648	0.0111	0.0106	580.6952

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	4779.02	0.0515	0.4404	0.1874	2.8100e-003		0.0356	0.0356		0.0356	0.0356		562.2382	562.2382	0.0108	0.0103	565.5793
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	127.726	1.3800e-003	0.0125	0.0105	8.0000e-005		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004		15.0266	15.0266	2.9000e-004	2.8000e-004	15.1159
Total		**0.0529**	**0.4529**	**0.1979**	**2.8900e-003**		**0.0366**	**0.0366**		**0.0366**	**0.0366**		**577.2648**	**577.2648**	**0.0111**	**0.0106**	**580.6952**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	4.77902	0.0515	0.4404	0.1874	2.8100e-003		0.0356	0.0356		0.0356	0.0356		562.2382	562.2382	0.0108	0.0103	565.5793
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.127726	1.3800e-003	0.0125	0.0105	8.0000e-005		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004		15.0266	15.0266	2.9000e-004	2.8000e-004	15.1159
Total		**0.0529**	**0.4529**	**0.1979**	**2.8900e-003**		**0.0366**	**0.0366**		**0.0366**	**0.0366**		**577.2648**	**577.2648**	**0.0111**	**0.0106**	**580.6952**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.9269	1.9657	10.1245	0.0124		0.2014	0.2014		0.2014	0.2014	0.0000	2,388.5369	2,388.5369	0.0620	0.0435	2,403.0458
Unmitigated	3.9269	1.9657	10.1245	0.0124		0.2014	0.2014		0.2014	0.2014	0.0000	2,388.5369	2,388.5369	0.0620	0.0435	2,403.0458

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2985					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.1228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2174	1.8579	0.7906	0.0119		0.1502	0.1502		0.1502	0.1502	0.0000	2,371.7647	2,371.7647	0.0455	0.0435	2,385.8589
Landscaping	0.2882	0.1078	9.3340	4.9000e-004		0.0512	0.0512		0.0512	0.0512		16.7722	16.7722	0.0166		17.1868
Total	**3.9269**	**1.9657**	**10.1245**	**0.0124**		**0.2014**	**0.2014**		**0.2014**	**0.2014**	**0.0000**	**2,388.5370**	**2,388.5370**	**0.0620**	**0.0435**	**2,403.0458**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2985					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.1228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2174	1.8579	0.7906	0.0119		0.1502	0.1502		0.1502	0.1502	0.0000	2,371.7647	2,371.7647	0.0455	0.0435	2,385.8589
Landscaping	0.2882	0.1078	9.3340	4.9000e-004		0.0512	0.0512		0.0512	0.0512		16.7722	16.7722	0.0166		17.1868
Total	**3.9269**	**1.9657**	**10.1245**	**0.0124**		**0.2014**	**0.2014**		**0.2014**	**0.2014**	**0.0000**	**2,388.5370**	**2,388.5370**	**0.0620**	**0.0435**	**2,403.0458**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Continental Village (Operations)

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	593.00	Space	5.30	237,200.00	0
Apartments Low Rise	112.00	Dwelling Unit	5.48	132,472.00	320
Regional Shopping Center	21.00	1000sqft	0.87	21,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Area is 11.64 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Trip Rates are based on information provided in the the TIA by Urban Crossroads (2018).

Woodstoves - Rule 445

Mobile Land Use Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	1.00
tblFireplaces	NumberGas	95.20	112.00
tblFireplaces	NumberNoFireplace	11.20	0.00
tblFireplaces	NumberWood	5.60	0.00
tblLandUse	LandUseSquareFeet	112,000.00	132,472.00
tblLandUse	LotAcreage	5.34	5.30
tblLandUse	LotAcreage	7.00	5.48
tblLandUse	LotAcreage	0.48	0.87
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TTP	64.70	96.00
tblVehicleTrips	CNW_TTP	19.00	1.00
tblVehicleTrips	CW_TTP	16.30	3.00
tblVehicleTrips	PB_TP	11.00	34.00
tblVehicleTrips	PR_TP	54.00	31.00
tblVehicleTrips	ST_TR	7.16	8.14
tblVehicleTrips	ST_TR	49.97	89.15
tblVehicleTrips	SU_TR	6.07	6.28
tblVehicleTrips	SU_TR	25.24	89.15
tblVehicleTrips	WD_TR	6.59	7.32
tblVehicleTrips	WD_TR	42.70	89.15
tblWoodstoves	NumberCatalytic	5.60	0.00
tblWoodstoves	NumberNoncatalytic	5.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9269	1.9657	10.1245	0.0124		0.2014	0.2014		0.2014	0.2014	0.0000	2,388.5369	2,388.5369	0.0620	0.0435	2,403.0458
Energy	0.0529	0.4529	0.1979	2.8900e-003		0.0366	0.0366		0.0366	0.0366		577.2648	577.2648	0.0111	0.0106	580.6952
Mobile	4.9304	31.8086	38.2550	0.1408	8.6857	0.1208	8.8065	2.3242	0.1138	2.4380		14,389.8478	14,389.8478	1.0176		14,415.2877
Total	**8.9103**	**34.2272**	**48.5775**	**0.1560**	**8.6857**	**0.3588**	**9.0445**	**2.3242**	**0.3518**	**2.6760**	**0.0000**	**17,355.6495**	**17,355.6495**	**1.0907**	**0.0541**	**17,399.0286**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9269	1.9657	10.1245	0.0124		0.2014	0.2014		0.2014	0.2014	0.0000	2,388.5369	2,388.5369	0.0620	0.0435	2,403.0458
Energy	0.0529	0.4529	0.1979	2.8900e-003		0.0366	0.0366		0.0366	0.0366		577.2648	577.2648	0.0111	0.0106	580.6952
Mobile	4.9304	31.8086	38.2550	0.1408	8.6857	0.1208	8.8065	2.3242	0.1138	2.4380		14,389.8478	14,389.8478	1.0176		14,415.2877
Total	**8.9103**	**34.2272**	**48.5775**	**0.1560**	**8.6857**	**0.3588**	**9.0445**	**2.3242**	**0.3518**	**2.6760**	**0.0000**	**17,355.6495**	**17,355.6495**	**1.0907**	**0.0541**	**17,399.0286**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/1/2019	3/1/2019	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 5.3

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.9304	31.8086	38.2550	0.1408	8.6857	0.1208	8.8065	2.3242	0.1138	2.4380		14,389.8478	14,389.8478	1.0176		14,415.2877
Unmitigated	4.9304	31.8086	38.2550	0.1408	8.6857	0.1208	8.8065	2.3242	0.1138	2.4380		14,389.8478	14,389.8478	1.0176		14,415.2877

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	819.84	911.68	703.36	2,789,489	2,789,489
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	1,872.15	1,872.15	1872.15	956,898	956,898
Total	2,691.99	2,783.83	2,575.51	3,746,387	3,746,387

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	3.00	6.90	3.00	96.00	1.00	31	35	34

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120
Parking Lot	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120
Regional Shopping Center	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0529	0.4529	0.1979	2.8900e-003		0.0366	0.0366		0.0366	0.0366		577.2648	577.2648	0.0111	0.0106	580.6952
NaturalGas Unmitigated	0.0529	0.4529	0.1979	2.8900e-003		0.0366	0.0366		0.0366	0.0366		577.2648	577.2648	0.0111	0.0106	580.6952

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	4779.02	0.0515	0.4404	0.1874	2.8100e-003		0.0356	0.0356		0.0356	0.0356		562.2382	562.2382	0.0108	0.0103	565.5793
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	127.726	1.3800e-003	0.0125	0.0105	8.0000e-005		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004		15.0266	15.0266	2.9000e-004	2.8000e-004	15.1159
Total		**0.0529**	**0.4529**	**0.1979**	**2.8900e-003**		**0.0366**	**0.0366**		**0.0366**	**0.0366**		**577.2648**	**577.2648**	**0.0111**	**0.0106**	**580.6952**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	4.77902	0.0515	0.4404	0.1874	2.8100e-003		0.0356	0.0356		0.0356	0.0356		562.2382	562.2382	0.0108	0.0103	565.5793
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.127726	1.3800e-003	0.0125	0.0105	8.0000e-005		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004		15.0266	15.0266	2.9000e-004	2.8000e-004	15.1159
Total		**0.0529**	**0.4529**	**0.1979**	**2.8900e-003**		**0.0366**	**0.0366**		**0.0366**	**0.0366**		**577.2648**	**577.2648**	**0.0111**	**0.0106**	**580.6952**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.9269	1.9657	10.1245	0.0124		0.2014	0.2014		0.2014	0.2014	0.0000	2,388.5369	2,388.5369	0.0620	0.0435	2,403.0458
Unmitigated	3.9269	1.9657	10.1245	0.0124		0.2014	0.2014		0.2014	0.2014	0.0000	2,388.5369	2,388.5369	0.0620	0.0435	2,403.0458

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2985					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.1228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2174	1.8579	0.7906	0.0119		0.1502	0.1502		0.1502	0.1502	0.0000	2,371.7647	2,371.7647	0.0455	0.0435	2,385.8589
Landscaping	0.2882	0.1078	9.3340	4.9000e-004		0.0512	0.0512		0.0512	0.0512		16.7722	16.7722	0.0166		17.1868
Total	**3.9269**	**1.9657**	**10.1245**	**0.0124**		**0.2014**	**0.2014**		**0.2014**	**0.2014**	**0.0000**	**2,388.5370**	**2,388.5370**	**0.0620**	**0.0435**	**2,403.0458**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2985					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.1228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2174	1.8579	0.7906	0.0119		0.1502	0.1502		0.1502	0.1502	0.0000	2,371.7647	2,371.7647	0.0455	0.0435	2,385.8589
Landscaping	0.2882	0.1078	9.3340	4.9000e-004		0.0512	0.0512		0.0512	0.0512		16.7722	16.7722	0.0166		17.1868
Total	**3.9269**	**1.9657**	**10.1245**	**0.0124**		**0.2014**	**0.2014**		**0.2014**	**0.2014**	**0.0000**	**2,388.5370**	**2,388.5370**	**0.0620**	**0.0435**	**2,403.0458**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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Biological Technical Report for the Continental Villages Project

***Prepared for*:**

Continental East Development
25467 Medical Center Drive, Suite 201
Murrieta, California 92562
Contact: Andrew Spousta

***Prepared by*:**

Carlson Strategic Land Solutions
327134A Paseo Espada, Suite 323
San Juan Capistrano, CA 92675
Phone: (949) 542-7042
Contact: Brianna Bernard

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ACRONYMS, ABBREVIATIONS, AND GLOSSARY OF TERMS

BLM	United States Bureau of Land Management
BMPs	Best Management Practices
CDF	California Department of Forestry and Fire Protection
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corps	United States Army Corps of Engineers
CRPR	California Rare Plant Rank
CWA	Clean Water Act
FESA	Federal Endangered Species Act
FGC	California Fish and Game Code
GPS	Global Positioning System
I-210	Interstate 210
LBV	least Bell's vireo
MBTA	Migratory Bird Treaty Act
MMRP	Mitigation, Monitoring, and Reporting Program
NEPA	National Environmental Protection Act
NHD	National Hydrography Dataset
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	Ordinary High-Water Mark
Project	California Grand Village Senior Village Project
RWQCB	Regional Water Quality Control Board
SAA	Section 1600 Streambed Alteration Agreement
SLS	Carlson Strategic Land Solutions
SWPPP	Storm Water Pollution Prevention Plan
U.S.	United States
USFS	United States Forest Service

USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WQC	Section 401 Water Quality Certification

1.0 Introduction

On behalf of the Continental East Development team and the Continental Village Project (Project), Carlson Strategic Land Solutions (SLS) has prepared this Biological Technical Report, which incorporates the findings from the field survey conducted by SLS biologist on March 13, 2018. This report provides a Technical Study for the approximately 12-acre Project site and surrounding 300-foot survey buffer, collectively known as the "Study Area."

1.1 Purpose and Approach

This report provides a summary of the conditions present during the 2018 survey, an assessment of the potential presence of sensitive biological resources, and an analysis of the potential impacts to those resources due to Project implementation. This report describes the current biological resources present within the Study Area including habitat communities, jurisdictional waters, and the potential occurrence of listed and "special status"[1] plant and wildlife species. The potential biological significance of site construction and development in view of federal, state, and local laws and regulations are also identified in this report. The report also recommends, as appropriate, Best Management Practices (BMPs) and avoidance and minimization measures to reduce or avoid potential impacts. While general biological resources are discussed, the focus of this assessment is on those resources considered to be sensitive. This report was prepared based upon results of a literature review and field surveys.

1.2 Project Terms

The following terms will be used throughout this document and are defined as follows:

- Project site: the approximately 12-acre Continental Village Project site.
- Study Area: the area evaluated during the field survey, including the 12-acre Project site and surrounding 300-foot survey buffer area.
- Project Vicinity: intended to be a general term to describe the broader area surrounding the Study Area.

1.3 Project Location

The Project site is located northeast corner of Lasselle Street and Krameria Avenue in the City of Moreno Valley, Riverside County, California. The Project site assessor parcel number's (APN) are 308-040-053 and 308-040-054 (Figures 1 and 2). The Project site is located in Riverside County, and within the United States Geological Survey (USGS) 7.5-Minute Topographic Map *Sunnymead* Quadrangle.

[1] These species typically have a limited geographic range and/or limited habitat.

Direct access to the Project site is from Krameria Avenue. Directions to the Project site from Interstate 215 (I-215) is to exit Ramona Expressway and head east on Ramona Expressway. From Ramona Expressway, head north onto Evan Road. Evans Road turns into Lassalle Street. From Lassalle Street head east onto Krameria Avenue.

1.4 Existing and Surrounding Land Use

The Project site has been previously rough graded with residential pads and appears actively maintained, therefore the Project site is disturbed and in a non-vegetated state. The Project site is devoid of native vegetation. The Project site is approximately 1500 feet above sea level. The Project site is located within the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) within the Reche Canyon/Badlands Area Plan.

The surrounding land uses of the Project site include Lasalle Elementary School and a property under construction located to the north; and single-family residential subdivisions located to the east, west, and south.

2.0 Project Description

The Applicant proposes to construct Neighborhood Commercial and Multi-family housing on the approximately 12 acres Project site. The Neighborhood Commercial is proposed on 2.8 acres at the corner of Lasselle Street and Krameria Avenue. Multi-family housing is proposed on the remaining 8.80 acres. As a result of Project Implementation, the entire site would be graded and is expected to be balanced onsite.

3.0 Regulatory Context

The following is a list of the key local, state, and federal laws and regulations that apply to protecting plant communities, plants, wildlife, and water quality from project impacts relevant to the Project.

3.1 Federal Laws and Regulations

- Federal Endangered Species Act (FESA)
- Federal Clean Water Act (CWA)
- Migratory Bird Treaty Act (MBTA)

3.2 California State Laws and Regulations

- California Environmental Quality Act (CEQA)
- California Endangered Species Act (CESA) and Fish and Game Code (FGC) sections 2050 et seq.
- Lake and Streambed Alteration Program – FGC sections 1600-1616
- Porter-Cologne Water Quality Act – California Code, Division 7
- Migratory Birds – FGC section 3513
- Nongame Birds – FGC section 3800 (a)
- Native Plant Protection Act (NPPA) – FGC sections 1900-1913

3.3 Local Plans/Regulations

- City of Moreno Valley General Plan
- Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP): Reche Canyon/Badlands Area Plan

3.4 Historical Biological Reports

- Moreno Valley 227 Wetlands Review & Rare Plant Evaluation (VHBC, Incorporated; February 8, 2011)
- Jurisdictional Delineation APN 308-040-050 (Gonzales Environmental Consulting, LLC; February 25, 2011)
- Burrowing Owl Survey - Continental Villages Site APN 308-040-050 (VHBC, Incorporated; February 2, 2012)

3.5 Regulatory Permits

This report is prepared pursuant to and in support of CEQA, and any applicable regulatory permit applications, including the California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement (SAA), Regional Water Quality Control Board (RWQCB) Section 401 Water Quality Certification (WQC), and United States Army Corps of Engineers (Corps) Section 404 permit.

4.0 Survey and Methods

Preparation for this biological study began with a review of relevant available literature. This effort was followed by an onsite field survey on March 13, 2018. The purpose of the field survey was to assess the existing habitat, confirm any onsite sensitive plant communities and jurisdictional waters, and determine whether special status plant and wildlife species occur or potentially occur within the Study Area.

4.1 Literature Review

The study began with a review of relevant available literature on the biological resources within the Study Area and Project Vicinity. The Project site is located within the boundary of the Western Riverside MSHCP, specifically within the Reche Canyon/Badlands Area Plan.

4.1.1 Sensitive Plant Communities

Sensitive plant communities (sensitive habitats) are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. Sensitive habitats are often threatened with local extirpation and are therefore considered valuable biological resources. Plant communities are considered "sensitive" if they meet any of the criteria listed below.

- The habitat is recognized and considered sensitive by CDFW, United States Fish and Wildlife Service (USFWS), and/or special interest groups such as CNPS.
- The habitat is under the jurisdiction of the Corps pursuant to Section 404 of the CWA.
- The habitat is under the jurisdiction of the CDFW pursuant to Sections 1600 through 1612 of the California Fish and Game Code.
- The habitat is known or believed to be of high priority for inventory in the California Natural Diversity Database (CNDDB).
- The habitat is considered regionally rare.
- The habitat has undergone a large-scale reduction due to increased encroachment and development.
- The habitat supports special status plant and/or wildlife species (defined below).
- The habitat functions as an important corridor for wildlife movement.

4.1.2 Critical Habitat

Under the ESA, the federal government is required to designate "critical habitat" for any species it lists under the ESA. Federal agencies are prohibited from authorizing, funding or carrying out actions that "destroy or adversely modify" critical habitats. Section 3 of the ESA defines critical habitat as:

- The specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features

essential to the conservation of the species and that may require special management considerations or protection.

- The specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

"Conservation" means the use of all methods and procedures that are necessary to bring an endangered or a threatened species to the point at which listing under the ESA is no longer necessary. Critical habitat receives protection under Section 7(a)(2) of the ESA through the prohibition against destruction or adverse modification of critical habitat with regard to actions carried out, funded, or authorized by a federal agency. Section 7(a)(2) also requires conferences on federal actions that are likely to result in the destruction or adverse modification of proposed critical habitat.

The USFWS's online service for information regarding Threatened and Endangered Species Final Critical Habitat designation within California was reviewed to determine if the Study Area is within any species' designated Critical Habitat (USFWS 2018a). The USFWS regulatory mapping process for the designation of critical habitat is an imprecise, broad-based, mapping exercise of areas that may or may not include constituent elements of the critical habitat designation. Due to this approach in mapping, large areas are designated as critical habitat regardless of the existing habitat, and as a result may include developed areas, such as buildings, roads, hardscape, and other such facilities, as well as natural habitats.

The constituent elements of the critical habitat designation consider the physical and biological features necessary for life processes and successful reproduction of the listed species. These include:

- Space for individual and population growth for normal behavior;
- Habitat cover or shelter;
- Food, water, or other nutritional or physiological requirements;
- Sites for breeding and rearing offspring; and
- Habitat that is protected from disturbance or is representative of the historical geographic and ecological distribution of a species.

4.1.3 Special Status Plants and Wildlife

Species of plants and animals are afforded "special status" by federal agencies, state agencies, and/or non-governmental organizations (e.g., USFWS, CDFW, and USFS, and CDF) because of their recognized rarity, potential vulnerability to extinction, and local importance. These species typically have a limited geographic range and/or limited habitat and are referred to collectively as "special status" species. Plant and wildlife species were considered "special status" species if they meet any of the following criteria.

- Taxa with official status under ESA, CESA, and/or the NPPA.

- Taxa proposed for listing under ESA and/or CESA.
- Taxa designated a species of special concern by CDFW.
- Taxa designated a state fully protected species by CDFW.
- Taxa identified as sensitive, unique or rare, by the USFWS, CDFW, the United States Forest Service (USFS), the United States Bureau of Land Management (BLM), and/or the California Department of Forestry and Fire Protection (CDF).
- Plants that meet the definition of rare or endangered under CEQA §15380(b) and (d). Species that may meet the definition of rare or endangered include the following:
    - Species considered by CNPS and CDFW to be "rare, threatened or endangered in California" (California Rare Plant Rank [CRPR] 1A, 1B and 2) (CNPS 2018). A majority of the CRPR 3 and CRPR 4 plant species generally do not qualify for protection under CESA and NPPA.
    - Species that may warrant consideration on the basis of local significance or recent biological information.
    - Some species included on the CNDDB Special Plants, Bryophytes, and Lichens List (CDFW 2018g).
- Considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA §15125 (c)) or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G). Examples include a species at the outer limits of its known range or a species occurring on an uncommon soil type.

Available literature and databases were reviewed regarding sensitive habitats and special status plant and wildlife species. Special status plant and wildlife species that have the potential to occur within the immediate region of the Study Area were identified. Several agencies, including the USFWS, CDFW, and CNPS publish lists of particular taxa (species and subspecies) and the associated level of protection or concern associated with each. Reviewed and consulted literature and databases focused on the Study Area, and included the following sources listed below:

- The CNDDB, a CDFW species account database that inventories status and locations of rare plants and wildlife in California, was used to identify any sensitive plant communities and special status plants and wildlife that may exist within a two-mile radius of the Project site. A CNDDB search was performed assessing a two-mile radius around the Study Area (CDFW 2018f). CNDDB records are generally used as a starting point when determining what special status species, if any, may occur in a particular area. However, these records may be old, lack data not yet entered, and do not represent all the special status species that could be in that particular area (Figure 3).
- A map of USFWS critical habitat to determine species with critical habitat mapped in the general vicinity of the Project (USFWS 2018a).[2]

[2] Lands located within the mapped critical habitat designation must meet additional specific criteria to be considered critical habitat. The final determination of the extent of critical habitat on a specific site is based on whether certain criteria are met. Criteria is outlined within Section .

- Online CNPS Inventory of Rare and Endangered Plants of California (CNPS 2018). A search for the USGS 7.5-Minute Topographic Map Sunnymead Quadrangle provided information regarding the distribution and habitats of special status vascular plants in the Project Vicinity.
- Pertinent maps, scientific literature, websites, and regional flora and fauna field guides.

The literature review was used as a resource to better understand the biological resources potentially occurring within the Study Area. Although the inventory list of special status plant and wildlife species was not exhaustive of all species that might occur on the property, it provides a wide range of species that are representative of the wildland habitats in the area. Species occurrence and distribution information is based on documented occurrences where surveys have taken place for individual projects; therefore, a lack of documented occurrence does not necessarily indicate that a given species is absent from the Study Area.

4.1.4 Jurisdictional Waters

The following sources were reviewed to determine the potential presence or absence of jurisdictional streams/drainages, wetlands, and their location within the watersheds associated with the Study Area, and other features that might contribute to federal or state jurisdictional authority located within watersheds associated with the Study Area:

- National Wetlands Inventory (NWI) maps (USFWS 2018c). The NWI database indicates potential wetland areas based on changes in vegetation patterns as observed from satellite imagery. This database is used as a preliminary indicator of wetland habitats because the satellite data are not precise.
- Title 33 Code of Federal Register (CFR): Navigation and Navigable Waters Part 328
- USGS National Hydrography Dataset (NHD). Provides the locations of “blue-line” streams as mapped on 7.5-Minute Topographic Map coverage.
- Aerial Imagery (Google Earth©) (Google 2018).
- USGS 7.5-Minute Topographic Maps.
- Natural Resource Conservation Service (NRCS) Soil Survey.

4.1.5 MSHCP Assessment

The Project site is located within the MSHCP, specifically within the Reche Canyon/Badlands Area Plan. The MSHCP is a comprehensive plan that includes portions of the County of Riverside and numerous cities. The MSHCP plans for conservation of 146 species and proposes a reserve system of approximately 500,000 acres. The MSHCP is intended to contribute to the economic viability of the County of Riverside by providing landowners, developers, and public infrastructure projects a streamlined regulatory process.

The Riverside Conservation Authority (RCA) MSHCP Information Application website was reviewed to verify any overlays that may occur on the Project site. Regardless of other overlays, MSHCP Section 6.1.2, *Protection of Species Associated with Riparian/Riverine Areas and Vernal*

Pools, is applicable to all projects within the MSHCP and describes the process through which protection of riparian/riverine areas, vernal pools, and fairy shrimp species will occur within the MSHCP Area. Protection of these resources is important for a number of MSHCP conservation objectives. An assessment of a Project's potentially significant effects on riparian/riverine areas, and vernal pools is required. Guidelines for determining whether or not these resources exist on site are described as follows:

- **Riparian/Riverine Areas** include "lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens which occur close to or which depend upon soil moisture from a nearby fresh water source or areas with fresh water flow during all or a portion of the year." Riparian/riverine areas under the MSHCP also include drainage areas that are vegetated or have upland (non-riparian/riverine) vegetation and that drain directly into an area that is described for conservation under the MSHCP (or areas already conserved). The Project site was assessed for areas meeting this definition during the jurisdictional delineation performed on March 13, 2018.

- **Vernal Pools** are described by the MSHCP as "seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season." This definition excludes artificially created wetlands created for proving wetlands habitat or human actions to create open waters or altering natural streams demonstrating characteristic as described above. The Project site was assessed for areas meeting this definition during the jurisdictional delineation performed on March 13, 2018.

4.2 Biological Survey

4.2.1 General Biological Survey

A field survey was performed on March 13, 2018 by SLS biologist Brianna Bernard to assess and map vegetation communities, plants, and wildlife, and to identify habitat areas that could be suitable for special status plant species.

Plant species were identified using plant field and taxonomical guides, such as The Jepson Manual: Vascular Plants of California, second edition (Baldwin et al. 2012). All plant species encountered during the field survey were identified and recorded in field notes. A one-day survey cannot be used to conclusively determine presence or absence of a species; therefore, assessments of presence/absence were made based on the previous surveys, presence of suitable habitat and soils to support the species, known records or occurrence within the area, and known distribution and elevation range obtained from the relevant literature.

During the field survey, the biologist assessed the existing habitat within the Study Area. The biologist paid special attention to those habitat areas that had the potential to provide suitable

habitat for special status plant and wildlife species. Aerial photographs and maps were used to assist in the delineation of plant community boundaries. Following field mapping, the plant communities were digitized and the vegetation map was created. General wildlife surveys were conducted on foot and with binoculars within the Study Area.

All wildlife species encountered visually or audibly during the field survey were identified and recorded in field notes. Biologists also recorded signs of wildlife species including animal tracks, burrows, nests, scat, and remains. Binoculars were used to aid in the identification of observed wildlife. Wildlife field guides and photographs were used to assist with identification of wildlife species during the field survey, as necessary. Photographs were taken to document existing conditions within the Study Area (Appendix A).

4.3 Jurisdictional Delineation

An assessment of the Study Area for the presence of jurisdictional features was conducted by SLS biologist Brianna Bernard on March 13, 2018. All depressions and drainages were evaluated for the presence of bed and bank and wetlands according to the Corps and CDFW delineation guidelines, including connectivity or lack of connectivity to Traditional Navigable Waters. Dominant vegetation within and adjacent to any jurisdictional features within the Study Area was identified and recorded.

The Corps and the RWQCB have jurisdiction over Waters of the United States. Jurisdictional non-wetland features for the Waters of the United States are typically determined through the observation of an Ordinary High Water Mark (OHWM), which is defined as the "line on the shore established by the fluctuation of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." Projects with impacts to Waters of the United States are regulated under Sections 401 and 404 of the Clean Water Act.

To determine the presence of a jurisdictional wetland for the Waters of the United States, three indicators are required: (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. The methodology published in the *United States Army Corps of Engineers 1987 Wetland Delineation Manual* and the *Arid West Supplement* sets the standards for meeting each of the three indicators, which normally require more than 50 percent cover of dominant plant species typical of a wetland, soils exhibiting characteristics of saturation, and hydrological indicators be present.

CDFW has jurisdiction over water of the Department's interest (California Fish and Game Code §§1600 et seq.; California Code of Regulations, Title 14, §720). Section 1602 of the California Fish and Game Code (FGC) applies to all rivers, streams, lakes and streambeds. CDFW defines a stream as "a body of water that flows perennially or episodically and that is defined by the area in which water currently flows, or has flowed, over a given course during the historic hydrologic course regime, and where the width of its course can reasonably be identified by physical or biological

indicators" (Brady and Vyverberg 2013). Likewise, CDFW regulates jurisdictional areas of riparian habitat only to the extent that those areas are part of a stream, river, or lake as defined above. Waters of the State pertaining to Porter-Cologne in relation to RWQCB jurisdiction are defined by California Water Code Section 13050(e) as any surface or ground water within the boundaries of the state.

Prior to the field investigation, SLS biologist reviewed historical aerial imagery, historical biological reports, and topography for the Study Area to determine the potential for perennial, intermittent, or ephemeral drainages and associated riparian resources. Generally, indicators of jurisdictional drainages on an aerial photo include vegetation and/or incised lines indicating the path of flowing water. Following the desktop research, SLS biologist conducted an onsite field investigation. Based on the collective results of the desktop investigation and the field surveys, any observed jurisdictional features were mapped using the following parameters:

- As stated above, the limits of the Corps' jurisdiction extend to the OHWM. OHWM indicators include: the observation of benches, break in bank slope, particle size distribution, sediment deposits, drift, litter, and/or change in plant community.
- The RWQCB shares the Corps' jurisdictional methodology.
- CDFW's jurisdiction applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state. CDFW's authority also includes riparian habitat (including wetlands) supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions. Generally, CDFW jurisdiction is mapped to the top of bank of the stream.

5.0 Results

5.1 Vegetation Communities

As stated previously, the Project site has been previously rough graded with residential pads and appears actively maintained; therefore, the Project site is disturbed and in a non-vegetated state. Vegetation communities were mapped based on the Holland Classification System (Holland 1986). Where necessary, deviations were made on best professional judgment when areas did not fit into a specific habitat description provided by Holland. Plant communities were mapped in the field directly onto a 200-scale (1" = 200') aerial photograph; acreages for the community observed is listed in Table 1 and graphically depicted on Figure 5. Representative photographs of the vegetation community observed can be found in Appendix A.

Table 1. Vegetation Community Observed within the Project Site

Vegetation Community	Total Acreage
Developed/Disturbed	12.41

The general description of the habitat observed during the 2018 field survey is described below.

5.1.1 Developed/Disturbed

A total of 12.4 acres of disturbed area consisting of bare dirt and sparse vegetation is mapped onsite. This acreages includes the current water quality/Best Management Practice (BMP) Measures as part of the active construction located to the north of the Project site and original grading. The historical biological reports were reviewed, along with a series of historical aerials. Based on the series of aerial and biological reports, the site was first graded prior to 2002, as part of the larger community and the construction of Krameria Avenue and Lasselle Street. Based on the historical aerials, no natural drainage occurred on the site and with the construction of the streets and residential, was cut off from any watershed that would have served any natural drainage. The site appeared to be maintained through disking. The site was re-graded in 2004/2005 as part of construction of the adjacent Lasalle Elementary School. As part of the grading activities and construction of the adjacent school, two detention basins and a single spillway were incorporated into the grading.

As stated in the historical biological reports and observed in the historical aerials, nuisance water was present in the basins from the school property and associated with adjacent urban landscape runoff, including residential and commercial uses. The basins and spillway captured the runoff and nuisance flow from the School and the graded nature and lack of vegetation on the Project site and adjacent undeveloped northern property. Following the construction of the adjacent School, the Project site and adjacent undeveloped northern property remained in the rough graded state and vacant. As a result of the site siting dormant, vegetation grew within the basins and spillway, as observed on the historical aerials. However, various aerials show a lack of

vegetation within the basins and spillway. The difference of vegetation observed in the basins and spillway throughout the aerials provides evidence that the vegetation depended on the nuisance flow and runoff into the BMPs and without the support of the nuisance water and runoff the vegetation within the areas cease to exist. Based on those factors and the inclusion of detention basins and riprap, no natural drainages previously existed on the Project site and the drainage observed by the historical biological reports was only created by runoff and nuisance from the impervious surface and ballfields on the school site.

The adjacent undeveloped northern property, outside of the 12-acre Project site, is currently under construction as observed in the 2018 aerial and site visit. As part of the active construction, the spillway was redirected via a tarped path to a retention basin located on the Project site. Both of the basins and spillway, located on the adjacent northern property, were removed as part of active construction. The retention basin located on the Project site captures the run-off and nuisance flow onsite due to the graded nature and lack of vegetation on the Project site, the school property, and associated with adjacent urban landscape.

5.2 Plants

Sensitive plant species include federally or state listed threatened or endangered species, those species listed on the CNPS rare and endangered plant inventory. A single listed plant species occurs within the USGS 7.5' Sunnymead quadrangle and a brief description of that species is included below. Special status plant species with the potential to occur in the Project site were analyzed based on distribution, habitat requirements, and existing site conditions (Appendix B). All plant species observed within the Project site totaled 7 species during the survey on March 13, 2018 are listed in Appendix C of this report.

Nevin's barberry (*Berberis nevinii*)
Status: state endangered, federally endangered
Distribution: Los Angeles, Riverside, San Bernardino, and San Diego Counties.
Habitat(s): A perennial evergreen shrub that occurs in sandy or gravelly areas. Habitat communities include chaparral, cismontane woodland, coastal scrub, and riparian scrub. Occurs at approximately 230 to 2,700-foot elevation range. Blooms from March through June.
Status onsite: None. The site lacks suitable habitat and soils. Not observed during field visit.
As determined through the 2018 survey, no special status plant species were observed within the Project site and there is no opportunity for them to occur due to the disturbed nature of the Project site and lack of suitable habitat and soils.

5.3 Critical Habitat

The Project site contains no designated critical habitat. The closest designated critical habitat is located 4.40 miles southeast of the Project site for Spreading Navarretia (*Navarretia fossalis*).

5.4 Wildlife

Special status wildlife species with the potential to occur in the Study Area were analyzed based on the species identified in USGS 7.5' Sunnymead quadrangle and the surrounding eight quadrangles, distribution, habitat requirements, and existing site conditions (Appendix D). No special status wildlife was identified or observed within the Project site during the field visit. However, the following species were identified as being observed within 2-miles of the Project site: burrowing owl (*Athene cunicularia*), red-diamond rattlesnake (*Crotalus ruber*), Stephen's Kangaroo Rat (*Dipodomys stephensi*), western mastiff bat (*Eumops perotis californicus*), western yellow bat (*Lasiurus xanthinus*), and Los Angeles Pocket Mouse (*Perognathus longimembris brevinas*). A brief description of those species and their habitat is included below.

Burrowing Owl (*Athene cunicularia*)
Status: species of special concern
Habitat(s): Burrowing owls are a year-round resident of California including habitats of open, dry grassland, and desert. They are generally restricted to mostly flat, open country with suitable nest sites. They use rodent or other burrows for roosting and nesting cover and acquire their burrows from either abandonment or eviction. Burrowing owls typically hunt from a perch.
Status onsite: None. The site lacks suitable habitat and contains no burrows. Not observed during field visit.

Red-Diamond Rattlesnake (*Crotalus ruber*)
Status: species of special concern
Habitat(s): It can be found from the desert, through dense chaparral in the foothills (it avoids the mountains above around 4,000 feet), to warm inland mesas and valleys, all the way to the cool ocean shore. It is most commonly associated with heavy brush with large rocks or boulders. Dense chaparral in the foothills, cactus or boulder associated coastal sage scrub, oak and pine woodlands, and desert slope scrub associations are known to carry populations of the northern red-diamond rattlesnake, however, chamise and red shank associations may offer better structural habitat for refuges and food resources for this species than other habitats. They need rodent burrows, cracks in rocks or surface cover objects.
Status onsite: None. The site lacks suitable habitat. Not observed during field visit.

Stephen's Kangaroo Rat (*Dipodomys stephensi*)
Status: federally endangered, state threatened
Habitat(s): This species prefers large areas of disturbed or patchy annual and perennial grasslands and open coastal sage scrub. Preferred perennial plant species include buckwheat and chamise and preferred annual plant species include brome grass. The nearest known populations are in Rancho Guejito and at the Naval Weapons Station in Fallbrook.
Status onsite: None. The site lacks suitable habitat. Not observed during field visit.

Western Mastiff Bat (*Eumops perotis californicus*)
Status: species of special concern

Habitat(s): Western mastiff bats are found in a variety of habitats, such as semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban, but the species' distribution may be geomorphically determined, occurring primarily where there are significant rock features offering suitable roosting habitat. A cliff dwelling species, where maternity colonies of 30 to several hundred roost generally under exfoliating rock slabs and rock crevices along cliffs. Western mastiff bats can also be found in similar crevices in large boulders and buildings. When roosting in rock crevices they require a sizable drop from their roost in order to achieve flight. Western mastiff bats prefer deep crevices that are at least 15 or 20 feet above the ground. Foraging is concentrated around bodies of water but also includes coastal sage scrub, chaparral, and grassland habitats.
Status onsite: None. The site lacks suitable habitat. Not observed during field visit.

Western yellow bat (*Lasiurus xanthinus*)
Status: species of special concern
Habitat(s): Roost in trees, hanging from the underside of a leaf. Commonly found in the southwestern U.S. roosting in the skirt of dead fronds in both native and non- native palm trees and have also been documented roosting in cottonwood trees.
Status onsite: None. The site lacks suitable habitat. Not observed during field visit.

Los Angeles Pocket Mouse (*Perognathus longimembris brevinas*)
Status: species of special concern
Habitat(s): Prefers sandy soil for burrowing. Also known to occur on gravel washes and in rocky soils. Associated with coastal scrub.
Status onsite: None. The site lacks suitable habitat. Not observed during field visit.

None of these species or evidence of their presence were observed or heard during the 2018 survey, and given the site's disturbed environment, existing surrounding residential housing and elementary school, and lack of habitat there is no opportunity for them to occur onsite.

5.4.1 Wildlife Species Observed or Detected

The animal species or signs thereof observed during the SLS survey are listed below:

Birds:

- American crow (*Corvus brachyrhynchos*)
- Anna's hummingbird (*Calypte anna*)
- house finch (*Haemorhous mexicanus*)
- mourning dove (*Zenaida macroura*)
- California seagull (*Larus californicus*)

5.5 Regional Connectivity/Wildlife Movement

Wildlife corridors link together areas of suitable habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, would not likely persist over time in fragmented or isolated habitat areas because they prohibit the infusion of new individuals and genetic information (MacArthur and Wilson 1967, Soule 1987, Harris and Gallager 1989). Corridors effectively act as links between different populations of a species. A group of smaller populations (termed "demes") linked together via a system of corridors is termed a "meta-population." The long-term health of each deme within the meta-population is dependent upon its size and the frequency of interchange of individuals (immigration versus emigration). The smaller the deme, the more important immigration becomes, because prolonged inbreeding with the same individuals can reduce genetic variability. Immigrant individuals that move into the deme from adjoining demes mate with individuals and supply that deme with new genes and gene combinations that increases overall genetic diversity. An increase in a population's genetic variability is generally associated with an increase in a population's health.

Corridors mitigate the effects of habitat fragmentation by:

- Allowing animals to move between remaining habitats, which allows depleted populations to be replenished and promotes genetic diversity.
- Providing escape routes from fire, predators, and human disturbances, thus reducing the risk that catastrophic events (such as fires or disease) will result in population or local species extinction.
- Serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and other needs (Fahrig and Merriam 1985, Simberloff and Cox 1987, Harris and Gallagher 1989).

Wildlife movement activities usually fall into one of three movement categories:

- Dispersal (e.g., juvenile animals from natal areas, individuals extending range distributions).
- Seasonal migration.
- Movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover).

A number of terms have been used in various wildlife movement studies, such as "wildlife corridor," "travel route," "habitat linkage," and "wildlife crossing" to refer to areas in which wildlife moves from one area to another. To clarify the meaning of these terms and facilitate the discussion on wildlife movement in this study, these terms are defined as follows:

- Travel route: a landscape feature (such as a ridge line, drainage, canyon, or riparian strip) within a larger natural habitat area that is used frequently by animals to facilitate movement and provide access to necessary resources (e.g., water, food, cover, den sites). The travel route is generally preferred because it provides the least amount of topographic resistance in moving from one area to another; it contains adequate food, water, and/or cover while moving between habitat areas; and provides a relatively direct link between target habitat areas.

- Wildlife corridor: a piece of habitat, usually linear in nature, that connects two or more habitat patches that would otherwise be fragmented or isolated from one another. Wildlife corridors are usually bounded by urban land areas or other areas unsuitable for wildlife. The corridor generally contains suitable cover, food, and/or water to support species and facilitate movement while in the corridor. Larger, landscape-level corridors (often referred to as "habitat or landscape linkages") can provide both transitory and resident habitat for a variety of species.

- Wildlife crossing: a small, narrow area, relatively short in length and generally constricted in nature, that allows wildlife to pass under or through an obstacle or barrier that otherwise hinders or prevents movement. Crossings are typically manmade and include culverts, underpasses, drainage pipes, and tunnels to provide access across or under roads, highways, pipelines, or other physical obstacles. These are often "choke points" along a movement corridor.

5.5.1 Wildlife Movement within the Study Area

Large open spaces support a diverse ecological community representing all types of wildlife movements. Each category of movement may also be represented at a variety of scales from non-migratory movement of amphibians, reptiles, and some birds, on a local level to many square-mile home ranges of large mammals moving at a regional level. Due to the urbanized setting, the Project site does not serve as a local wildlife corridor.

5.6 Jurisdictional Areas

Prior to the field survey, the previous biological reports and historical aerials were reviewed. The Project site is surrounded by urban development and the site was first graded prior to 2002 as part of the larger community and construction of Krameria Avenue and Lasselle Street. Based on the historical aerials, no natural drainage occurred on the site and with the construction of the streets and residential, was cut off from any watershed that would have served any natural drainage. Following the construction of the adjacent development, the site appeared to be maintained through disking. The site was re-graded in 2004/2005 as part of construction of the adjacent Lasalle Elementary School. As part of the grading activities and construction of the adjacent school, two detention basins and a single spillway were incorporated into the grading plan.

As stated in the historical biological reports and observed on historical aerials, nuisance water was present in the basins from the school property and associated with adjacent urban landscape runoff, including residential and commercial uses. The basins and spillway captured the runoff and nuisance flow from the School and the graded nature and lack of vegetation on the Project site and adjacent undeveloped northern property. Following the construction of the adjacent School, the Project site and adjacent undeveloped northern property remained in the rough graded state and vacant. As a result of the site siting dormant, vegetation grew within the basins and spillway, as observed on the historical aerials. However, various aerials show a lack of vegetation within the basins and spillway. The difference of vegetation observed in the basins and spillway throughout the aerials provides evidence that the vegetation depended on the nuisance flow and runoff into the BMPs and without the support of the nuisance water and runoff the vegetation within the areas cease to exist. Based on those factors and the inclusion of detention basins and riprap, no natural drainages previously existed on the Project site and the drainage observed by the historical biological reports was only created by runoff and nuisance from the impervious surface and ballfields on the school site.

The adjacent undeveloped northern property, outside of the 12-acre Project site, is currently under construction as observed in the 2018 aerial and site visit. As part of the active construction, the spillway was redirected via a tarped path to a retention basin located on the Project site. Both of the basins and spillway, located on the adjacent northern property, were removed as part of active construction. The retention basin located on the Project site captures the run-off and nuisance flow onsite due to the graded nature and lack of vegetation on the Project site, the school property, and associated with adjacent urban landscape.

During the 2018 field survey, it was determined that the Project site does not include any jurisdictional areas or wetlands.

5.7 MSHCP Assessment

The Project is located within the Reche Canyon/Badlands Area Plan of the MSHCP. The Project site is not located within any MSHCP Criteria Areas, Cell Groups, Subunits, Narrow Endemic Plants, or Burrowing Owl overlays. The Project site was surveyed and assessed for the following:

- Riparian and Riverine Areas (Section 6.1.2)

Thus, a separate Consistency Assessment has been prepared pursuant to that section. As stated in the historical biological reports and observed on historical aerials, the basins and spillway located onsite capture the runoff and nuisance flow from the school property, adjacent urban landscape runoff, including residential and commercial uses, and the graded nature and lack of vegetation on the Project site and adjacent undeveloped northern property. Following the construction of the adjacent School, the Project site and adjacent undeveloped northern property remained in the rough graded state and vacant. As a result of the site siting dormant,

vegetation grew within the basins and spillway, as observed on the historical aerials. However, various aerials show a lack of vegetation within the basins and spillway. The difference of vegetation observed in the basins and spillway throughout the aerials provides evidence that the vegetation depended on the nuisance flow and runoff into the BMPs and without the support of the nuisance water and runoff the vegetation within the areas cease to exist. Based on those factors and the inclusion of detention basins and riprap, no natural drainages previously existed on the Project site and the drainage observed by the historical biological reports was only created by runoff and nuisance from the impervious surface and ballfields on the school site.

During the 2018 field survey, it was determined that the Project site consists of Developed/Disturbed habitat and does not include any MSHCP defined Riparian or Riverine Areas.

5.8 Soils Mapping

The United States Department of Agriculture Natural Resource Conservation Service (NRCS) lists four soil types in the Project site (Figure 6), as described below:

GyC2: Greenfield sandy loam, 2 to 8 percent slopes, eroded
Soils of this series consist of well drained soils with low runoff. These soils are found on 2 to 8 percent slopes at elevations of 100 to 3,500 feet. Greenfield sandy loam complex is mapped on approximately 59 percent of the Project site.

HcC: Hanford coarse sandy loam, 2 to 8 percent slopes
Soils of this series consist of well drained soils with low runoff. These soils are found on 2 to 8 percent slopes at elevations of 150 to 900 feet. Hanford coarse sandy loam, 2 to 8 percent, is mapped on approximately 39 percent of the Project site.

HcD2: Hanford coarse sandy loam, 8 to 15 percent slopes, eroded
Soils of this series consist of somewhat excessively drained soils with low runoff. These soils are found on 8 to 15 percent slopes at elevations of 150 to 900 feet. Hanford coarse sandy loam, 8 to 15 percent, is mapped on approximately 1 percent of the Project site.

RaB3: Ramona sandy loam, 0 to 5 percent slopes, severely eroded
Soils of this series consist of well drained soils with medium runoff. These soils are found on 0 to 5 percent slopes at elevations of 250 to 3,500 feet. Ramona sandy loam complex is mapped on approximately 1 percent of the Project site.

6.0 Project Impacts

This section discusses potential impacts to biological resources that could result from Project implementation. Biological resources may be either directly or indirectly impacted by a Project.

Direct and indirect impacts may be either permanent or temporary in nature. These impact categories are defined below.

- Direct impact: any loss, alteration, disturbance or destruction of biological resources that would result from project-related activities is a direct impact. Examples include vegetation clearing, encroaching into wetlands, diverting natural surface water flows, and the loss of individual species and/or their habitats. Direct permanent impacts resulting from Project implementation consist of any ground-disturbing activities (i.e., vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc.).

- Indirect impact: as a result of Project-related activities, biological resources may also be affected in a manner that is not direct. Examples of indirect impacts include elevated noise, light, and dust levels, increased human activity, decreased water quality, erosion created by the removal of vegetation, and the introduction of invasive plants and unnatural predators (e.g. domestic cats and dogs). These indirect impacts may be both short term and long term in their extent.

- Permanent impacts: all impacts that result in the long-term or irreversible removal of biological resources are considered permanent. Examples include constructing a building or permanent road on an area containing biological resources.

- Temporary impacts: any impacts considered to have reversible effects on biological resources can be viewed as temporary. Examples include the generation of fugitive dust during grading, or removing vegetation and either allowing the natural vegetation to recolonize or actively revegetating the impact area.

Under each section, potential impacts are discussed.

6.1 Impacts to Vegetation Communities/Habitats

Figure 7 and Table 2 describe and list the approximate total acreages of vegetation communities that will be permanently and temporary impacted by Project activities. Calculations were based on the currently proposed development design in combination with the vegetation map from the field survey and aerial imagery.

Indirect temporary impacts to plant communities include the effects of fugitive dust created by grading activities, vehicle construction traffic, or offsite discharge of surface water runoff with its associated erosion and sedimentation. Grading-related dust could settle on plant surfaces and indirectly inhibit metabolic processes such as photosynthesis and respiration. Grading-related erosion, runoff, sedimentation, soil compaction, and alteration of drainage patterns may affect plants by altering site conditions so that the location in which they are growing becomes unfavorable. Another example of indirect impacts includes the introduction and spread of

invasive, exotic plants which could result in permanent indirect impacts to adjacent native plant communities.

Table 2. Approximate Acreage of Potential Impacts to Vegetation Communities on the Project Site

Vegetation Community	Existing Vegetation onsite (acres)	Total Permanent Impacts (acres)	Total Temporary Impacts (acres)
Developed/Disturbed	12.41	12.41	0.00

Permanent impacts to the 12.41 acres of the developed/disturbed community onsite from Project grading are not significant because these areas are not considered sensitive habitats.

6.2 Potential Impacts to Special Status Plants

As concluded in Section 5.2 above, no special status plant species were observed during the 2018 survey and none are expected to occur onsite due to the urbanized nature of the Project site; therefore, there are no potential impacts to special status plants due to Project implementation.

6.3 Potential Impacts to Critical Habitat

The proposed Project would not result in direct or indirect impacts to the designated critical habitats identified in Section 5.3 above due to the distance of the designated critical habitat and lack of suitable habitat found within the Project site.

6.4 Potential Impacts to Special Status Wildlife

Due to the urbanized nature of the Project site, no impacts are expected to occur as a result of Project Implementation. Specifically, no suitable habitat for the special status species is found onsite, as shown in Table 3 below. Impacts to avian species protected by the MBTA may occur as a result of Project construction, both temporary short-term construction and operations (long-term). If Project construction is scheduled to occur during the typical breeding bird season (January through September), short-term noise effects to birds that may forage on the onsite may occur. However, it is expected such birds would fly away at the sight of approaching construction workers and equipment, and would therefore not be significantly impacted by construction-related noise levels and no mitigation required.

Table 3 Impact Analysis Summary for Special Status Species

Species	Extent of Impact	Significance of Impact
Burrowing Owl	No suitable habitat is found within the Project site as identified within Section 5.4.	No Impact due to lack of suitable habitat onsite. Not observed

Species	Extent of Impact	Significance of Impact
		during field visit.
Red-Diamond Rattlesnake	No suitable habitat is found within the Project site as identified within Section 5.4.	No Impact due to lack of suitable habitat onsite. Not observed during field visit.
Stephen's Kangaroo Rat	No suitable habitat is found within the Project site as identified within Section 5.4.	No Impact due to lack of suitable habitat onsite. Not observed during field visit.
Western Mastiff Bat	No suitable habitat is found within the Project site as identified within Section 5.4.	No Impact due to lack of suitable habitat onsite. Not observed during field visit.
Western Yellow Bat	No suitable habitat is found within the Project site as identified within Section 5.4.	No Impact due to lack of suitable habitat onsite. Not observed during field visit.
Los Angeles Pocket Mouse	No suitable habitat is found within the Project site as identified within Section 5.4.	No Impact due to lack of suitable habitat onsite. Not observed during field visit.

Project construction could also result in additional short-term impacts including night lighting, littering, and illegal wildlife collections. However, Project compliance with the following BMPs under State and federal laws would reduce the potential for such indirect impacts to below significance:

- All temporary construction-related night lighting used in onsite development areas will be shielded and/or directed downward to avoid indirect impacts to nocturnal wildlife such that night lighting could increase predation rates.

- All construction contractors, subcontractors, and employees will comply with the litter and pollution laws and will institute a litter control/removal program during the course of construction activities to reduce the attractiveness of the area to opportunistic predators such as coyotes, opossums, and common ravens.

- Active nests (nests with chicks or eggs) cannot be removed or disturbed. Nests may be removed or disturbed by a qualified biologist, if not active.

- Construction employees, contractors, and site visitors will be prohibited from collecting wildlife.

With implementation of the night lighting reduction PDFs via their inclusion in the Project's MMRP, potential indirect long-term impacts to wildlife would be reduced to below significance.

6.5 Potential Impacts to Wildlife Movement

As described earlier, the Project site does not function as a wildlife corridor due to the urbanized nature of the Project site. Therefore, the Project would not result in direct or indirect impacts to wildlife movement.

6.6 Potential Impacts to Jurisdictional Features

No federal/State jurisdictional areas occur within the Project Site. Therefore, the Project would not result in direct or indirect impacts to jurisdictional waters and wetlands.

6.7 Potential Impacts to MSHCP Features

The Project site was evaluated for suitable Riparian/Riverine habitat pursuant to MSHCP Section 6.1.2. The Project site does not contain any riparian habitat as determine during the field survey on March 13, 2018. Therefore, the proposed Project is consistent with Section 6.1.2 as outlined within the Project MSHCP Consistency Analysis Report.

7.0 BMPs/PDFs Incorporated into the Project and MMRP

The Project will comply with the following:

- Work area limits will be defined and respected. All grading areas will have their boundaries clearly flagged or marked before Project implementation and all disturbances will be confined to the flagged areas.

- Cleared or trimmed non-native, exotic vegetation and woody debris will be disposed of in a legal manner at an approved disposal site.

- Employees, contractors, and site visitors will be prohibited from collecting plants and wildlife.

- Access to construction sites will be via preexisting access routes.

- Construction equipment will be properly maintained; construction employees and contractors will be trained on proper implementation and monitoring of BMPs.

- Effective perimeter control BMPs to control discharge of pollutants from the Project site during construction.

- All temporary construction-related night lighting used in onsite development areas will be shielded and/or directed downward to avoid indirect impacts to nocturnal wildlife such that night lighting could increase predation rates.

- All construction contractors, subcontractors, and employees will comply with the litter and pollution laws and will institute a litter control/removal program during the course of construction activities to reduce the attractiveness of the area to opportunistic predators such as coyotes, opossums, and common ravens.

- Active nests (nests with chicks or eggs) cannot be removed or disturbed. Nests may be removed or disturbed by a qualified biologist, if not active.

8.0 Proposed Mitigation

No adverse impacts are expected on vegetation communities, special status plants and wildlife, critical habitat, jurisdictional or MSHCP features; therefore, no mitigation is proposed.

9.0 Cumulative Impacts

The loss of biological resources on the Project site must be considered in the context of the other development in the area. As identified within Section 6.1, the vegetation communities identified onsite are not considered sensitive habitats and are abundant in the surrounding Project vicinity.

10.0 Literature Cited

Amphibiaweb. 2018. Species Accounts. Retrieved from: http://amphibiaweb.org/search/index.html

AOU (The American Ornithologists' Union). 1998. Check-List of North American Birds. 7th Edition. American Ornithologists' Union, Washington, D.C. 829 pp.

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepson Manual: Vascular Plants of California, second edition. University California Press, Berkeley.

Bowers, N., R. Bowers, and K. Kaufman. 2004. Mammals of North America. Houghton Mifflin Company, New York.

Brady, Roland H. III, Kris Vyverberg. 2013. Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants. California Energy Commission. Publication Number: CEC-500-2014-013.

Calflora. 2018. Calflora website - search for plants. Retrieved from: http://www.calflora.org/species/index.html.

CaliforniaHerps.com. 2018. California Herps. A Guide to the Reptiles and Amphibians of California. Retrieved from: http://www.californiaherps.com/.

Cal-IPC (California Invasive Plant Council). 2006. California Invasive Plant Inventory. Cal-IPC Publication 2006-02. California Invasive Plant Council: Berkeley, CA. Retrieved from: http://www.cal-ipc.org/ip/inventory/index.php.

CDFW (California Department of Fish and Wildlife). 2018. Natural Communities List. Biographic Data Branch. The Vegetation Classification and Mapping Program. https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities.

CDFW (California Department of Fish and Wildlife). 2018a. California Endangered Species Act (CESA). Retrieved from: https://www.wildlife.ca.gov/Conservation/CESA.

CDFW (California Department of Fish and Wildlife). 2018b. California Environmental Quality Act (CEQA). Retrieved from: https://www.wildlife.ca.gov/Conservation/CEQA.

CDFW (California Department of Fish and Wildlife). 2018c. Fish and Game Code Section 1600-1616. Retrieved from: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=3784.

CDFW (California Department of Fish and Wildlife). 2018d. Lake and Streambed Alteration Program. Retrieved from: https://www.wildlife.ca.gov/Conservation/LSA.

CDFW (California Department of Fish and Wildlife). 2018e. Life History Accounts and Range Maps – California Wildlife Habitat Relationship System. Retrieved from: https://www.wildlife.ca.gov/Data/CWHR/Life-History-and-Range.

CDFW (California Department of Fish and Wildlife). 2018f. RareFind, California Department of Fish and Wildlife, California Natural Diversity Database (CNDDB). State of California, The Natural Resources Agency, Department of Fish and Wildlife, Biogeographic Data Branch, California Natural Diversity Database, Sacramento, CA.

CDFW (California Department of Fish and Wildlife), Natural Diversity Database. 2018g. Special Vascular Plants, Bryophytes, and Lichens List. Quarterly publication. 124 pp.

CDFW (California Department of Fish and Wildlife), Natural Diversity Database. 2018h. Special Animals List. Periodic publication. 51 pp.
Retried from: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406.

CDFW (California Department of Fish and Wildlife). 2018i. State and Federally Listed Endangered, Threatened, and Rare Plants of California. State of California, The Resources Agency, Department of Fish and Wildlife, Resource Management and Planning Division, Biogeographic Data Branch, California Natural Diversity Database, Sacramento, CA.

Clark, W.S. and B.K. Wheeler. 2001. A Field Guide to Hawks of North America, Second Edition. Houghton Mifflin Company, Boston and New York.

California Native Plant Society, Rare Plant Program. 2018. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 12 March 2018].

Corps (United States Army Corps of Engineers). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Eder, Tamara. 2005. Mammals of California. Lone Pine Publishing International Inc, Auburn, WA.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.

EPA (United States Environmental Protection Agency). 2011. Laws and Regulations. Summary of the Endangered Species Act.
Retrieved from: http://www.epa.gov/lawsregs/laws/esa.html

Fahrig, L., and G. Merriam. 1985. Habitat patch connectivity and population survival. Ecology 66:1762-1768.

Federal Interagency Committee for Wetland Delineation. 1989. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and USDA Soil Conservation Service, Washington, DC Cooperative technical publication.

Fish and Game Commission. 2018. California Law. California Fish and Game Code. Retrieved from: http://leginfo.legislature.ca.gov/faces/codesTOCSelected.xhtml?tocCode=FGC&tocTitle=+Fish+and+Game+Code+-+FGC

Google. 2018. GoogleEarth© website.

Government Printing Office. 1991. Federal Register, 1989 "Federal Manual for Identifying Jurisdictional Wetlands; Proposed Revisions." August 14, 1991, Vol. 56, No. 157, pp 40446-40480.

Harris, L.D. and Gallagher, P.B. 1989. New initiatives for wildlife conservation: The need for movement corridors. In defense of wildlife: Preserving communities and corridors. pp. 11-34. Edited by G. Mackintosh. Defenders of Wildlife, Washington, DC.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. State of California, The Resources Agency, Nongame Heritage Program, California Department of Fish & Game, Sacramento, Calif. 156 pp.

Jennings, M.R. and M.P. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. Submitted to the California Department of Fish and Game Inland Fisheries Division. Rancho Cordova, CA.

National Geographic Society. Edited by Jonathan Alderfer. 2006. Complete Birds of North America. National Geographic Society. Washington D.C.

NatureServe. 2018. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://explorer.natureserve.org.

NRCS (Natural Resource Conservation Service). 2018. Web Soil Survey. U.S. Department of Agriculture Natural Resources Conservation Service. Retrieved from: http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

Riverside, County of. June 2003. *Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)*. Prepared by Dudek.

Sibley, David Allen. 2000. National Audubon Society, The Sibley Guide to Birds. Alfred A. Knopf, New York.

Simberloff, D., and J. Cox. 1987. Consequences and costs of conservation corridors. Conservation Biology. 1:63-71.

Soule, Michael E. 1987. Viable populations for conservation. Cambridge University Press. Cambridge Cambridgeshire and New York.

SWRCB (State Water Resources Control Board). 2011. Porter-Cologne Water Quality Control Act with Additions and Amendments Effective April 2017. Compiled by the Office of Chief Counsel.
Retrieved from: http://www.swrcb.ca.gov/laws_regulations/docs/portercologne.pdf

USDA (United States Department of Agriculture) Natural Resources Conservation Service. 1995. Hydric Soils of California.

USFWS (United States Fish and Wildlife Service). 2018a. FWS Critical Habitat for Threatened and Endangered Species. Retrieved from https://www.fws.gov/endangered/.

USFWS (United States Fish and Wildlife Service). 2018b. Migratory Birds & Habitat Programs. Migratory Bird Treaty Act. Retrieved from: https://www.fws.gov/birds/policies-and-regulations.php.

USFWS (United States Fish and Wildlife Service). 2018c. National Wetlands Inventory. Wetlands Mapper. Retrieved from: http://www.fws.gov/wetlands/Data/mapper.html.

WTI (Wetland Training Institute, Inc.). 1999. Field Guide for Wetland Delineation: 1987 Corps of Engineers Manual. Glenwood, NM WTI 99-1. 143 pp.

WTI (Wetland Training Institute, Inc.). 2003. Wetland Delineation Lecture Notes and Field Guide for Wetland Delineation based on the Corps of Engineers 1987 Manual. WTI, New Mexico.

Figures

GIS Prepared By: Carlson SLS Created: March 12, 2018	0 2,500 5,000 10,000 Feet 1 inch = 10,000 feet	Data Sources: Bing Maps	***Continential Villages*** Regional Map

GIS Prepared By:
Carlson SLS

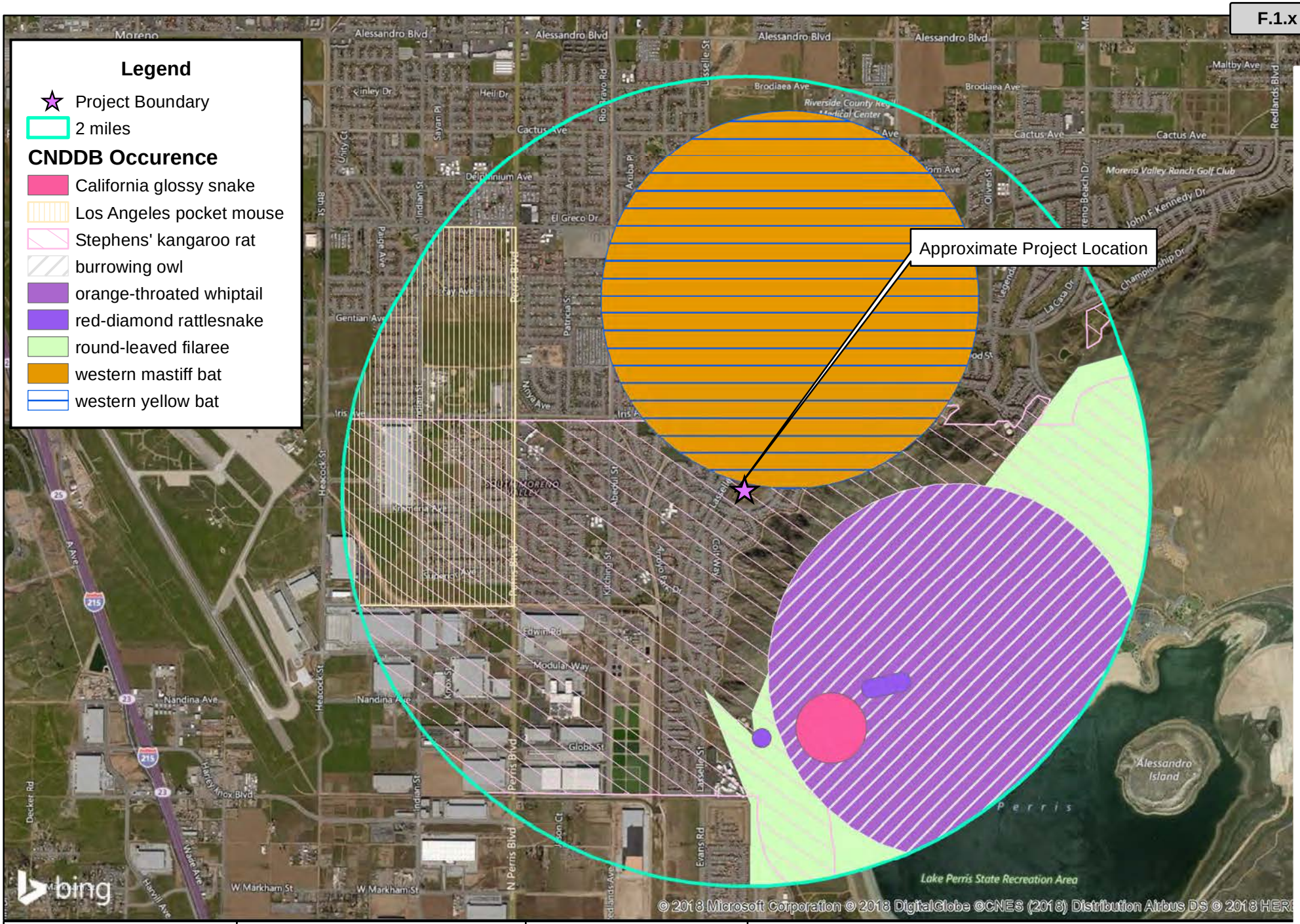
Created: March 12, 2018

0 50 100 200 300 400 Feet
1 inch = 200 feet

Data Source: Bing Map
Anderson Consltinig Engineers, Inc (03/XX/2018)

Continential Villages
Site Location

FIGURE 2



GIS Prepared By:
Carlson SLS

Created: March 12, 2018

0 1,750 3,500 7,000 Feet
1 inch = 3,500 feet

Data Source: Bing Maps
CNDDB (10/2017)

Continential Villages
CNDDB Occurrences Results

FIGURE 3

GIS Prepared By:
Carlson SLS

Created: March 12, 2018

0 75 150 300 450 600 Feet
1 inch = 300 feet

Data Source: Bing Maps
CH (03/2015)

Continential Villages
MSHCP Overlay Results

FIGURE 4

GIS Prepared By:
Carlson SLS

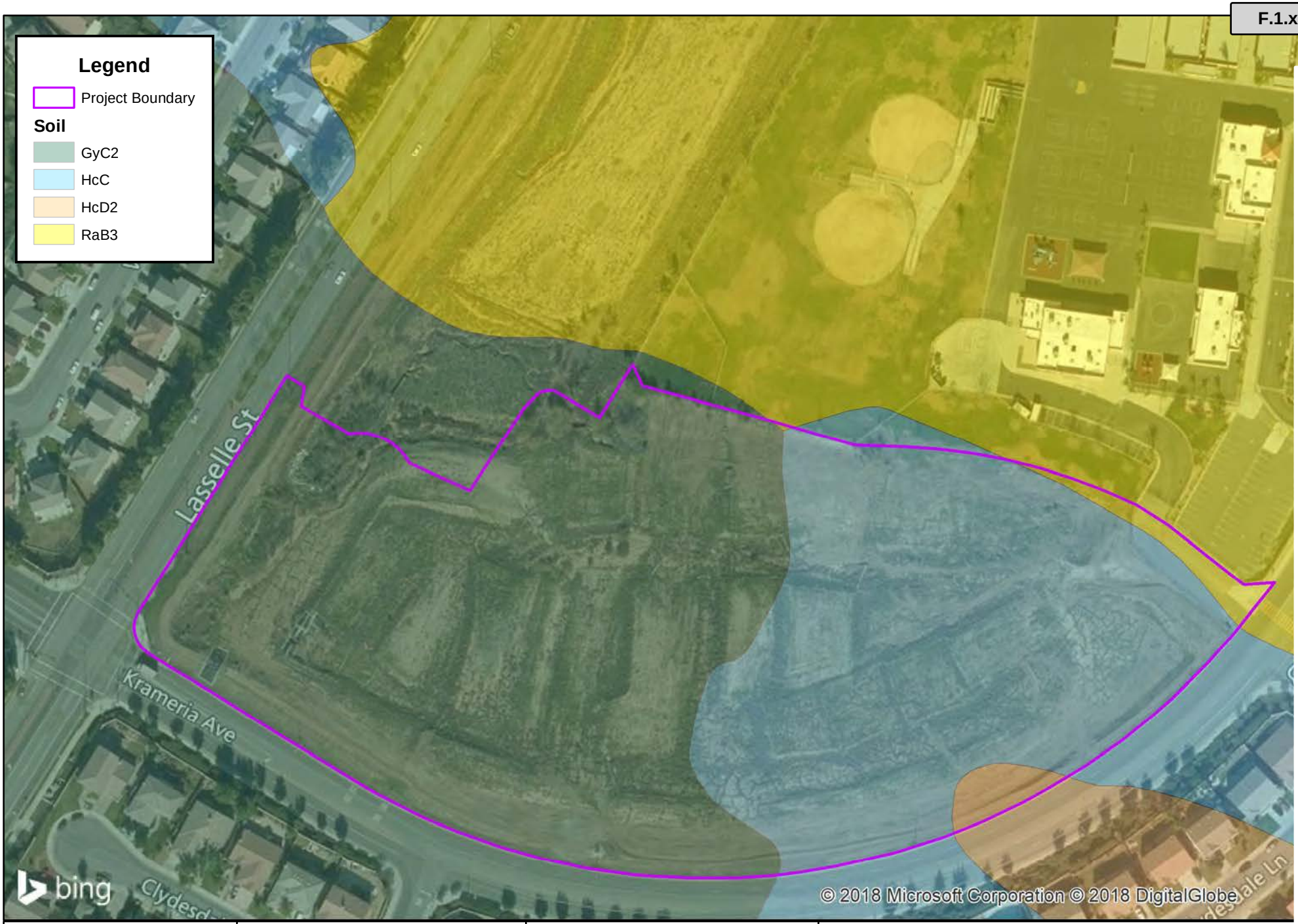
Created: March 12, 2018

0 37.5 75 150 225 300 Feet
1 inch = 150 feet

Data Source: Bing Map
Anderson Consltinig Engineers, Inc (03/XX/2018)

Continential Villages
Vegetation Map

FIGURE 5



GIS Prepared By:
Carlson SLS

Created: March 12, 2018

0 37.5 75 150 225 300 Feet

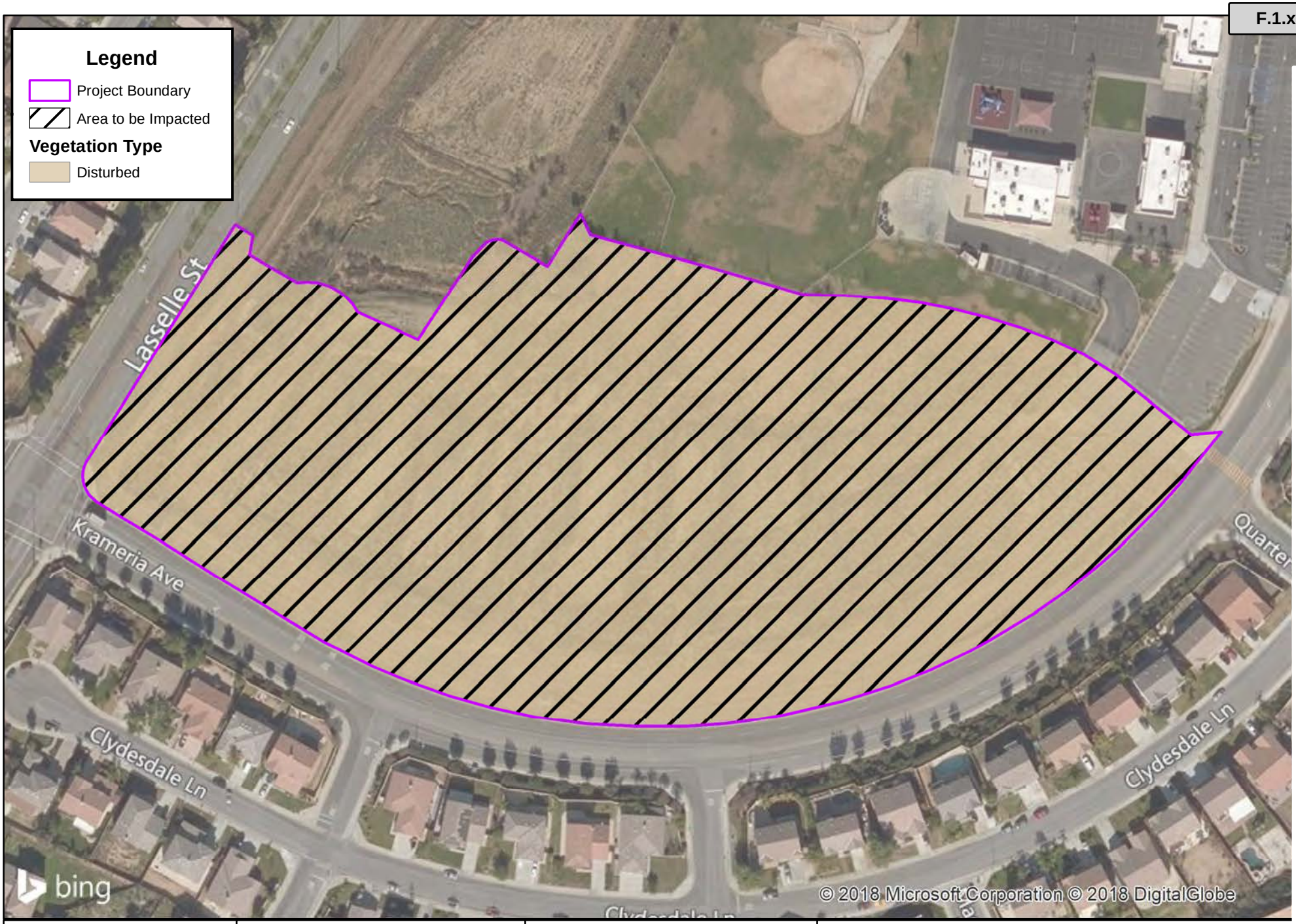
1 inch = 150 feet

Data Source: Bing Map
USDA Web Soil Survey Website (03/13/2018)

Continential Villages

Soil Map

FIGURE 6



GIS Prepared By:
Carlson SLS

Created: March 12, 2018

0 37.5 75 150 225 300 Feet
1 inch = 150 feet

Data Source: Bing Map
Anderson Consltinig Engineers, Inc (03/XX/2018)

Continential Villages

Vegetation Communities Impacts Map

FIGURE 7

Appendix A:
Representative Photographs of Community Classification

Looking north-west across the Project site.

Looking north-east across the Project site.

Looking east across the Project site at the previously graded development pads.

Retension Basin located on the northwestern most portion of the site to capture and retain the nuisance water and runoff.

Looking south across the Project site.

Looking west at the Project Site.

Photos taken March 13, 2018

Looking north-west across the Project Site.

The Project site is utilized as a stock pile location for the active construction located on the property directly north to the Project site.

Photos taken March 13, 2018

Appendix B:
Special Status Plant Species Potential Occurrence Determination

APPENDIX B

Special Status Plant Species Potential Occurrence Determination

This table summarizes conclusions from analysis and field surveys regarding the potential occurrence of special status plant species within the Study Area. During the field surveys, the potential for special status plant species to occur within the Study Area was assessed based on the following criteria:

- Present: observed on the site during the field surveys, or recorded on-site by other qualified biologists.
- Known to Occur: observed on site in the recent past, but not observed during the most recent biological survey.
- High potential to occur: observed in similar habitat in the region by a qualified biologist or habitat on the site is a type often utilized by the species, and the site is within the known distribution and elevation range of the species.
- Moderate potential to occur: reported sightings in surrounding region, or the site is within the known distribution and elevation range of the species, and habitat on the site is a type occasionally used by the species.
- Low potential to occur: the site is within the known distribution and elevation range of the species, but habitat on the site is rarely used by the species or for which there are no known recorded occurrences of the species within or adjacent to the site.
- None: a focused study failed to detect the species or no suitable habitat is present.
- Unknown: the species' distributional/elevation range and habitat are poorly known.

Even with field surveys, biologists assessed the probability of occurrence rather than make a definitive conclusion about species presence or absence. Failure to detect the presence of the species is not definitive, and may be due to variable effects associated with fire, rainfall patterns, and/or season.

Special Status Plants: Potential to Occur within the Study Area

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
Artemisia palmeri	San Diego sagewort	CRPR: 4.2 MSHCP: Not covered	Perennial deciduous shrub found in sandy or mesic areas. Habitat include chaparral, coastal sage scrub, riparian forest, riparian scrub, or riparian woodland. Known from 15 to 915 meters (49 to 3,000 feet) MSL. Blooming period: May through September.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Berberis nevinii	Nevin's barberry	FE, SE CRPR: 1B.1, MSHCP: Covered	A perennial evergreen shrub that occurs in sandy or gravelly areas. Habitat communities include chaparral, cismontane woodland, coastal scrub, and riparian scrub. Occurs at approximately 70 to 825 meters (230 to 2,700-foot) elevation range. Blooming period: March to June	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Calochortus plummerae	Plummer's mariposa lily	CRPR:4.2 MSHCP: Covered	Perennial bulbiferous herb found in granitic or rocky areas. Habitat include chaparral, cismontane woodland, coastal sage scrub, lower montane coniferous forest, and valley and foothill grasslands. Known from 100 to 1,700 meters (330 to 5,500 feet) MSL. Blooming period: May through July	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Caulanthus simulans	Payson's jewelflower	CRPR:4.2 MSHCP: Covered	Annual herb found in sandy or granitic areas. Habitat include chaparral and coastal sage scrub. Known from 90 to 2,200 meters (295 to 7,200 feet) MSL. Blooming period: March through May	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Centromadia pungens ssp. laevis	smooth tarplant	CRPR:1B.2 MSHCP: Covered	Alkaline areas in chenopod scrub, meadows and seeps, ditches, playas, riparian woodland, and valley and foothill grassland. Known from below 480 meters (1,600 feet) MSL. Blooming period: April through Sept	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Chorizanthe leptotheca	Peninsular spineflower	CRPR:4.2 MSHCP: Covered	Annual herb found in granitic or alluvial fan areas. Habitat include chaparral, coastal sage scrub, and lower montane coniferous forest. Known from 300 to 1,900 meters (980 to 6,200 feet) MSL. Blooming period: May through August	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Chorizanthe parryi	Parry's spineflower	CRPR:1B.1 MSHCP:	Annual herb found in sandy, rocky, or open areas. Habitat include chaparral, cismontane woodland,	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
		Covered	coastal sage scrub, and valley and foothill grasslands. Known from 275 to 1,220 meters (900 to 4,000 feet) MSL. Blooming period: April through June	actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Deinandra paniculata	paniculate tarplant	CRPR: 4.2 MSHCP: Not covered	Coastal scrub and valley and foothill grassland/usually vernally mesic. Known from 25 to 9540 meters (80 to 3,085 feet) MSL. Blooming period: April through November.	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Lasthenia glabrate ssp. coulteri	Coulter's goldfields	CRPR:1B.1 MSHCP: Covered	Annual herb found in marshes and swamps, playas, and vernal pool habitats. Known from 1 to 1,220 meters (3 to 4,000 feet) MSL. Blooming period: February through June	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Symphyotrichum defoliatum	San Diego aster	CRPR: 1B.2 MSHCP: Not covered	Perennial herb found near streams, ditches or springs. Habitat include cismontane woodland, coastal sage scrub, lower montane coniferous forest, meadows and seeps, marches and swamps, and valley and foothill grasslands. Known from 2 to 2,040 meters (6 to 6,600 feet) MSL. Blooming period: July through November	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.

Legend

Federal Endangered Species Act (ESA) Listing Codes: federal listing is pursuant to the Federal Endangered Species Act of 1973, as amended (ESA).
FE = federally listed as endangered: any species, subspecies, or variety of plant or animal that is in danger of extinction throughout all or a significant portion of their range.
FT = federally listed as threatened: any species, subspecies, or variety of plant or animal that is considered likely to become endangered throughout all or a significant portion of its range within the foreseeable future.

California Endangered Species Act (CESA) Listing Codes: state listing is pursuant to § 1904 (Native Plant Protection Act of 1977) and §2074.2 and §2075.5 (California Endangered Species Act of 1984) of the Fish and Game Code, relating to listing of Endangered, Threatened and Rare species of plants and animals.
SE = state listed as endangered: any species, subspecies, or variety of plant or animal that are in serious danger of becoming extinct throughout all, or a significant portion, of their range.
ST = state listed as threatened: any species, subspecies, or variety of plant or animal that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future.

California Rare Plant Ranks (Formerly known as CRPR Lists): the CRPR is a statewide, non-profit organization that maintains, with CDFG, an Inventory of Rare and Endangered Plants of California. In the spring of 2011, CRPR and CDFG officially changed the name "CRPR List" or "CRPR Ranks" to "California Rare Plant Rank" (or CPRP). This was done to reduce confusion over the fact that CRPR and CDFG jointly manage the Rare Plant Status Review Groups and the rank assignments are the product of a collaborative effort and not solely a CRPR assignment.

CRPR: 1B - California Rare Plant Rank 1B (formerly List 1B): Plants Rare, Threatened, or Endangered in California and Elsewhere. All of the plants constituting California Rare Plant Rank 1B meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. It is mandatory that they be fully considered during preparation of environmental documents relating to CEQA.

CRPR: 2 - California Rare Plant Rank 2 (formerly List 2): Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere. All of the plants constituting California Rare Plant Rank 2 meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. It is mandatory that they be fully considered during preparation of environmental documents relating to CEQA.

CRPR: 4 - California Rare Plant Rank 4 (formerly List 4): Plants of Limited Distribution - A Watch List. Very few of the plants constituting California Rare Plant Rank 4 meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Secs. 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and few, if any, are eligible for state listing. Nevertheless, many of them are significant locally, and CRPR and CDFG strongly recommend that California Rare Plant Rank 4 plants be evaluated for consideration during preparation of environmental documents relating to CEQA.

California Native Plant Society (CRPR) Threat Ranks: The CRPR Threat Rank is an extension added onto the California Rare Plant Rank (CRPR) and designates the level of endangerment by a 1 to 3 ranking with 1 being the most endangered and 3 being the least endangered. A Threat Rank is present for all California Rare Plant Rank 1B's, 2's, 4's, and the majority of California Rare Plant Rank 3's. California Rare Plant Rank 4 plants are seldom assigned a Threat Rank of 0.1, as they generally have large enough populations to not have significant threats to their continued existence in California; however, certain conditions exist to make the plant a species of concern and hence be assigned a California Rare Plant Rank. In addition, all California Rare Plant Rank 1A (presumed extinct in California), and some California Rare Plant Rank 3 (need more information) plants, which lack threat information, do not have a Threat Rank extension.

0.1 = seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2 = fairly endangered in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

Sources:

- Calflora website - search for plants (Calflora 2016).
- CRPR Inventory of Rare and Endangered Plants (CRPR 2016).
- The Status of Rare, Threatened, and Endangered Plants and Animals of California, 2000–2004 (CDFG 2005).
- The Jepson Manual: *Vascular Plants of California,* second edition (Baldwin *et al.* 2012).
- RareFind, CDFW, California Natural Diversity Database (CNDDB) (CDFW 2016f).
- State and Federally Listed Endangered, Threatened, and Rare Plants of California (CDFW 2016i).
- Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP, 2016)

Appendix C:
Plant Species Recorded During the Field Surveys

Appendix C contains the list of vascular plant taxa recorded during the biological survey conducted within the Study Area. Plant nomenclature and taxonomic order is based on *The Jepson Manual: Vascular Plants of California, s*econd Edition (Baldwin *et al.* 2012).

Appendix C
Plant Species Observed during the Field Survey

Scientific Name	Common Name
***Asteraceae* (*Compositae*)**	**Sunflower Family**
*Centaurea melitensis**	tocalote (Malta star thistle)
Brassicaceae (Cruciferae)	**Mustard Family**
*Brassica nigra**	black mustard
Boraginacea	**Borage Family**
Amsinckia intermedia	Common fiddleneck
Chenopodiaceae	**Goosefoot Family**
*Salsola tragus**	Russian thistle (tumbleweed)
Monocots	
Poaceae	**Grass Family**
*Avena barbata**	slender oat
*Bromus diandrus**	ripgut grass
*Bromus madritensis ssp. Rubens**	red brome
Legend	
* exotic plant species	

Appendix D:
Special Status Wildlife Species Potential Occurrence Determination

APPENDIX D

Special Status Wildlife Potential Occurrence Determination

This table summarizes conclusions from analysis and field surveys regarding the potential occurrence of special status wildlife species within the Study Area. During the field surveys, the potential for special status wildlife species to occur within the Study Area was assessed based on the following criteria:

- Present: observed on the site during the field surveys, or previously recorded on-site by other qualified biologists.

- Known to Occur: observed on site in the recent past, but not observed during the most recent biological survey.

- High potential to occur: observed in similar habitat in the region by a qualified biologist or habitat on the site is a type often utilized by the species, and the site is within the known distribution and elevation range of the species.

- Moderate potential to occur: reported sightings in surrounding region, or the site is within the known distribution and elevation range of the species, and habitat on the site is a type occasionally used by the species.

- Low potential to occur: the site is within the known distribution and elevation range of the species, but habitat on the site is rarely used by the species or for which there are no known recorded occurrences of the species within or adjacent to the site.

- None: a focused study failed to detect the species or no suitable habitat is present.

- Unknown: the species' distributional/elevation range and habitat are poorly known.

Even with field surveys, biologists assessed probability of occurrence rather than make definitive conclusions about species presence or absence. Failure to detect the species is not definitive, and may be due to variable effects associated with migration, weather, fire, and/or time of day and year.

Special Status Wildlife: Potential to Occur within the Study Area

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
Accipiter cooperii	Cooper's hawk	WL MSHCP: Covered	The Cooper's hawk breeds primarily in riparian areas and oak woodlands and is most common in montane canyons. It frequents landscapes where wooded areas occur in patches and groves and often uses patchy woodlands and edges with snags for perching. Dense stands with moderate crown-depths are usually used for nesting. They hunt in broken woodland and habitat edges. Within the range in California, it most frequently uses dense stands of live oak, riparian deciduous or other forest habitats near water. They are also found and can breed in suburban and urban settings.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Agelaius tricolor	tricolored blackbird	BLMS, SSC, BCC MSHCP: Covered	Colonies require nearby water, a suitable nesting substrate, and open-range foraging habitat composed of grassland, woodland, or agricultural cropland.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	WL MSHCP: Covered	They are found on grass-covered hillsides, coastal sage scrub, and chaparral and often occur near the edges of the denser scrub and chaparral associations. Preference is shown for tracts of California sagebrush. Optimal habitat consists of sparse, low brush or grass, hilly slopes preferably interspersed with boulders and outcrops. The species may occur on steep grassy slopes without shrubs if rock outcrops are present. It is a very secretive species.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Ammodramus savannarum	grasshopper sparrow	SSC MSCHCP: Species-Specific Objectives	Grasshopper sparrows in California breed (and primarily apparently winter) on slopes and mesas containing grasslands of varying compositions. The grasshopper sparrow generally prefers moderately open grasslands and prairies with patchy bare ground. They also appear to use abandoned croplands that are dominated by grassy species. The species frequents dense, dry or well-drained grassland, especially native grassland with a mix of grasses and forbs for foraging and nesting and	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
			concealment. They require fairly continuous native grassland areas with occasional taller stems for breeding areas. They especially occur in grasslands composed of a variety of grasses and tall forbs with scattered shrubs for singing perches. They tend to avoid grassland areas with extensive shrub cover and the presence of native grasses is less important than the absence of trees. Species is found from southern Canada to the southern U.S., West Indies, Mexico, and Ecuador.	
Aquila chrysaetos	Golden Eagle	BLMS, FP, WL, BBC MSHCP: Covered	Rolling foothills, mountain areas, sage-juniper flats, & desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	None. Suitable habitat does not exist within the Project site. Not observed during field survey.
Artemisiospiza belli	Bell's sage sparrow	WL, BBC MSHCP: Covered	Chaparral and coastal sage scrub along the coastal lowlands, inland valleys and in the lower foothills of local mountains.	None. Suitable habitat does not exist within Study Area. Not observed during field survey.
Asio otus	long-eared owl	SSC MSHCP: Not Covered	Riparian habitats are required by the long-eared owl, but it also uses live-oak thickets and other dense stands of trees.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Aspidoscelis hyperythra beldingi	orangethroat whiptail	SSC, FSS MSHCP: Covered	The species is generally found in semi-arid brushy areas typically with loose soil and rocks, including washes, stream sides, rocky hillsides, and coastal chaparral. Habitat types include low elevation chaparral, non-native grassland, (Riversidian) coastal sage scrub, juniper woodland and oak woodland. Associations include alluvial fan scrub and riparian areas. Friable soil appears to be a necessary requirement for excavating burrows and hiding eggs.	None. Suitable habitat does not exist within Study Area. Not observed during field survey.
Aspidoscelis tigrus stejnegeri	coastal whiptail	SSC	This species is found in a variety of habitats, primarily hot and dry open areas with sparse vegetation including	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
		MSHCP: Covered	chaparral, woodland, and riparian areas. This subspecies is found in coastal southern California, north into Ventura County, and south into Baja California. Additional important habitat characteristics include Important habitat components include shrub cover with accumulated leaf litter, and an abundance of invertebrate prey, particularly termites.	state. Not observed during field survey.
Athene cunicularia hypugaea	burrowing owl	SSC, BLMS, BCC MSHCP: Covered	Burrowing owls are a year-round resident of California including habitats of open, dry grassland, and desert. They are generally restricted to mostly flat, open country with suitable nest sites. They use rodent or other burrows for roosting and nesting cover and acquire their burrows from either abandonment or eviction. Burrowing owls typically hunt from a perch.	Low potential to occur onsite due to ongoing maintenance of habitat on site and lack of burrows observed onsite. Not observed during field survey.
Buteo swainsoni	Swainson's hawk	ST, BLMS, BCC MSHCP: Covered	Swainson's hawks require large, open areas with abundant prey in association with suitable nest trees. Suitable foraging areas include native grasslands or lightly grazed pastures and croplands, open deserts, sparse shrub lands. Swainson's hawks often nest peripherally to riparian systems of the valley, as well as utilizing lone trees or groves of trees, such as oaks, cottonwoods, walnuts and willows, adjacent to their hunting areas. In the Great Basin, they typically nest in juniper trees of juniper-sage flats not near riparian zones.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Chaetodipus fallax	northwestern San Diego pocket mouse	SSC MSHCP: Not Covered	This species is a common resident of sandy herbaceous areas, often on sandy substrates (rocks or coarse gravel) in southwestern California. In San Diego County the species occurs mainly in arid coastal and desert border areas. Habitats include coastal scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon-juniper, and annual grassland.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Circus cyaneus	northern harrier	SSC MSHCP:	Occurs from annual grassland up to lodge pole pine and alpine meadow habitats. Frequents open fresh and	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
		Covered	saltwater wetlands, grasslands, pastures, upland prairies, dry uplands, croplands, shrub-steppe, meadows, desert sinks. It is seldom found in wooded areas. It uses tall grasses and forbs in wetlands for cover and it roosts on ground. It is mostly found in flat, open areas of tall, dense grasses, moist or dry shrubs, in the vicinity of marshes, rivers, ponds, or grassy valleys for nesting, cover, and feeding.	maintained and in a consistent non-vegetated state. Not observed during field survey.
Coccyzus americanus occidentalis	western yellow-billed cuckoo	FT, SE, FSS, BCC MSHCP: Covered	This species is an uncommon to rare summer resident of valley foothill and desert riparian habitats in scattered locations in California. Formerly much more common and widespread throughout lowland California. Roosts and nests in densely foliaged, deciduous trees and shrubs in extensive thickets, particularly willows.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Coleonyx variegatus abbotti	San Diego banded gecko	MSHCP: Covered	Prefers rocky areas in coastal sage and chaparral.	None. Suitable habitat does not exist within Study Area. Not observed during field survey.
Crotalus ruber	red-diamond rattlesnake	SSC, FSS MSHCP: Covered	It can be found from the desert, through dense chaparral in the foothills (it avoids the mountains above around 4,000 feet), to warm inland mesas and valleys, all the way to the cool ocean shore. It is most commonly associated with heavy brush with large rocks or boulders. Dense chaparral in the foothills, cactus or boulder associated coastal sage scrub, oak and pine woodlands, and desert slope scrub associations are known to carry populations of the northern red-diamond rattlesnake, however, chamise and red shank associations may offer better structural habitat for refuges and food resources for this species than other habitats. They need rodent burrows, cracks in rocks or surface cover objects.	None. Suitable habitat does not exist within Study Area. Not observed during field survey.
Dipodomys merriami parvus	San Bernardino kangaroo rat	FE, SSC MSHCP: Covered	Typically found in Riversidean alluvial fan sage scrub and sandy loam soils, alluvial fans and floodplains, and along washes with nearby sage scrub.	None. No suitable habitat on site. Not observed during field survey.

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
Dipodomys stephensi	Stephen's kangaroo rat	FE, ST MSHCP: Covered	This species prefers large areas of disturbed or patchy annual and perennial grasslands and open coastal sage scrub. Preferred perennials plant species include buckwheat and chamise and preferred annual plant species include brome grass. The nearest known populations are in Rancho Guejito and at the Naval Weapons Station in Fallbrook.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Elanus leucurus	White-tailed kite	FP MSHCP: Covered	Low elevation open grasslands, savannah-like habitats, agricultural areas, wetlands and oak woodlands. Dense canopies used for nesting and cover.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Empidonax traillii extimus	Southwestern willow flycatcher	FE, SE MSHCP: Covered	Riparian woodlands along streams and rivers with mature dense thickets of trees and shrubs.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Emys marmorata	southwestern pond turtle	SCC MSHCP: Covered	Inhabits permanent or nearly permanent water below 1,830 meters (6000 feet) throughout California, west of the Sierra Cascade.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Eremophila alpestris actia	California horned lark	WL MSHCP: Covered	A year-long resident within the state and within a variety of open habitats, usually where trees and large shrubs are absent. They are not particular about the nature of the field, so long as it has very little vegetation. Range-wide, they breed in level or gently sloping short grass prairies, montane meadows, "bald" hills, open coastal plains, fallow grain fields, alkali flats, and rangelands. Within southern California, California horned larks breed primarily in open fields, (short) grasslands, and rangelands. Grasses, shrubs, forbs, rocks, litter, clods of soil, and other surface irregularities provide cover.	Moderate potential to occur on site due to the bare nature of the site. Not observed during field survey.
Eumops perotis californicus	western mastiff bat	SSC, BLMS MSHCP: Not covered	Western mastiff bats are found in a variety of habitats, such as semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban, but the species' distribution may be	None. No suitable habitat on site. Not observed during field survey.

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
			geomorphically determined, occurring primarily where there are significant rock features offering suitable roosting habitat. A cliff dwelling species, where maternity colonies of 30 to several hundred roost generally under exfoliating rock slabs and rock crevices along cliffs. Western mastiff bats can also be found in similar crevices in large boulders and buildings. When roosting in rock crevices they require a sizable drop from their roost in order to achieve flight. Western mastiff bats prefer deep crevices that are at least 15 or 20 feet above the ground. Foraging is concentrated around bodies of water but also includes coastal sage scrub, chaparral, and grassland habitats.	
Icteria virens	yellow-breasted chat	SSC MSHCP: Covered	In southern California they are primarily found in tall, dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush with well-developed understories. Nesting areas are associated with streams, swampy ground, and the borders of small ponds. Breeding habitat must be dense to provide shade and concealment. It winters south to Central America.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Lasiurus xanthinus	Western yellow bat	SSC MSHCP: Not covered	Roost in trees, hanging from the underside of a leaf. Commonly found in the southwestern U.S. roosting in the skirt of dead fronds in both native and non- native palm trees and have also been documented roosting in cottonwood trees.	None. No suitable habitat on site. Not observed during field survey.
Nyctinomops femorosaccus	pocketed free-tailed bat	SSC MSHCP: Not covered	This bat species prefers rocky desert areas with high cliffs or rock outcrops. Rock crevices in cliffs are preferred as roosting sites, since the bat must drop from the roost to gain flight speed. Typically reproduces in rock crevices, caverns, or buildings. Ranges from southern California to New Mexico.	None. No suitable habitat on site. Not observed during field survey.
Perognathus blainvili	Los Angeles Pocket Mouse	SSC MSHCP: Covered	Prefers sandy soil for burrowing. Also known to occur on gravel washes and in rocky soils. Associated with coastal scrub.	Low. No suitable habitat on site. Not observed during field survey.

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
Phrynosoma blainvillii	coast horned lizard	SSC, BLMS MSHCP: Covered	Occurs in a variety of vegetation types including coastal sage scrub, chaparral, annual grassland, oak woodland and riparian woodlands.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Polioptila californica californica	coastal California gnatcatcher	FT, SSC MSHCP: Covered	A non-migratory, permanent resident of coastal sage scrub habitat, which is a broad category of vegetation that includes the following plant communities: Ventura coastal sage scrub, Diegan coastal sage scrub, maritime succulent scrub, Riversidean sage scrub, Riversidean alluvial fan sage scrub, southern coastal bluff scrub, and coastal sage-chaparral scrub. They also use chaparral, grassland and riparian habitats next to coastal sage scrub, but these habitats are used dispersal and foraging. They avoid nesting on steep slopes.	None. No suitable habitat on site. Not observed during field survey.
Setophaga petechial	Yellow warbler	SSC, BBC MSHCP: Covered	Riparian plant associations in close proximity to water. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Spea hammondii	western spadefoot toad	SSC, BLMS MSHCP: Covered	May be found in coastal sage scrub, open chaparral, pine-oak woodlands and grassland habitats, but is most common in grasslands with vernal pools or mixed grassland/coastal sage scrub areas. Within these habitats, they require rain pools/vernal pools in which to reproduce and that persist with more than three weeks of standing water in which to metamorphose successfully. They can also breed in slow-moving streams (e.g., areas flooded by intermittent streams). Water breeding sites must lack fish, bullfrogs, and crayfish in order for to successfully reproduce and metamorphose. They estivates in sandy, gravelly soil in upland habitats adjacent to potential breeding sites in burrows approximating 1 meter in depth.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Vireo bellii pusillus	least Bell's vireo	FE, SE	Least Bell's vireos primarily occupy riverine riparian habitats that typically feature dense cover within 1-2 m	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
		MSHCP: Covered	of the ground and a dense, stratified canopy. Typically, it is associated with southern willow scrub, cottonwood-willow forest, mule fat scrub, sycamore alluvial woodland, coast live oak riparian forest, arroyo willow riparian forest, or mesquite in desert localities. It uses habitat which is limited to the immediate vicinity of water courses. 2,000 feet elevation in the interior. This species is generally restricted to major river systems in San Diego County.	maintained and in a consistent non-vegetated state. Not observed during field survey.

Legend

Federal Endangered Species Act (ESA) Listing Codes: federal listing is pursuant to the Federal Endangered Species Act (ESA) of 1973, as amended. The official federal listing of Endangered and Threatened Animals is published in the Federal Register, 50 CFR 17.11.
FE = federally listed as endangered: any species, subspecies, or variety of plant or animal that is in danger of extinction throughout all or a significant portion of their range.
FT = federally listed as threatened: any species, subspecies, or variety of plant or animal that is considered likely to become endangered throughout all or a significant portion of its range within the foreseeable future.
FC = federal candidate for listing.
FPT = federally proposed threatened.

California Endangered Species Act (CESA) Listing Codes: state listing is pursuant to §2074.2 and §2075.5 (California Endangered Species Act of 1984) of the Fish and Game Code, relating to listing of Endangered, Threatened and Rare species of plants and animals. The official California listing of Endangered and Threatened animals is contained in the California Code of Regulations, Title 14, and Section 670.5.
SE = state listed as endangered: any species, subspecies, or variety of plant or animal that are in serious danger of becoming extinct throughout all, or a significant portion, of their range.
ST = state listed as threatened: any species, subspecies, or variety of plant or animal that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future.
SCT = state candidate for listing as threatened.

California Department of Fish and Wildlife (CDFW):
SSC = species of special concern: status applies to animals which 1) are declining at a rate that could result in listing, or 2) historically occurred in low numbers and known threats to their persistence currently exist. The CDFW has designated certain vertebrate species as "species of special concern" because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.
Fully protected: animal species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.
WL = watch list: these birds have been designated as "Taxa to Watch" in the *California Bird Species of Special Concern report* (Shuford and Gardali 2008). The report defines

"Taxa to Watch" as those that are not on the current special concern list that (1) formerly were on the 1978 (Remsen 1978) or 1992 (CDFG 1992) special concern lists and are not currently listed as state threatened and endangered; (2) have been removed (delisted) from either the state or federal threatened and endangered lists (and remain on neither), or (3) are currently designated as "fully protected" in California.

United States Fish and Wildlife Service (USFWS):
BCC = USFWS bird of conservation concern: listed in the USFWS'S 2008 *Birds of Conservation Concern* report. The report identifies species, subspecies, and populations of all migratory non-game birds that, without additional conservation actions, are likely to become candidates for listing under the ESA. While all of the bird species included in the report are priorities for conservation action, the list makes no finding with regard to whether they warrant consideration for ESA listing.

United States Forest Service (USFS):
FSS = Forest Service sensitive: those plant and animal species identified by a Regional Forester that are not listed or proposed for listing under the ESA and for which population viability is a concern, as evidenced by: (a) significant current or predicted downward trends in population numbers or density or (b) significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution."

United States Bureau of Land Management (BLM):
BLMS = BLM sensitive: those plant and animal species on BLM administered lands and that are (1) under status review by the USFWS/NMFS; or (2) whose numbers are declining so rapidly that federal listing my become necessary, or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats. BLM policy is to provide the same level of protection as USFWS candidate species.

California Department of Forestry and Fire Protection (CDF):
CDF: S = CDF sensitive: species is a California Department of Forestry and Fire Protection sensitive species. The Board of Forestry classifies as sensitive species those species that warrant special protection during timber operations.

Sources:

- A Guide to the Reptiles and Amphibians of California (CaliforniaHerps.com 2018).
- *A Field Guide to Hawks of North America, Second Edition* (Clark and Wheeler 2001).
- *Atlas of Breeding Birds, Orange County, California* (Gallagher 1997).
- Amphibian and Reptile Species of Special Concern in California (Jennings and Hayes 1994).
- *A Field Guide to Mammals of North America North of Mexico. Fourth Edition* (Reid 2006).
- *A Natural History of California* (Schoenherr 1992).
- *A Field Guide to Western Reptiles and Amphibians*, *Third Edition* (Stebbins 2003).
- Amphibian species accounts (Amphibiaweb 2018).
- AOU website (AOU 2018).
- *California Bird Species of Special Concern*: *A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California* (Shuford and Gardali 2008).
- Check-List of North American Birds, 7th edition (American Ornithologists' Union [AOU] 1998).
- *Complete Birds of North America* (National Geographic Society 2006).

- *Field Guide to the Birds of North America*, 4th Ed (National Geographic Society 2002).
- Fifty-first supplement to the AOU Check-List of North American Birds (Chesser et. al. 2010).
- Life History Accounts and Range Maps (CDFW 2018e).
- *Life on the Edge: A Guide to California's Endangered Natural Resources. Wildlife* (Thelander et al. 1994).
- *Mammals of North America* (Bowers et al. 2004).
- *Mammals of California* (Eder 2005).
- *Mammals of North America* (Kays and Wilson 2002).
- Mammalian Species of Special Concern in California (Williams 1986).
- *Mammal Species of the World* (Wilson and Reeder 2005).
- NatureServe Explorer (NatureServe 2018).
- *National Audubon Society, the Sibley Guide to Birds* (Sibley 2000).
- RareFind, CDFW, California Natural Diversity Database (CNDDB) (CDFW 2018).
- *Reference Atlas to the Birds of North America* (National Geographic Society 2003).
- *Shorebirds of North America. The Photographic Guide* (Paulson 2005).
- Special Animals List (CDFW 2018h).
- Standard Common and Current Scientific Names (Center for North American Herpetology website [CNAH] website 2018).
- *The Smithsonian Book of North American Mammals* (Wilson and Ruff 1999).
- Terrestrial Mammal Species of Special Concern in California (Bolster 1998).

CONSISTENCY DETERMINATION

CONTINENTAL VILLAGES PROJECT

Submitted Pursuant to MSHCP
Section 6.1.2 *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*

Submitted to:
City of Moreno Valley
14177 Frederick Street
Moreno Valley, CA 92553

Prepared for:
Continental East Development
25467 Medical Center Drive, Suite 201
Murrieta, California 92562

Prepared by:
Carlson Strategic Land Solutions
27134A Paseo Espada, Suite 323
San Juan Capistrano, CA 92675
Tel: (949) 542-7042

November 2018

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Appendices

Executive Summary

Continental East Development proposes to Neighborhood Commercial and Multi-family housing on the approximately 12 acres Project site. The Neighborhood Commercial is proposed on 2.8 acres at the corner of Lasselle Street and Krameria Avenue. Multi-family housing is proposed on the remaining 8.80 acres. As a result of Project Implementation, the entire site would be graded and is expected to be balanced onsite. The Project site is located northeast corner of Lasselle Street and Krameria Avenue in the City of Moreno Valley, Riverside County, California. The Project site assessor parcel number's (APN) are 308-040-053 and 308-040-054 (Figures 1 and 2). The Project is located within the Reche Canyon/Badlands Area Plan of the Riverside County Multiple Species Habitat Conservation Plan (MSHCP); however, the Project site is not located within any MSHCP Criteria Areas, Cell Groups, or Subunits. Portions of the Project site are located within overlay areas, as follows:

- Riparian and Riverine Areas (Section 6.1.2)

Thus, this consistency determination has been prepared pursuant to that section.

The Study Area is not located within or adjacent to any MSHCP Conservation Area. The area does not contain any riparian/riverine area that support Section 6.1.2 species. Thus, no mitigation is proposed. The proposed Project is consistent with Section 6.1.2 of the MSHCP.

I. INTRODUCTION

The following Consistency Determination has been prepared by Carlson Strategic Land Solutions (SLS), on behalf of Continental East Development team pursuant to Section 6.1.2 *Protection of Species Associated with Riparian/Riverine areas and Vernal Pools* of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The purpose of the Consistency Determination is to determine if implementation of the Project is consistent with the requirements of the MSHCP.

The Applicant proposes to construct Neighborhood Commercial and Multi-family housing on the approximately 12 acres Project site. The Project site assessor parcel number's (APN) are 308-040-053 and 308-040-054 (Figures 1 and 2).

II. DEFINITION OF PROJECT AREA

The proposed Project site encompasses approximately 12 acres and is located in the located northeast corner of Lasselle Street and Krameria Avenue in the City of Moreno Valley, Riverside County, California. The Project site assessor parcel number's (APN) are 308-040-053 and 308-040-054 (Figures 1 and 2). The Project site is found within Riverside County, specifically within the Sunnymead USGS 7.5" Quadrangle Map. Areas surrounding the Project Site include Lasalle Elementary School and a property under construction located to the north; and single-family residential subdivisions located to the east, west, and south. The Project site is approximately 1500 feet above mean sea level. (MSL) (Figure 2). The Project site and surrounding 300-foot buffer area was evaluated as a precautionary measure for potential off-site impacts.

The Project is located within the Reche Canyon/Badlands Area Plan of the MSHCP. The Project is not located within any MSHCP Criteria Areas, Cell Groups, or Subunits. The Project is not located within MSHCP survey areas for Narrow Endemic Plants, Criteria Area Plant Species, Species Survey Requirements for the western burrowing owl, Amphibians, Mammals, or Special Linkage Areas (Figure 3).

The Project site has been previously rough graded with residential pads and appears actively maintained, therefore the Project site is disturbed and in a non-vegetated state. The Project site is devoid of native vegetation.

III. PROJECT DESCRIPTION

The Applicant proposes to construct Neighborhood Commercial and Multi-family housing on the approximately 12 acres Project site. The Neighborhood Commercial is proposed on 2.8 acres at the corner of Lasselle Street and Krameria Avenue. Multi-family housing is

proposed on the remaining 8.80 acres. As a result of Project Implementation, the entire site would be graded and is expected to be balanced onsite.

IV. METHODOLOGY

The Study Area is located within the planning area for the western Riverside County MSHCP (Reche Canyon/Badlands Area Plan), but is not located within any Criteria Cells, Cell Groups, or Subunits.

Biologist and Regulatory Specialist from SLS conducted a field survey at the Study Area on March 13, 2018. SLS conducted biological studies in three main components in order to identify and evaluate actual or potential impacts to biological resources associated with the proposed Project, including: (1) vegetation mapping; (2) site-specific biological surveys to evaluate the presence/absence of special-status species (or potentially suitable habitat) to the satisfaction of the MSHCP, CEQA, and Federal and State regulations; and (3) delineation of aquatic resources (including wetlands/riparian habitat) subject to the jurisdiction of the Corps, RWQCB, and CDFW. The jurisdictional delineation was conducted to determine the limits of Corps jurisdiction pursuant to Section 404 of the CWA, and CDFW jurisdiction pursuant to Division 2, Chapter 6, Section 1600 of the California Fish and Game Code.

The field studies focused on a number of primary objectives that would satisfy the special provisions of the MSHCP and also comply with CEQA requirements, including: (1) general reconnaissance surveys and vegetation mapping; (2) general wildlife surveys; (3) habitat assessments and surveys for special-status plants; (4) habitat assessments and focused biological surveys for special-status animals (including species designated by MSHCP survey areas); (5) wildlife movement analysis; (6) assessments of riparian/riverine areas and vernal pool habitats; and (7) delineation of areas subject to the jurisdiction of the Corps, RWQCB, and CDFW. Observations of plant and wildlife species were recorded during the survey efforts.

The consistency determination and prepared Biological Report (CarlsonSLS, November 2018, Appendix B) evaluates individual plants and animal species based on their special-status. For the purpose of the Biological Report, plants were considered special-status based on one or more of the following criteria:

- Listing through the Federal and/or State Endangered Species Act (ESA);
- Taxa designated a species of special concern by CDFW.
- Taxa designated a state fully protected species by CDFW.
- Taxa identified as sensitive, unique or rare, by the USFWS, CDFW, the United States Forest Service (USFS), the United States Bureau of Land Management (BLM), and/or the California Department of Forestry and Fire Protection (CDF).

- Plants that meet the definition of rare or endangered under CEQA §15380(b) and (d). Species that may meet the definition of rare or endangered include the following:
    - Species considered by CNPS and CDFW to be "rare, threatened or endangered in California" (California Rare Plant Rank [CRPR] 1A, 1B and 2) (CNPS 2018). A majority of the CRPR 3 and CRPR 4 plant species generally do not qualify for protection under CESA and NPPA.
    - Species that may warrant consideration on the basis of local significance or recent biological information.
    - Some species included on the CNDDB Special Plants, Bryophytes, and Lichens List (CDFW 2018g).
- Considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA §15125 (c)) or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G). Examples include a species at the outer limits of its known range or a species occurring on an uncommon soil type.
- Evaluation and coverage under the MSHCP.

Prior to conducting fieldwork, pertinent literature on the flora of the region was examined. A thorough archival review was conducted using available literature and other historical records. These resources included, but were not limited to, the following: CNPS Inventory of Rare and Endangered Plants of California [CNPS 2018]; CNDDB for the Corona South, and surrounding USGS quadrangle maps (CNDDB 2018); and MSHCP Document, including *Section 6.1.2* and Table 9.3 (Riverside County Integrated Project 2003).

Vegetation communities were mapped based on the Holland Classification System (Holland 1986). Where necessary, deviations were made on best professional judgment when areas did not fit into a specific habitat description provided by Holland. Plant communities were mapped in the field directly onto a 200-scale (1" = 200') aerial photograph and a Trimble R1 GNSS Receiver paired with the ARCGIS Collector Application was utilized during the survey. Figure 4 (Study Area Vegetation Map) provides vegetation mapping for the Project site. Site photographs in Appendix C also provides representative photographs of site conditions.

Section 6.1.2 Riparian/Riverine Areas and Vernal Pools

Volume I, Section 6.1.2 of the MSHCP describes the process through which protection of riparian/riverine areas and vernal pools would occur within the MSHCP Plan Area. The purpose is to ensure that the biological functions and values of these areas throughout the MSHCP Conservation Area are maintained. The MSHCP requires that as projects are proposed within the overall Plan Area, the effect of those projects on riparian/riverine

areas and vernal pools must be addressed. The Study Area was evaluated for the presence/absence of MSHCP riparian/riverine areas and vernal pools. With respect to riparian habitat, the Study Area was evaluated for the potential habitat to support the least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii traillii*), the western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), listed fairy shrimp, and other species identified in Section 6.1.2 of the MSHCP.

The Study Area was evaluated to determine the limits of (1) Corps jurisdiction pursuant to Section 404 of the CWA; (2) CDFW jurisdiction pursuant to Division 2, Chapter 6, Section 1600 of the Fish and Game Code; and (3) MSHCP riparian/riverine areas and vernal pools. Suspected jurisdictional areas were field checked for the presence of definable channels and/or wetland vegetation, soils and hydrology. Suspected wetland habitats on the site were evaluated using the methodology set forth in the Corps' 1987 Wetland Delineation Manual (Wetland Manual) and the 2008 Regional Supplement to the Corps Wetland Delineation Manual: Arid West Region Version 2.0 (Arid West Supplement). While in the field, the limits of Corps and CDFW jurisdiction were recorded onto a 200-scale (1" = 200') color aerial photograph and a Trimble R1 GNSS Receiver paired with the ARCGIS Collector Application, with accuracy to +/- one foot. During the field survey, it was determined that the Project site does not include any jurisdictional areas or wetlands.

General Biological Surveys

Wildlife species were evaluated and detected during field surveys by sight, call, tracks, and scat. Site reconnaissance was conducted in such a manner as to allow inspection of the Study Area by direct observation, including the use of binoculars. Observations of physical evidence and direct sightings of wildlife were recorded in field notes during each visit. A complete list of wildlife species observed within the Study Area is provided in the Biological Report. Scientific nomenclature and common names for vertebrate species referred to in this report follow the Complete List of Amphibian, Reptile, Bird, and Mammal Species in California (CDFW 2016), Standard Common and Scientific Names for North American Amphibians, Turtles, Reptiles, and Crocodilians 6th Edition, Collins and Taggert (2009) for amphibians and reptiles, and the AOU Checklist (2018) for birds. The methodology (including any applicable survey protocols) utilized to conduct the focused surveys or the habitat assessments for special-status animals is included below.

Reptiles and Amphibians

During general surveys within the Study Area, reptiles and amphibians were identified incidentally during surveys within each habitat type. Habitats were examined for diagnostic reptile sign, which include shed skins, scat, tracks, snake

prints, and lizard tail drag marks. All reptiles and amphibian species observed, as well as diagnostic sign, were recorded in field notes.

Birds

During general surveys within the Study Area, birds were identified incidentally during surveys within each habitat type. Birds were detected by both direct observation and by vocalizations and were recorded in field notes. The majority of the Study Area consists of disturbed habitat with surrounding developed residential areas and commercial.

Mammals

During general surveys within the Study Area, mammals were identified incidentally during surveys within each habitat type. Mammals were detected both by direct observations and by the presence of diagnostic sign (i.e., tracks, burrows, scat, etc.).

Botanical Resources

During general surveys within the Study Area, botanical resources were identified during the survey within each habitat type. Botanical resource surveys consisted of five components: (1) a literature search; (2) preparation of a list of target special-status plant species and sensitive vegetation communities that could occur on site; (3) general field reconnaissance survey; (4) vegetation mapping based on the Holland Classification System; and (5) preparation of a vegetation map, including the location of any sensitive vegetation communities found on site.

Wildlife Movement Analysis

In order to evaluate direct, indirect, and cumulative impacts of the proposed Project on wildlife movement, an analysis of wildlife use/movement was conducted for the Study Area. The analysis considered the movement and use of large mammals (i.e., mountain lion and mule deer), medium-sized mammals (mesocarnivores), and other wildlife such as small mammals, birds, reptiles, and amphibians. Methods utilized for the wildlife analysis included a review of existing information on wildlife use (including the MSHCP), general biological surveys to document the presence/absence of wildlife, and opportunistic observations of mammal tracks and scat.

Due to the urbanized setting, the Project site does not serve as a local wildlife corridor.

V. CONSISTENCY ANALYSIS

A. Section 6.1.2 -- Protection of Species Associated with Riparian/Riverine Areas

During the field survey, it was determined that the Project site does not include any jurisdictional areas or wetlands. Therefore, the Project site does not contain any Riparian/Riverine Areas as defined in Section 6.1.2. Furthermore, the site does not support Section 6.1.2 avian special status species associated with Riparian/Riverine areas. Thus, no mitigation is proposed.

The Study Area is not located within or adjacent to any MSHCP Conservation Area. Thus, no mitigation is proposed.

B. Consistency Determination

The proposed Project is consistent with Section 6.1.2 (Riparian/Riverine Guidelines) of the MSHCP due to the lack of riparian/riverine areas located onsite. Likewise, the Project site lacks suitable habitat for the Section 6.1.2 special status wildlife and plant species onsite.

VI. LIST OF PREPARERS

This report was prepared by Carlson Strategic Land Solutions:
- Peter Carlson, President
- Brianna Bernard, Project Manager and Biologist

VII. REFERENCES

American Ornithologists' Union (AOU). 1998. Checklist of North American Birds, Seventh Edition. American Orinthologists' Union, Washington, D.C. Accessed using the AOU website at http://www.aou.org/checklist/north/

California Department of Fish and Game. 2016. Complete List of Amphibian, Reptile, Bird, and Mammal Species in California. State of California Resources Agency. Sacramento, California.

California Native Plant Society. 2001. Inventory of Rare and Endangered Plants of California. (Sixth Edition). Rare Plant Advisory Committee, David P. Tibor, Convening Editor, California Native Plant Society. Sacramento, California, 388 pp.

California Native Plant Society. 2018. Inventory of Rare and Endangered Plants of California. (Seventh Edition). Accessible online at http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi

Collins, Joseph T. and Travis W. Taggart. 2009. Standard Common and Current Scientific Names for North American Amphibians, Turtles, Reptiles, and Crocodilians. Sixth Edition. Publication of The Center For North American Herpetology, Lawrence. iv +44p.

Carlson Strategic Land Solutions. April 2018. Biological Technical Report for the McMillan Project.

Haug, E.A., B.A. Millsap, and M.S. Martell. 1993. Burrowing Owl (Speotyto cunicularia). The Birds of North America, No. 130 (A. Poole and F. Gill, Eds.) Philadelphia: The Academy of Natural Sciences; Washington, D.C.: The American Ornithologists' Union.

Hickman, J.C., Ed. 1993. The Jepson Manual: Higher Plants of California. University of California Press. 1,400 pp.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Nongame-Heritage Program, California Department of Fish and Game.

Munz, P.A. 1974. A Flora of Southern California. University of California Press. 1,086 pp.

Nelson, J. 1984. Rare plant survey guidelines. In: Inventory of rare and endangered vascular plants of California. J. Smith and R. York (eds). Special Publication No. 1. California Native Plant Society.

Roberts, F.M., S.D. White, A.C. Sanders, D.E. Bramlet, and S. Boyd. 2004. The Vascular Plants of Western Riverside County, California, An Annotated Checklist. F.M. Roberts Publications. 192 pp.

Appendix A: Figures

GIS Prepared By:
Carlson SLS

Created: March 12, 2018

0 2,500 5,000 10,000 Feet
1 inch = 10,000 feet

Data Sources: Bing Maps

Continential Villages
Regional Map

GIS Prepared By:
Carlson SLS

Created: March 12, 2018

0 50 100 200 300 400 Feet
1 inch = 200 feet

Data Source: Bing Map
Anderson Consltinig Engineers, Inc (03/XX/2018)

Continential Villages
Site Location

FIGURE 2

GIS Prepared By:
Carlson SLS

Created: March 12, 2018

0 75 150 300 450 600 Feet
1 inch = 300 feet

Data Source: Bing Maps
CH (03/2015)

Continential Villages
MSHCP Overlay Results

FIGURE 3

GIS Prepared By:
Carlson SLS

Created: March 12, 2018

0 37.5 75 150 225 300 Feet
1 inch = 150 feet

Data Source: Bing Map
Anderson Consltinig Engineers, Inc (03/XX/2018)

Continential Villages
Vegetation Map

FIGURE 4

Appendix B: Biological Technical Report

Biological Technical Report for the Continental Villages Project

***Prepared for*:**

Continental East Development
25467 Medical Center Drive, Suite 201
Murrieta, California 92562
Contact: Andrew Spousta

***Prepared by*:**

Carlson Strategic Land Solutions
327134A Paseo Espada, Suite 323
San Juan Capistrano, CA 92675
Phone: (949) 542-7042
Contact: Brianna Bernard

November 2018

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ACRONYMS, ABBREVIATIONS, AND GLOSSARY OF TERMS

BLM	United States Bureau of Land Management
BMPs	Best Management Practices
CDF	California Department of Forestry and Fire Protection
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corps	United States Army Corps of Engineers
CRPR	California Rare Plant Rank
CWA	Clean Water Act
FESA	Federal Endangered Species Act
FGC	California Fish and Game Code
GPS	Global Positioning System
I-210	Interstate 210
LBV	least Bell's vireo
MBTA	Migratory Bird Treaty Act
MMRP	Mitigation, Monitoring, and Reporting Program
NEPA	National Environmental Protection Act
NHD	National Hydrography Dataset
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	Ordinary High-Water Mark
Project	California Grand Village Senior Village Project
RWQCB	Regional Water Quality Control Board
SAA	Section 1600 Streambed Alteration Agreement
SLS	Carlson Strategic Land Solutions
SWPPP	Storm Water Pollution Prevention Plan
U.S.	United States
USFS	United States Forest Service

USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WQC	Section 401 Water Quality Certification

1.0 Introduction

On behalf of the Continental East Development team and the Continental Village Project (Project), Carlson Strategic Land Solutions (SLS) has prepared this Biological Technical Report, which incorporates the findings from the field survey conducted by SLS biologist on March 13, 2018. This report provides a Technical Study for the approximately 12-acre Project site and surrounding 300-foot survey buffer, collectively known as the "Study Area."

1.1 Purpose and Approach

This report provides a summary of the conditions present during the 2018 survey, an assessment of the potential presence of sensitive biological resources, and an analysis of the potential impacts to those resources due to Project implementation. This report describes the current biological resources present within the Study Area including habitat communities, jurisdictional waters, and the potential occurrence of listed and "special status"[1] plant and wildlife species. The potential biological significance of site construction and development in view of federal, state, and local laws and regulations are also identified in this report. The report also recommends, as appropriate, Best Management Practices (BMPs) and avoidance and minimization measures to reduce or avoid potential impacts. While general biological resources are discussed, the focus of this assessment is on those resources considered to be sensitive. This report was prepared based upon results of a literature review and field surveys.

1.2 Project Terms

The following terms will be used throughout this document and are defined as follows:

- Project site: the approximately 12-acre Continental Village Project site.
- Study Area: the area evaluated during the field survey, including the 12-acre Project site and surrounding 300-foot survey buffer area.
- Project Vicinity: intended to be a general term to describe the broader area surrounding the Study Area.

1.3 Project Location

The Project site is located northeast corner of Lasselle Street and Krameria Avenue in the City of Moreno Valley, Riverside County, California. The Project site assessor parcel number's (APN) are 308-040-053 and 308-040-054 (Figures 1 and 2). The Project site is located in Riverside County, and within the United States Geological Survey (USGS) 7.5-Minute Topographic Map *Sunnymead* Quadrangle.

[1] These species typically have a limited geographic range and/or limited habitat.

Direct access to the Project site is from Krameria Avenue. Directions to the Project site from Interstate 215 (I-215) is to exit Ramona Expressway and head east on Ramona Expressway. From Ramona Expressway, head north onto Evan Road. Evans Road turns into Lassalle Street. From Lassalle Street head east onto Krameria Avenue.

1.4 Existing and Surrounding Land Use

The Project site has been previously rough graded with residential pads and appears actively maintained, therefore the Project site is disturbed and in a non-vegetated state. The Project site is devoid of native vegetation. The Project site is approximately 1500 feet above sea level. The Project site is located within the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) within the Reche Canyon/Badlands Area Plan.

The surrounding land uses of the Project site include Lasalle Elementary School and a property under construction located to the north; and single-family residential subdivisions located to the east, west, and south.

2.0 Project Description

The Applicant proposes to construct Neighborhood Commercial and Multi-family housing on the approximately 12 acres Project site. The Neighborhood Commercial is proposed on 2.8 acres at the corner of Lasselle Street and Krameria Avenue. Multi-family housing is proposed on the remaining 8.80 acres. As a result of Project Implementation, the entire site would be graded and is expected to be balanced onsite.

3.0 Regulatory Context

The following is a list of the key local, state, and federal laws and regulations that apply to protecting plant communities, plants, wildlife, and water quality from project impacts relevant to the Project.

3.1 Federal Laws and Regulations

- Federal Endangered Species Act (FESA)
- Federal Clean Water Act (CWA)
- Migratory Bird Treaty Act (MBTA)

3.2 California State Laws and Regulations

- California Environmental Quality Act (CEQA)
- California Endangered Species Act (CESA) and Fish and Game Code (FGC) sections 2050 et seq.
- Lake and Streambed Alteration Program – FGC sections 1600-1616
- Porter-Cologne Water Quality Act – California Code, Division 7
- Migratory Birds – FGC section 3513
- Nongame Birds – FGC section 3800 (a)
- Native Plant Protection Act (NPPA) – FGC sections 1900-1913

3.3 Local Plans/Regulations

- City of Moreno Valley General Plan
- Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP): Reche Canyon/Badlands Area Plan

3.4 Historical Biological Reports

- Moreno Valley 227 Wetlands Review & Rare Plant Evaluation (VHBC, Incorporated; February 8, 2011)
- Jurisdictional Delineation APN 308-040-050 (Gonzales Environmental Consulting, LLC; February 25, 2011)
- Burrowing Owl Survey - Continental Villages Site APN 308-040-050 (VHBC, Incorporated; February 2, 2012)

3.5 Regulatory Permits

This report is prepared pursuant to and in support of CEQA, and any applicable regulatory permit applications, including the California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement (SAA), Regional Water Quality Control Board (RWQCB) Section 401 Water Quality Certification (WQC), and United States Army Corps of Engineers (Corps) Section 404 permit.

4.0 Survey and Methods

Preparation for this biological study began with a review of relevant available literature. This effort was followed by an onsite field survey on March 13, 2018. The purpose of the field survey was to assess the existing habitat, confirm any onsite sensitive plant communities and jurisdictional waters, and determine whether special status plant and wildlife species occur or potentially occur within the Study Area.

4.1 Literature Review

The study began with a review of relevant available literature on the biological resources within the Study Area and Project Vicinity. The Project site is located within the boundary of the Western Riverside MSHCP, specifically within the Reche Canyon/Badlands Area Plan.

4.1.1 Sensitive Plant Communities

Sensitive plant communities (sensitive habitats) are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. Sensitive habitats are often threatened with local extirpation and are therefore considered valuable biological resources. Plant communities are considered "sensitive" if they meet any of the criteria listed below.

- The habitat is recognized and considered sensitive by CDFW, United States Fish and Wildlife Service (USFWS), and/or special interest groups such as CNPS.
- The habitat is under the jurisdiction of the Corps pursuant to Section 404 of the CWA.
- The habitat is under the jurisdiction of the CDFW pursuant to Sections 1600 through 1612 of the California Fish and Game Code.
- The habitat is known or believed to be of high priority for inventory in the California Natural Diversity Database (CNDDB).
- The habitat is considered regionally rare.
- The habitat has undergone a large-scale reduction due to increased encroachment and development.
- The habitat supports special status plant and/or wildlife species (defined below).
- The habitat functions as an important corridor for wildlife movement.

4.1.2 Critical Habitat

Under the ESA, the federal government is required to designate "critical habitat" for any species it lists under the ESA. Federal agencies are prohibited from authorizing, funding or carrying out actions that "destroy or adversely modify" critical habitats. Section 3 of the ESA defines critical habitat as:

- The specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features

essential to the conservation of the species and that may require special management considerations or protection.

- The specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

"Conservation" means the use of all methods and procedures that are necessary to bring an endangered or a threatened species to the point at which listing under the ESA is no longer necessary. Critical habitat receives protection under Section 7(a)(2) of the ESA through the prohibition against destruction or adverse modification of critical habitat with regard to actions carried out, funded, or authorized by a federal agency. Section 7(a)(2) also requires conferences on federal actions that are likely to result in the destruction or adverse modification of proposed critical habitat.

The USFWS's online service for information regarding Threatened and Endangered Species Final Critical Habitat designation within California was reviewed to determine if the Study Area is within any species' designated Critical Habitat (USFWS 2018a). The USFWS regulatory mapping process for the designation of critical habitat is an imprecise, broad-based, mapping exercise of areas that may or may not include constituent elements of the critical habitat designation. Due to this approach in mapping, large areas are designated as critical habitat regardless of the existing habitat, and as a result may include developed areas, such as buildings, roads, hardscape, and other such facilities, as well as natural habitats.

The constituent elements of the critical habitat designation consider the physical and biological features necessary for life processes and successful reproduction of the listed species. These include:

- Space for individual and population growth for normal behavior;
- Habitat cover or shelter;
- Food, water, or other nutritional or physiological requirements;
- Sites for breeding and rearing offspring; and
- Habitat that is protected from disturbance or is representative of the historical geographic and ecological distribution of a species.

4.1.3 Special Status Plants and Wildlife

Species of plants and animals are afforded "special status" by federal agencies, state agencies, and/or non-governmental organizations (e.g., USFWS, CDFW, and USFS, and CDF) because of their recognized rarity, potential vulnerability to extinction, and local importance. These species typically have a limited geographic range and/or limited habitat and are referred to collectively as "special status" species. Plant and wildlife species were considered "special status" species if they meet any of the following criteria.

- Taxa with official status under ESA, CESA, and/or the NPPA.

- Taxa proposed for listing under ESA and/or CESA.
- Taxa designated a species of special concern by CDFW.
- Taxa designated a state fully protected species by CDFW.
- Taxa identified as sensitive, unique or rare, by the USFWS, CDFW, the United States Forest Service (USFS), the United States Bureau of Land Management (BLM), and/or the California Department of Forestry and Fire Protection (CDF).
- Plants that meet the definition of rare or endangered under CEQA §15380(b) and (d). Species that may meet the definition of rare or endangered include the following:
    - Species considered by CNPS and CDFW to be "rare, threatened or endangered in California" (California Rare Plant Rank [CRPR] 1A, 1B and 2) (CNPS 2018). A majority of the CRPR 3 and CRPR 4 plant species generally do not qualify for protection under CESA and NPPA.
    - Species that may warrant consideration on the basis of local significance or recent biological information.
    - Some species included on the CNDDB Special Plants, Bryophytes, and Lichens List (CDFW 2018g).
- Considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA §15125 (c)) or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G). Examples include a species at the outer limits of its known range or a species occurring on an uncommon soil type.

Available literature and databases were reviewed regarding sensitive habitats and special status plant and wildlife species. Special status plant and wildlife species that have the potential to occur within the immediate region of the Study Area were identified. Several agencies, including the USFWS, CDFW, and CNPS publish lists of particular taxa (species and subspecies) and the associated level of protection or concern associated with each. Reviewed and consulted literature and databases focused on the Study Area, and included the following sources listed below:

- The CNDDB, a CDFW species account database that inventories status and locations of rare plants and wildlife in California, was used to identify any sensitive plant communities and special status plants and wildlife that may exist within a two-mile radius of the Project site. A CNDDB search was performed assessing a two-mile radius around the Study Area (CDFW 2018f). CNDDB records are generally used as a starting point when determining what special status species, if any, may occur in a particular area. However, these records may be old, lack data not yet entered, and do not represent all the special status species that could be in that particular area (Figure 3).
- A map of USFWS critical habitat to determine species with critical habitat mapped in the general vicinity of the Project (USFWS 2018a).[2]

[2] Lands located within the mapped critical habitat designation must meet additional specific criteria to be considered critical habitat. The final determination of the extent of critical habitat on a specific site is based on whether certain criteria are met. Criteria is outlined within Section .

- Online CNPS Inventory of Rare and Endangered Plants of California (CNPS 2018). A search for the USGS 7.5-Minute Topographic Map Sunnymead Quadrangle provided information regarding the distribution and habitats of special status vascular plants in the Project Vicinity.
- Pertinent maps, scientific literature, websites, and regional flora and fauna field guides.

The literature review was used as a resource to better understand the biological resources potentially occurring within the Study Area. Although the inventory list of special status plant and wildlife species was not exhaustive of all species that might occur on the property, it provides a wide range of species that are representative of the wildland habitats in the area. Species occurrence and distribution information is based on documented occurrences where surveys have taken place for individual projects; therefore, a lack of documented occurrence does not necessarily indicate that a given species is absent from the Study Area.

4.1.4 Jurisdictional Waters

The following sources were reviewed to determine the potential presence or absence of jurisdictional streams/drainages, wetlands, and their location within the watersheds associated with the Study Area, and other features that might contribute to federal or state jurisdictional authority located within watersheds associated with the Study Area:

- National Wetlands Inventory (NWI) maps (USFWS 2018c). The NWI database indicates potential wetland areas based on changes in vegetation patterns as observed from satellite imagery. This database is used as a preliminary indicator of wetland habitats because the satellite data are not precise.
- Title 33 Code of Federal Register (CFR): Navigation and Navigable Waters Part 328
- USGS National Hydrography Dataset (NHD). Provides the locations of “blue-line” streams as mapped on 7.5-Minute Topographic Map coverage.
- Aerial Imagery (Google Earth©) (Google 2018).
- USGS 7.5-Minute Topographic Maps.
- Natural Resource Conservation Service (NRCS) Soil Survey.

4.1.5 MSHCP Assessment

The Project site is located within the MSHCP, specifically within the Reche Canyon/Badlands Area Plan. The MSHCP is a comprehensive plan that includes portions of the County of Riverside and numerous cities. The MSHCP plans for conservation of 146 species and proposes a reserve system of approximately 500,000 acres. The MSHCP is intended to contribute to the economic viability of the County of Riverside by providing landowners, developers, and public infrastructure projects a streamlined regulatory process.

The Riverside Conservation Authority (RCA) MSHCP Information Application website was reviewed to verify any overlays that may occur on the Project site. Regardless of other overlays, MSHCP Section 6.1.2, *Protection of Species Associated with Riparian/Riverine Areas and Vernal*

Pools, is applicable to all projects within the MSHCP and describes the process through which protection of riparian/riverine areas, vernal pools, and fairy shrimp species will occur within the MSHCP Area. Protection of these resources is important for a number of MSHCP conservation objectives. An assessment of a Project's potentially significant effects on riparian/riverine areas, and vernal pools is required. Guidelines for determining whether or not these resources exist on site are described as follows:

- **Riparian/Riverine Areas** include "lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens which occur close to or which depend upon soil moisture from a nearby fresh water source or areas with fresh water flow during all or a portion of the year." Riparian/riverine areas under the MSHCP also include drainage areas that are vegetated or have upland (non-riparian/riverine) vegetation and that drain directly into an area that is described for conservation under the MSHCP (or areas already conserved). The Project site was assessed for areas meeting this definition during the jurisdictional delineation performed on March 13, 2018.

- **Vernal Pools** are described by the MSHCP as "seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season." This definition excludes artificially created wetlands created for proving wetlands habitat or human actions to create open waters or altering natural streams demonstrating characteristic as described above. The Project site was assessed for areas meeting this definition during the jurisdictional delineation performed on March 13, 2018.

4.2 Biological Survey

4.2.1 General Biological Survey

A field survey was performed on March 13, 2018 by SLS biologist Brianna Bernard to assess and map vegetation communities, plants, and wildlife, and to identify habitat areas that could be suitable for special status plant species.

Plant species were identified using plant field and taxonomical guides, such as The Jepson Manual: Vascular Plants of California, second edition (Baldwin et al. 2012). All plant species encountered during the field survey were identified and recorded in field notes. A one-day survey cannot be used to conclusively determine presence or absence of a species; therefore, assessments of presence/absence were made based on the previous surveys, presence of suitable habitat and soils to support the species, known records or occurrence within the area, and known distribution and elevation range obtained from the relevant literature.

During the field survey, the biologist assessed the existing habitat within the Study Area. The biologist paid special attention to those habitat areas that had the potential to provide suitable

habitat for special status plant and wildlife species. Aerial photographs and maps were used to assist in the delineation of plant community boundaries. Following field mapping, the plant communities were digitized and the vegetation map was created. General wildlife surveys were conducted on foot and with binoculars within the Study Area.

All wildlife species encountered visually or audibly during the field survey were identified and recorded in field notes. Biologists also recorded signs of wildlife species including animal tracks, burrows, nests, scat, and remains. Binoculars were used to aid in the identification of observed wildlife. Wildlife field guides and photographs were used to assist with identification of wildlife species during the field survey, as necessary. Photographs were taken to document existing conditions within the Study Area (Appendix A).

4.3 Jurisdictional Delineation

An assessment of the Study Area for the presence of jurisdictional features was conducted by SLS biologist Brianna Bernard on March 13, 2018. All depressions and drainages were evaluated for the presence of bed and bank and wetlands according to the Corps and CDFW delineation guidelines, including connectivity or lack of connectivity to Traditional Navigable Waters. Dominant vegetation within and adjacent to any jurisdictional features within the Study Area was identified and recorded.

The Corps and the RWQCB have jurisdiction over Waters of the United States. Jurisdictional non-wetland features for the Waters of the United States are typically determined through the observation of an Ordinary High Water Mark (OHWM), which is defined as the "line on the shore established by the fluctuation of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." Projects with impacts to Waters of the United States are regulated under Sections 401 and 404 of the Clean Water Act.

To determine the presence of a jurisdictional wetland for the Waters of the United States, three indicators are required: (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. The methodology published in the *United States Army Corps of Engineers 1987 Wetland Delineation Manual* and the *Arid West Supplement* sets the standards for meeting each of the three indicators, which normally require more than 50 percent cover of dominant plant species typical of a wetland, soils exhibiting characteristics of saturation, and hydrological indicators be present.

CDFW has jurisdiction over water of the Department's interest (California Fish and Game Code §§1600 et seq.; California Code of Regulations, Title 14, §720). Section 1602 of the California Fish and Game Code (FGC) applies to all rivers, streams, lakes and streambeds. CDFW defines a stream as "a body of water that flows perennially or episodically and that is defined by the area in which water currently flows, or has flowed, over a given course during the historic hydrologic course regime, and where the width of its course can reasonably be identified by physical or biological

indicators" (Brady and Vyverberg 2013). Likewise, CDFW regulates jurisdictional areas of riparian habitat only to the extent that those areas are part of a stream, river, or lake as defined above. Waters of the State pertaining to Porter-Cologne in relation to RWQCB jurisdiction are defined by California Water Code Section 13050(e) as any surface or ground water within the boundaries of the state.

Prior to the field investigation, SLS biologist reviewed historical aerial imagery, historical biological reports, and topography for the Study Area to determine the potential for perennial, intermittent, or ephemeral drainages and associated riparian resources. Generally, indicators of jurisdictional drainages on an aerial photo include vegetation and/or incised lines indicating the path of flowing water. Following the desktop research, SLS biologist conducted an onsite field investigation. Based on the collective results of the desktop investigation and the field surveys, any observed jurisdictional features were mapped using the following parameters:

- As stated above, the limits of the Corps' jurisdiction extend to the OHWM. OHWM indicators include: the observation of benches, break in bank slope, particle size distribution, sediment deposits, drift, litter, and/or change in plant community.
- The RWQCB shares the Corps' jurisdictional methodology.
- CDFW's jurisdiction applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state. CDFW's authority also includes riparian habitat (including wetlands) supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions. Generally, CDFW jurisdiction is mapped to the top of bank of the stream.

5.0 Results

5.1 Vegetation Communities

As stated previously, the Project site has been previously rough graded with residential pads and appears actively maintained; therefore, the Project site is disturbed and in a non-vegetated state. Vegetation communities were mapped based on the Holland Classification System (Holland 1986). Where necessary, deviations were made on best professional judgment when areas did not fit into a specific habitat description provided by Holland. Plant communities were mapped in the field directly onto a 200-scale (1" = 200') aerial photograph; acreages for the community observed is listed in Table 1 and graphically depicted on Figure 5. Representative photographs of the vegetation community observed can be found in Appendix A.

Table 1. Vegetation Community Observed within the Project Site

Vegetation Community	Total Acreage
Developed/Disturbed	12.41

The general description of the habitat observed during the 2018 field survey is described below.

5.1.1 Developed/Disturbed

A total of 12.4 acres of disturbed area consisting of bare dirt and sparse vegetation is mapped onsite. This acreages includes the current water quality/Best Management Practice (BMP) Measures as part of the active construction located to the north of the Project site and original grading. The historical biological reports were reviewed, along with a series of historical aerials. Based on the series of aerial and biological reports, the site was first graded prior to 2002, as part of the larger community and the construction of Krameria Avenue and Lasselle Street. Based on the historical aerials, no natural drainage occurred on the site and with the construction of the streets and residential, was cut off from any watershed that would have served any natural drainage. The site appeared to be maintained through disking. The site was re-graded in 2004/2005 as part of construction of the adjacent Lasalle Elementary School. As part of the grading activities and construction of the adjacent school, two detention basins and a single spillway were incorporated into the grading.

As stated in the historical biological reports and observed in the historical aerials, nuisance water was present in the basins from the school property and associated with adjacent urban landscape runoff, including residential and commercial uses. The basins and spillway captured the runoff and nuisance flow from the School and the graded nature and lack of vegetation on the Project site and adjacent undeveloped northern property. Following the construction of the adjacent School, the Project site and adjacent undeveloped northern property remained in the rough graded state and vacant. As a result of the site siting dormant, vegetation grew within the basins and spillway, as observed on the historical aerials. However, various aerials show a lack of

vegetation within the basins and spillway. The difference of vegetation observed in the basins and spillway throughout the aerials provides evidence that the vegetation depended on the nuisance flow and runoff into the BMPs and without the support of the nuisance water and runoff the vegetation within the areas cease to exist. Based on those factors and the inclusion of detention basins and riprap, no natural drainages previously existed on the Project site and the drainage observed by the historical biological reports was only created by runoff and nuisance from the impervious surface and ballfields on the school site.

The adjacent undeveloped northern property, outside of the 12-acre Project site, is currently under construction as observed in the 2018 aerial and site visit. As part of the active construction, the spillway was redirected via a tarped path to a retention basin located on the Project site. Both of the basins and spillway, located on the adjacent northern property, were removed as part of active construction. The retention basin located on the Project site captures the run-off and nuisance flow onsite due to the graded nature and lack of vegetation on the Project site, the school property, and associated with adjacent urban landscape.

5.2 Plants

Sensitive plant species include federally or state listed threatened or endangered species, those species listed on the CNPS rare and endangered plant inventory. A single listed plant species occurs within the USGS 7.5' Sunnymead quadrangle and a brief description of that species is included below. Special status plant species with the potential to occur in the Project site were analyzed based on distribution, habitat requirements, and existing site conditions (Appendix B). All plant species observed within the Project site totaled 7 species during the survey on March 13, 2018 are listed in Appendix C of this report.

Nevin's barberry (*Berberis nevinii*)
Status: state endangered, federally endangered
Distribution: Los Angeles, Riverside, San Bernardino, and San Diego Counties.
Habitat(s): A perennial evergreen shrub that occurs in sandy or gravelly areas. Habitat communities include chaparral, cismontane woodland, coastal scrub, and riparian scrub. Occurs at approximately 230 to 2,700-foot elevation range. Blooms from March through June.
Status onsite: None. The site lacks suitable habitat and soils. Not observed during field visit.
As determined through the 2018 survey, no special status plant species were observed within the Project site and there is no opportunity for them to occur due to the disturbed nature of the Project site and lack of suitable habitat and soils.

5.3 Critical Habitat

The Project site contains no designated critical habitat. The closest designated critical habitat is located 4.40 miles southeast of the Project site for Spreading Navarretia (*Navarretia fossalis*).

5.4 Wildlife

Special status wildlife species with the potential to occur in the Study Area were analyzed based on the species identified in USGS 7.5' Sunnymead quadrangle and the surrounding eight quadrangles, distribution, habitat requirements, and existing site conditions (Appendix D). No special status wildlife was identified or observed within the Project site during the field visit. However, the following species were identified as being observed within 2-miles of the Project site: burrowing owl (*Athene cunicularia*), red-diamond rattlesnake (*Crotalus ruber*), Stephen's Kangaroo Rat (*Dipodomys stephensi*), western mastiff bat (*Eumops perotis californicus*), western yellow bat (*Lasiurus xanthinus*), and Los Angeles Pocket Mouse (*Perognathus longimembris brevinas*). A brief description of those species and their habitat is included below.

Burrowing Owl (*Athene cunicularia*)
Status: species of special concern
Habitat(s): Burrowing owls are a year-round resident of California including habitats of open, dry grassland, and desert. They are generally restricted to mostly flat, open country with suitable nest sites. They use rodent or other burrows for roosting and nesting cover and acquire their burrows from either abandonment or eviction. Burrowing owls typically hunt from a perch.
Status onsite: None. The site lacks suitable habitat and contains no burrows. Not observed during field visit.

Red-Diamond Rattlesnake (*Crotalus ruber*)
Status: species of special concern
Habitat(s): It can be found from the desert, through dense chaparral in the foothills (it avoids the mountains above around 4,000 feet), to warm inland mesas and valleys, all the way to the cool ocean shore. It is most commonly associated with heavy brush with large rocks or boulders. Dense chaparral in the foothills, cactus or boulder associated coastal sage scrub, oak and pine woodlands, and desert slope scrub associations are known to carry populations of the northern red-diamond rattlesnake, however, chamise and red shank associations may offer better structural habitat for refuges and food resources for this species than other habitats. They need rodent burrows, cracks in rocks or surface cover objects.
Status onsite: None. The site lacks suitable habitat. Not observed during field visit.

Stephen's Kangaroo Rat (*Dipodomys stephensi*)
Status: federally endangered, state threatened
Habitat(s): This species prefers large areas of disturbed or patchy annual and perennial grasslands and open coastal sage scrub. Preferred perennial plant species include buckwheat and chamise and preferred annual plant species include brome grass. The nearest known populations are in Rancho Guejito and at the Naval Weapons Station in Fallbrook.
Status onsite: None. The site lacks suitable habitat. Not observed during field visit.

Western Mastiff Bat (*Eumops perotis californicus*)
Status: species of special concern

Habitat(s): Western mastiff bats are found in a variety of habitats, such as semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban, but the species' distribution may be geomorphically determined, occurring primarily where there are significant rock features offering suitable roosting habitat. A cliff dwelling species, where maternity colonies of 30 to several hundred roost generally under exfoliating rock slabs and rock crevices along cliffs. Western mastiff bats can also be found in similar crevices in large boulders and buildings. When roosting in rock crevices they require a sizable drop from their roost in order to achieve flight. Western mastiff bats prefer deep crevices that are at least 15 or 20 feet above the ground. Foraging is concentrated around bodies of water but also includes coastal sage scrub, chaparral, and grassland habitats.
Status onsite: None. The site lacks suitable habitat. Not observed during field visit.

Western yellow bat (*Lasiurus xanthinus*)
Status: species of special concern
Habitat(s): Roost in trees, hanging from the underside of a leaf. Commonly found in the southwestern U.S. roosting in the skirt of dead fronds in both native and non- native palm trees and have also been documented roosting in cottonwood trees.
Status onsite: None. The site lacks suitable habitat. Not observed during field visit.

Los Angeles Pocket Mouse (*Perognathus longimembris brevinas*)
Status: species of special concern
Habitat(s): Prefers sandy soil for burrowing. Also known to occur on gravel washes and in rocky soils. Associated with coastal scrub.
Status onsite: None. The site lacks suitable habitat. Not observed during field visit.

None of these species or evidence of their presence were observed or heard during the 2018 survey, and given the site's disturbed environment, existing surrounding residential housing and elementary school, and lack of habitat there is no opportunity for them to occur onsite.

5.4.1 Wildlife Species Observed or Detected

The animal species or signs thereof observed during the SLS survey are listed below:

Birds:

- American crow (*Corvus brachyrhynchos*)
- Anna's hummingbird (*Calypte anna*)
- house finch (*Haemorhous mexicanus*)
- mourning dove (*Zenaida macroura*)
- California seagull (*Larus californicus*)

5.5 Regional Connectivity/Wildlife Movement

Wildlife corridors link together areas of suitable habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, would not likely persist over time in fragmented or isolated habitat areas because they prohibit the infusion of new individuals and genetic information (MacArthur and Wilson 1967, Soule 1987, Harris and Gallager 1989). Corridors effectively act as links between different populations of a species. A group of smaller populations (termed "demes") linked together via a system of corridors is termed a "meta-population." The long-term health of each deme within the meta-population is dependent upon its size and the frequency of interchange of individuals (immigration versus emigration). The smaller the deme, the more important immigration becomes, because prolonged inbreeding with the same individuals can reduce genetic variability. Immigrant individuals that move into the deme from adjoining demes mate with individuals and supply that deme with new genes and gene combinations that increases overall genetic diversity. An increase in a population's genetic variability is generally associated with an increase in a population's health.

Corridors mitigate the effects of habitat fragmentation by:

- Allowing animals to move between remaining habitats, which allows depleted populations to be replenished and promotes genetic diversity.
- Providing escape routes from fire, predators, and human disturbances, thus reducing the risk that catastrophic events (such as fires or disease) will result in population or local species extinction.
- Serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and other needs (Fahrig and Merriam 1985, Simberloff and Cox 1987, Harris and Gallagher 1989).

Wildlife movement activities usually fall into one of three movement categories:

- Dispersal (e.g., juvenile animals from natal areas, individuals extending range distributions).
- Seasonal migration.
- Movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover).

A number of terms have been used in various wildlife movement studies, such as "wildlife corridor," "travel route," "habitat linkage," and "wildlife crossing" to refer to areas in which wildlife moves from one area to another. To clarify the meaning of these terms and facilitate the discussion on wildlife movement in this study, these terms are defined as follows:

- Travel route: a landscape feature (such as a ridge line, drainage, canyon, or riparian strip) within a larger natural habitat area that is used frequently by animals to facilitate movement and provide access to necessary resources (e.g., water, food, cover, den sites). The travel route is generally preferred because it provides the least amount of topographic resistance in moving from one area to another; it contains adequate food, water, and/or cover while moving between habitat areas; and provides a relatively direct link between target habitat areas.

- Wildlife corridor: a piece of habitat, usually linear in nature, that connects two or more habitat patches that would otherwise be fragmented or isolated from one another. Wildlife corridors are usually bounded by urban land areas or other areas unsuitable for wildlife. The corridor generally contains suitable cover, food, and/or water to support species and facilitate movement while in the corridor. Larger, landscape-level corridors (often referred to as "habitat or landscape linkages") can provide both transitory and resident habitat for a variety of species.

- Wildlife crossing: a small, narrow area, relatively short in length and generally constricted in nature, that allows wildlife to pass under or through an obstacle or barrier that otherwise hinders or prevents movement. Crossings are typically manmade and include culverts, underpasses, drainage pipes, and tunnels to provide access across or under roads, highways, pipelines, or other physical obstacles. These are often "choke points" along a movement corridor.

5.5.1 Wildlife Movement within the Study Area

Large open spaces support a diverse ecological community representing all types of wildlife movements. Each category of movement may also be represented at a variety of scales from non-migratory movement of amphibians, reptiles, and some birds, on a local level to many square-mile home ranges of large mammals moving at a regional level. Due to the urbanized setting, the Project site does not serve as a local wildlife corridor.

5.6 Jurisdictional Areas

Prior to the field survey, the previous biological reports and historical aerials were reviewed. The Project site is surrounded by urban development and the site was first graded prior to 2002 as part of the larger community and construction of Krameria Avenue and Lasselle Street. Based on the historical aerials, no natural drainage occurred on the site and with the construction of the streets and residential, was cut off from any watershed that would have served any natural drainage. Following the construction of the adjacent development, the site appeared to be maintained through disking. The site was re-graded in 2004/2005 as part of construction of the adjacent Lasalle Elementary School. As part of the grading activities and construction of the adjacent school, two detention basins and a single spillway were incorporated into the grading plan.

As stated in the historical biological reports and observed on historical aerials, nuisance water was present in the basins from the school property and associated with adjacent urban landscape runoff, including residential and commercial uses. The basins and spillway captured the runoff and nuisance flow from the School and the graded nature and lack of vegetation on the Project site and adjacent undeveloped northern property. Following the construction of the adjacent School, the Project site and adjacent undeveloped northern property remained in the rough graded state and vacant. As a result of the site siting dormant, vegetation grew within the basins and spillway, as observed on the historical aerials. However, various aerials show a lack of vegetation within the basins and spillway. The difference of vegetation observed in the basins and spillway throughout the aerials provides evidence that the vegetation depended on the nuisance flow and runoff into the BMPs and without the support of the nuisance water and runoff the vegetation within the areas cease to exist. Based on those factors and the inclusion of detention basins and riprap, no natural drainages previously existed on the Project site and the drainage observed by the historical biological reports was only created by runoff and nuisance from the impervious surface and ballfields on the school site.

The adjacent undeveloped northern property, outside of the 12-acre Project site, is currently under construction as observed in the 2018 aerial and site visit. As part of the active construction, the spillway was redirected via a tarped path to a retention basin located on the Project site. Both of the basins and spillway, located on the adjacent northern property, were removed as part of active construction. The retention basin located on the Project site captures the run-off and nuisance flow onsite due to the graded nature and lack of vegetation on the Project site, the school property, and associated with adjacent urban landscape.

During the 2018 field survey, it was determined that the Project site does not include any jurisdictional areas or wetlands.

5.7 MSHCP Assessment

The Project is located within the Reche Canyon/Badlands Area Plan of the MSHCP. The Project site is not located within any MSHCP Criteria Areas, Cell Groups, Subunits, Narrow Endemic Plants, or Burrowing Owl overlays. The Project site was surveyed and assessed for the following:

- Riparian and Riverine Areas (Section 6.1.2)

Thus, a separate Consistency Assessment has been prepared pursuant to that section. As stated in the historical biological reports and observed on historical aerials, the basins and spillway located onsite capture the runoff and nuisance flow from the school property, adjacent urban landscape runoff, including residential and commercial uses, and the graded nature and lack of vegetation on the Project site and adjacent undeveloped northern property. Following the construction of the adjacent School, the Project site and adjacent undeveloped northern property remained in the rough graded state and vacant. As a result of the site siting dormant,

vegetation grew within the basins and spillway, as observed on the historical aerials. However, various aerials show a lack of vegetation within the basins and spillway. The difference of vegetation observed in the basins and spillway throughout the aerials provides evidence that the vegetation depended on the nuisance flow and runoff into the BMPs and without the support of the nuisance water and runoff the vegetation within the areas cease to exist. Based on those factors and the inclusion of detention basins and riprap, no natural drainages previously existed on the Project site and the drainage observed by the historical biological reports was only created by runoff and nuisance from the impervious surface and ballfields on the school site.

During the 2018 field survey, it was determined that the Project site consists of Developed/Disturbed habitat and does not include any MSHCP defined Riparian or Riverine Areas.

5.8 Soils Mapping

The United States Department of Agriculture Natural Resource Conservation Service (NRCS) lists four soil types in the Project site (Figure 6), as described below:

GyC2: Greenfield sandy loam, 2 to 8 percent slopes, eroded
Soils of this series consist of well drained soils with low runoff. These soils are found on 2 to 8 percent slopes at elevations of 100 to 3,500 feet. Greenfield sandy loam complex is mapped on approximately 59 percent of the Project site.

HcC: Hanford coarse sandy loam, 2 to 8 percent slopes
Soils of this series consist of well drained soils with low runoff. These soils are found on 2 to 8 percent slopes at elevations of 150 to 900 feet. Hanford coarse sandy loam, 2 to 8 percent, is mapped on approximately 39 percent of the Project site.

HcD2: Hanford coarse sandy loam, 8 to 15 percent slopes, eroded
Soils of this series consist of somewhat excessively drained soils with low runoff. These soils are found on 8 to 15 percent slopes at elevations of 150 to 900 feet. Hanford coarse sandy loam, 8 to 15 percent, is mapped on approximately 1 percent of the Project site.

RaB3: Ramona sandy loam, 0 to 5 percent slopes, severely eroded
Soils of this series consist of well drained soils with medium runoff. These soils are found on 0 to 5 percent slopes at elevations of 250 to 3,500 feet. Ramona sandy loam complex is mapped on approximately 1 percent of the Project site.

6.0 Project Impacts

This section discusses potential impacts to biological resources that could result from Project implementation. Biological resources may be either directly or indirectly impacted by a Project.

Direct and indirect impacts may be either permanent or temporary in nature. These impact categories are defined below.

- Direct impact: any loss, alteration, disturbance or destruction of biological resources that would result from project-related activities is a direct impact. Examples include vegetation clearing, encroaching into wetlands, diverting natural surface water flows, and the loss of individual species and/or their habitats. Direct permanent impacts resulting from Project implementation consist of any ground-disturbing activities (i.e., vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc.).

- Indirect impact: as a result of Project-related activities, biological resources may also be affected in a manner that is not direct. Examples of indirect impacts include elevated noise, light, and dust levels, increased human activity, decreased water quality, erosion created by the removal of vegetation, and the introduction of invasive plants and unnatural predators (e.g. domestic cats and dogs). These indirect impacts may be both short term and long term in their extent.

- Permanent impacts: all impacts that result in the long-term or irreversible removal of biological resources are considered permanent. Examples include constructing a building or permanent road on an area containing biological resources.

- Temporary impacts: any impacts considered to have reversible effects on biological resources can be viewed as temporary. Examples include the generation of fugitive dust during grading, or removing vegetation and either allowing the natural vegetation to recolonize or actively revegetating the impact area.

Under each section, potential impacts are discussed.

6.1 Impacts to Vegetation Communities/Habitats

Figure 7 and Table 2 describe and list the approximate total acreages of vegetation communities that will be permanently and temporary impacted by Project activities. Calculations were based on the currently proposed development design in combination with the vegetation map from the field survey and aerial imagery.

Indirect temporary impacts to plant communities include the effects of fugitive dust created by grading activities, vehicle construction traffic, or offsite discharge of surface water runoff with its associated erosion and sedimentation. Grading-related dust could settle on plant surfaces and indirectly inhibit metabolic processes such as photosynthesis and respiration. Grading-related erosion, runoff, sedimentation, soil compaction, and alteration of drainage patterns may affect plants by altering site conditions so that the location in which they are growing becomes unfavorable. Another example of indirect impacts includes the introduction and spread of

invasive, exotic plants which could result in permanent indirect impacts to adjacent native plant communities.

Table 2. Approximate Acreage of Potential Impacts to Vegetation Communities on the Project Site

Vegetation Community	Existing Vegetation onsite (acres)	Total Permanent Impacts (acres)	Total Temporary Impacts (acres)
Developed/Disturbed	12.41	12.41	0.00

Permanent impacts to the 12.41 acres of the developed/disturbed community onsite from Project grading are not significant because these areas are not considered sensitive habitats.

6.2 Potential Impacts to Special Status Plants

As concluded in Section 5.2 above, no special status plant species were observed during the 2018 survey and none are expected to occur onsite due to the urbanized nature of the Project site; therefore, there are no potential impacts to special status plants due to Project implementation.

6.3 Potential Impacts to Critical Habitat

The proposed Project would not result in direct or indirect impacts to the designated critical habitats identified in Section 5.3 above due to the distance of the designated critical habitat and lack of suitable habitat found within the Project site.

6.4 Potential Impacts to Special Status Wildlife

Due to the urbanized nature of the Project site, no impacts are expected to occur as a result of Project Implementation. Specifically, no suitable habitat for the special status species is found onsite, as shown in Table 3 below. Impacts to avian species protected by the MBTA may occur as a result of Project construction, both temporary short-term construction and operations (long-term). If Project construction is scheduled to occur during the typical breeding bird season (January through September), short-term noise effects to birds that may forage on the onsite may occur. However, it is expected such birds would fly away at the sight of approaching construction workers and equipment, and would therefore not be significantly impacted by construction-related noise levels and no mitigation required.

Table 3 Impact Analysis Summary for Special Status Species

Species	Extent of Impact	Significance of Impact
Burrowing Owl	No suitable habitat is found within the Project site as identified within Section 5.4.	No Impact due to lack of suitable habitat onsite. Not observed

Species	Extent of Impact	Significance of Impact
		during field visit.
Red-Diamond Rattlesnake	No suitable habitat is found within the Project site as identified within Section 5.4.	No Impact due to lack of suitable habitat onsite. Not observed during field visit.
Stephen's Kangaroo Rat	No suitable habitat is found within the Project site as identified within Section 5.4.	No Impact due to lack of suitable habitat onsite. Not observed during field visit.
Western Mastiff Bat	No suitable habitat is found within the Project site as identified within Section 5.4.	No Impact due to lack of suitable habitat onsite. Not observed during field visit.
Western Yellow Bat	No suitable habitat is found within the Project site as identified within Section 5.4.	No Impact due to lack of suitable habitat onsite. Not observed during field visit.
Los Angeles Pocket Mouse	No suitable habitat is found within the Project site as identified within Section 5.4.	No Impact due to lack of suitable habitat onsite. Not observed during field visit.

Project construction could also result in additional short-term impacts including night lighting, littering, and illegal wildlife collections. However, Project compliance with the following BMPs under State and federal laws would reduce the potential for such indirect impacts to below significance:

- All temporary construction-related night lighting used in onsite development areas will be shielded and/or directed downward to avoid indirect impacts to nocturnal wildlife such that night lighting could increase predation rates.

- All construction contractors, subcontractors, and employees will comply with the litter and pollution laws and will institute a litter control/removal program during the course of construction activities to reduce the attractiveness of the area to opportunistic predators such as coyotes, opossums, and common ravens.

- Active nests (nests with chicks or eggs) cannot be removed or disturbed. Nests may be removed or disturbed by a qualified biologist, if not active.

- Construction employees, contractors, and site visitors will be prohibited from collecting wildlife.

With implementation of the night lighting reduction PDFs via their inclusion in the Project's MMRP, potential indirect long-term impacts to wildlife would be reduced to below significance.

6.5 Potential Impacts to Wildlife Movement

As described earlier, the Project site does not function as a wildlife corridor due to the urbanized nature of the Project site. Therefore, the Project would not result in direct or indirect impacts to wildlife movement.

6.6 Potential Impacts to Jurisdictional Features

No federal/State jurisdictional areas occur within the Project Site. Therefore, the Project would not result in direct or indirect impacts to jurisdictional waters and wetlands.

6.7 Potential Impacts to MSHCP Features

The Project site was evaluated for suitable Riparian/Riverine habitat pursuant to MSHCP Section 6.1.2. The Project site does not contain any riparian habitat as determine during the field survey on March 13, 2018. Therefore, the proposed Project is consistent with Section 6.1.2 as outlined within the Project MSHCP Consistency Analysis Report.

7.0 BMPs/PDFs Incorporated into the Project and MMRP

The Project will comply with the following:

- Work area limits will be defined and respected. All grading areas will have their boundaries clearly flagged or marked before Project implementation and all disturbances will be confined to the flagged areas.

- Cleared or trimmed non-native, exotic vegetation and woody debris will be disposed of in a legal manner at an approved disposal site.

- Employees, contractors, and site visitors will be prohibited from collecting plants and wildlife.

- Access to construction sites will be via preexisting access routes.

- Construction equipment will be properly maintained; construction employees and contractors will be trained on proper implementation and monitoring of BMPs.

- Effective perimeter control BMPs to control discharge of pollutants from the Project site during construction.

- All temporary construction-related night lighting used in onsite development areas will be shielded and/or directed downward to avoid indirect impacts to nocturnal wildlife such that night lighting could increase predation rates.

- All construction contractors, subcontractors, and employees will comply with the litter and pollution laws and will institute a litter control/removal program during the course of construction activities to reduce the attractiveness of the area to opportunistic predators such as coyotes, opossums, and common ravens.

- Active nests (nests with chicks or eggs) cannot be removed or disturbed. Nests may be removed or disturbed by a qualified biologist, if not active.

8.0 Proposed Mitigation

No adverse impacts are expected on vegetation communities, special status plants and wildlife, critical habitat, jurisdictional or MSHCP features; therefore, no mitigation is proposed.

9.0 Cumulative Impacts

The loss of biological resources on the Project site must be considered in the context of the other development in the area. As identified within Section 6.1, the vegetation communities identified onsite are not considered sensitive habitats and are abundant in the surrounding Project vicinity.

10.0 Literature Cited

Amphibiaweb. 2018. Species Accounts. Retrieved from: http://amphibiaweb.org/search/index.html

AOU (The American Ornithologists' Union). 1998. Check-List of North American Birds. 7th Edition. American Ornithologists' Union, Washington, D.C. 829 pp.

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepson Manual: Vascular Plants of California, second edition. University California Press, Berkeley.

Bowers, N., R. Bowers, and K. Kaufman. 2004. Mammals of North America. Houghton Mifflin Company, New York.

Brady, Roland H. III, Kris Vyverberg. 2013. Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants. California Energy Commission. Publication Number: CEC-500-2014-013.

Calflora. 2018. Calflora website - search for plants. Retrieved from: http://www.calflora.org/species/index.html.

CaliforniaHerps.com. 2018. California Herps. A Guide to the Reptiles and Amphibians of California. Retrieved from: http://www.californiaherps.com/.

Cal-IPC (California Invasive Plant Council). 2006. California Invasive Plant Inventory. Cal-IPC Publication 2006-02. California Invasive Plant Council: Berkeley, CA. Retrieved from: http://www.cal-ipc.org/ip/inventory/index.php.

CDFW (California Department of Fish and Wildlife). 2018. Natural Communities List. Biographic Data Branch. The Vegetation Classification and Mapping Program. https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities.

CDFW (California Department of Fish and Wildlife). 2018a. California Endangered Species Act (CESA). Retrieved from: https://www.wildlife.ca.gov/Conservation/CESA.

CDFW (California Department of Fish and Wildlife). 2018b. California Environmental Quality Act (CEQA). Retrieved from: https://www.wildlife.ca.gov/Conservation/CEQA.

CDFW (California Department of Fish and Wildlife). 2018c. Fish and Game Code Section 1600-1616. Retrieved from: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=3784.

CDFW (California Department of Fish and Wildlife). 2018d. Lake and Streambed Alteration Program. Retrieved from: https://www.wildlife.ca.gov/Conservation/LSA.

CDFW (California Department of Fish and Wildlife). 2018e. Life History Accounts and Range Maps – California Wildlife Habitat Relationship System. Retrieved from: https://www.wildlife.ca.gov/Data/CWHR/Life-History-and-Range.

CDFW (California Department of Fish and Wildlife). 2018f. RareFind, California Department of Fish and Wildlife, California Natural Diversity Database (CNDDB). State of California, The Natural Resources Agency, Department of Fish and Wildlife, Biogeographic Data Branch, California Natural Diversity Database, Sacramento, CA.

CDFW (California Department of Fish and Wildlife), Natural Diversity Database. 2018g. Special Vascular Plants, Bryophytes, and Lichens List. Quarterly publication. 124 pp.

CDFW (California Department of Fish and Wildlife), Natural Diversity Database. 2018h. Special Animals List. Periodic publication. 51 pp.
Retried from: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406.

CDFW (California Department of Fish and Wildlife). 2018i. State and Federally Listed Endangered, Threatened, and Rare Plants of California. State of California, The Resources Agency, Department of Fish and Wildlife, Resource Management and Planning Division, Biogeographic Data Branch, California Natural Diversity Database, Sacramento, CA.

Clark, W.S. and B.K. Wheeler. 2001. A Field Guide to Hawks of North America, Second Edition. Houghton Mifflin Company, Boston and New York.

California Native Plant Society, Rare Plant Program. 2018. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 12 March 2018].

Corps (United States Army Corps of Engineers). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Eder, Tamara. 2005. Mammals of California. Lone Pine Publishing International Inc, Auburn, WA.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.

EPA (United States Environmental Protection Agency). 2011. Laws and Regulations. Summary of the Endangered Species Act.
Retrieved from: http://www.epa.gov/lawsregs/laws/esa.html

Fahrig, L., and G. Merriam. 1985. Habitat patch connectivity and population survival. Ecology 66:1762-1768.

Federal Interagency Committee for Wetland Delineation. 1989. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and USDA Soil Conservation Service, Washington, DC Cooperative technical publication.

Fish and Game Commission. 2018. California Law. California Fish and Game Code. Retrieved from: http://leginfo.legislature.ca.gov/faces/codesTOCSelected.xhtml?tocCode=FGC&tocTitle=+Fish+and+Game+Code+-+FGC

Google. 2018. GoogleEarth© website.

Government Printing Office. 1991. Federal Register, 1989 "Federal Manual for Identifying Jurisdictional Wetlands; Proposed Revisions." August 14, 1991, Vol. 56, No. 157, pp 40446-40480.

Harris, L.D. and Gallagher, P.B. 1989. New initiatives for wildlife conservation: The need for movement corridors. In defense of wildlife: Preserving communities and corridors. pp. 11-34. Edited by G. Mackintosh. Defenders of Wildlife, Washington, DC.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. State of California, The Resources Agency, Nongame Heritage Program, California Department of Fish & Game, Sacramento, Calif. 156 pp.

Jennings, M.R. and M.P. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. Submitted to the California Department of Fish and Game Inland Fisheries Division. Rancho Cordova, CA.

National Geographic Society. Edited by Jonathan Alderfer. 2006. Complete Birds of North America. National Geographic Society. Washington D.C.

NatureServe. 2018. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://explorer.natureserve.org.

NRCS (Natural Resource Conservation Service). 2018. Web Soil Survey. U.S. Department of Agriculture Natural Resources Conservation Service. Retrieved from: http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

Riverside, County of. June 2003. *Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)*. Prepared by Dudek.

Sibley, David Allen. 2000. National Audubon Society, The Sibley Guide to Birds. Alfred A. Knopf, New York.

Simberloff, D., and J. Cox. 1987. Consequences and costs of conservation corridors. Conservation Biology. 1:63-71.

Soule, Michael E. 1987. Viable populations for conservation. Cambridge University Press. Cambridge Cambridgeshire and New York.

SWRCB (State Water Resources Control Board). 2011. Porter-Cologne Water Quality Control Act with Additions and Amendments Effective April 2017. Compiled by the Office of Chief Counsel.
Retrieved from: http://www.swrcb.ca.gov/laws_regulations/docs/portercologne.pdf

USDA (United States Department of Agriculture) Natural Resources Conservation Service. 1995. Hydric Soils of California.

USFWS (United States Fish and Wildlife Service). 2018a. FWS Critical Habitat for Threatened and Endangered Species. Retrieved from https://www.fws.gov/endangered/.

USFWS (United States Fish and Wildlife Service). 2018b. Migratory Birds & Habitat Programs. Migratory Bird Treaty Act. Retrieved from: https://www.fws.gov/birds/policies-and-regulations.php.

USFWS (United States Fish and Wildlife Service). 2018c. National Wetlands Inventory. Wetlands Mapper. Retrieved from: http://www.fws.gov/wetlands/Data/mapper.html.

WTI (Wetland Training Institute, Inc.). 1999. Field Guide for Wetland Delineation: 1987 Corps of Engineers Manual. Glenwood, NM WTI 99-1. 143 pp.

WTI (Wetland Training Institute, Inc.). 2003. Wetland Delineation Lecture Notes and Field Guide for Wetland Delineation based on the Corps of Engineers 1987 Manual. WTI, New Mexico.

Figures

GIS Prepared By:
Carlson SLS

Created: March 12, 2018

0 2,500 5,000 10,000 Feet
1 inch = 10,000 feet

Data Sources: Bing Maps

Continential Villages
Regional Map

GIS Prepared By:
Carlson SLS

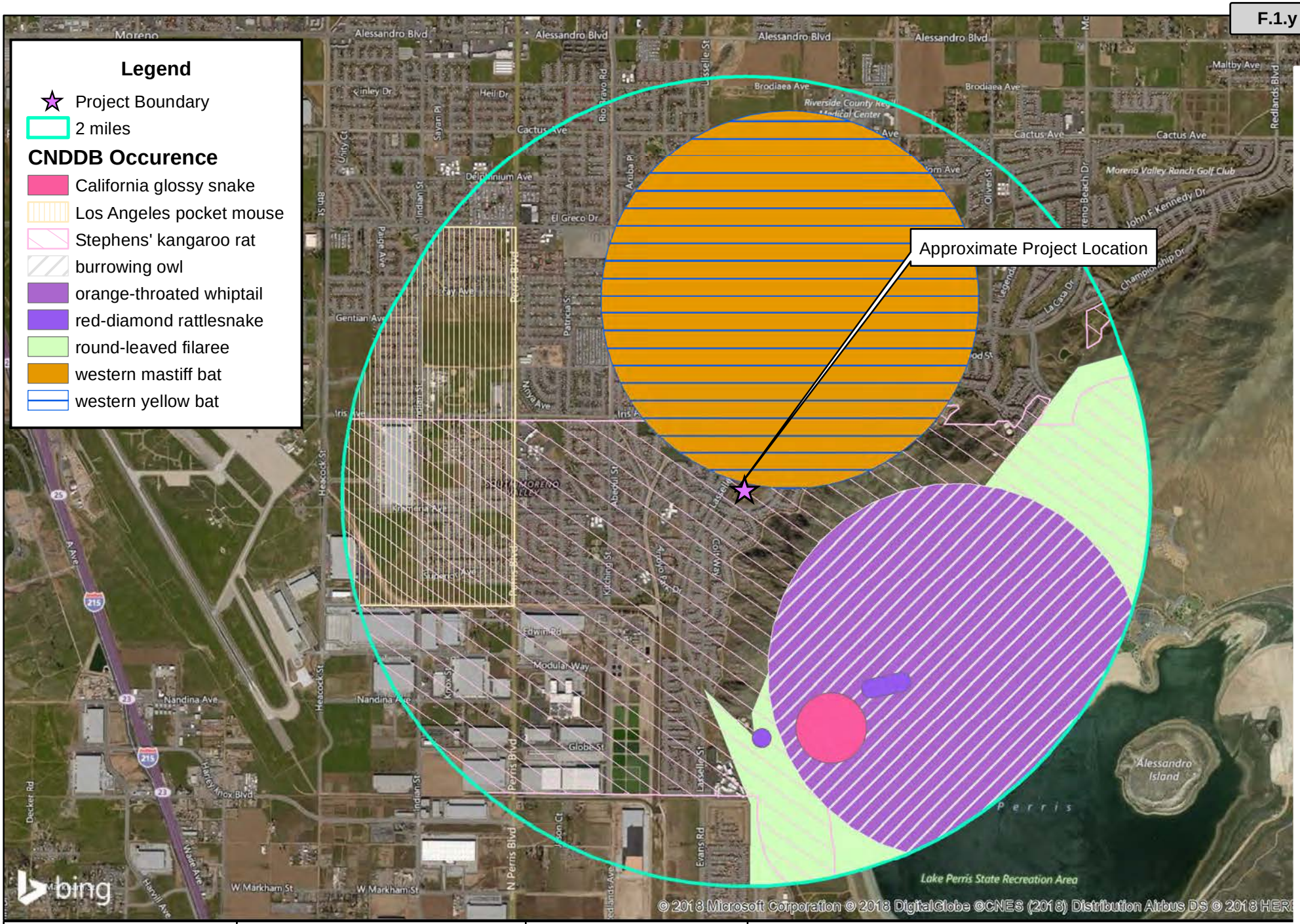
Created: March 12, 2018

0 50 100 200 300 400 Feet
1 inch = 200 feet

Data Source: Bing Map
Anderson Consltinig Engineers, Inc (03/XX/2018)

Continential Villages
Site Location

FIGURE 2



GIS Prepared By:
Carlson SLS

Created: March 12, 2018

0 1,750 3,500 7,000 Feet
1 inch = 3,500 feet

Data Source: Bing Maps
CNDDB (10/2017)

Continential Villages
CNDDB Occurrences Results

FIGURE 3

GIS Prepared By:
Carlson SLS

Created: March 12, 2018

0 75 150 300 450 600 Feet
1 inch = 300 feet

Data Source: Bing Maps
CH (03/2015)

Continential Villages
MSHCP Overlay Results

FIGURE 4

GIS Prepared By:
Carlson SLS

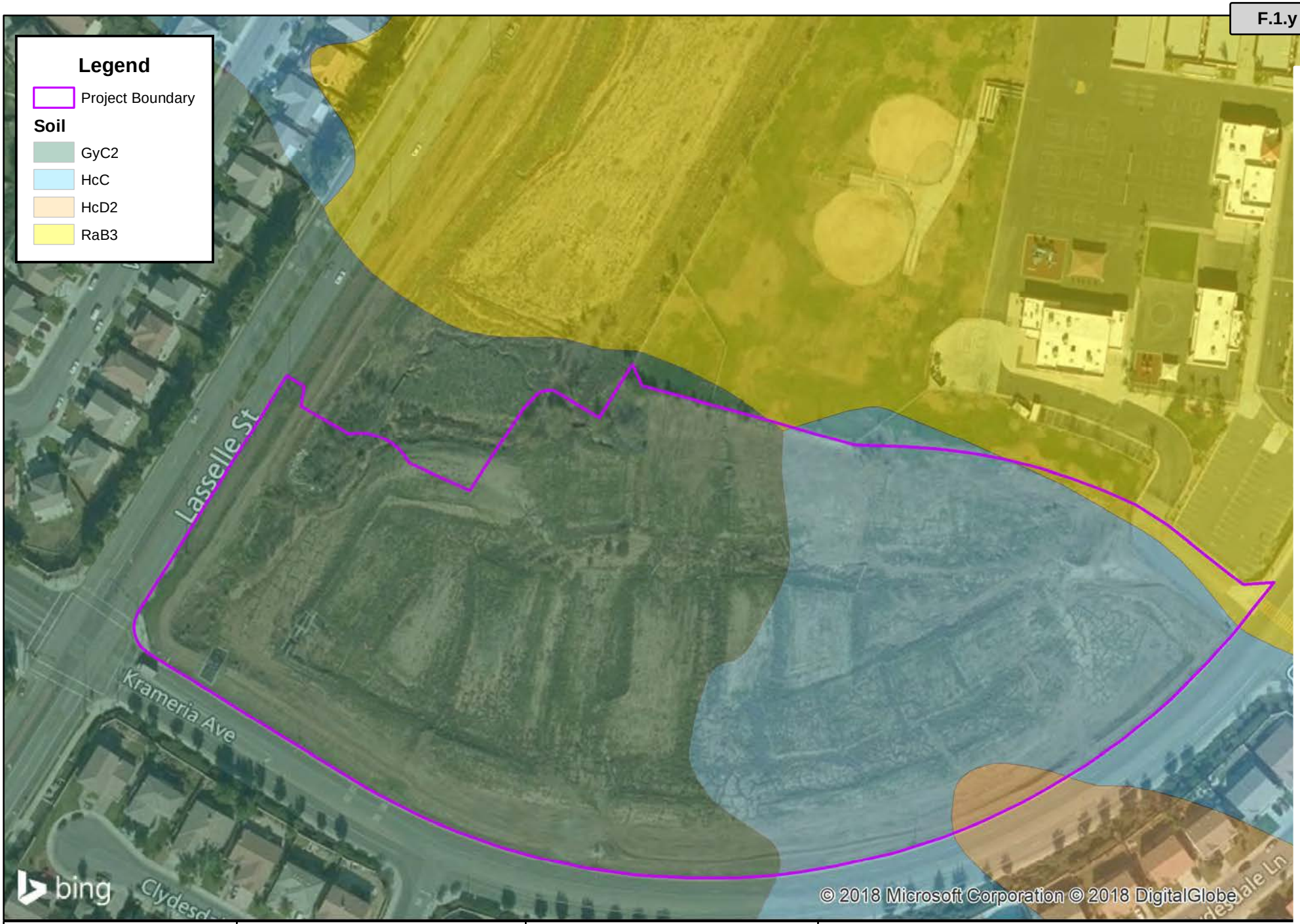
Created: March 12, 2018

0 37.5 75 150 225 300 Feet
1 inch = 150 feet

Data Source: Bing Map
Anderson Consltinig Engineers, Inc (03/XX/2018)

Continential Villages
Vegetation Map

FIGURE 5



GIS Prepared By:
Carlson SLS

Created: March 12, 2018

0 37.5 75 150 225 300 Feet

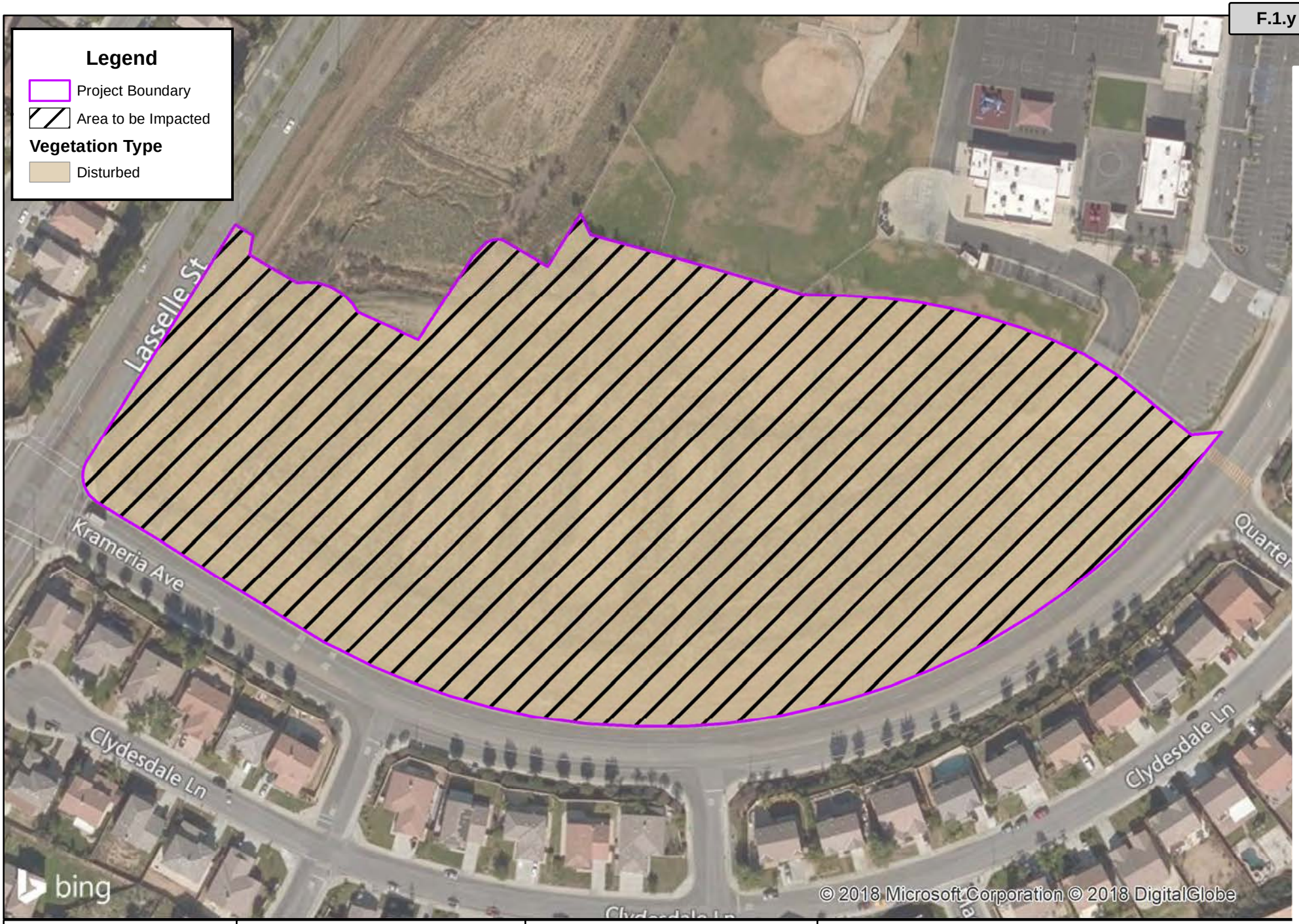
1 inch = 150 feet

Data Source: Bing Map
USDA Web Soil Survey Website (03/13/2018)

Continential Villages

Soil Map

FIGURE 6



GIS Prepared By:
Carlson SLS

Created: March 12, 2018

0 37.5 75 150 225 300 Feet
1 inch = 150 feet

Data Source: Bing Map
Anderson Consltinig Engineers, Inc (03/XX/2018)

Continential Villages

Vegetation Communities Impacts Map

FIGURE 7

Appendix A:
Representative Photographs of Community Classification

Looking north-west across the Project site.

Looking north-east across the Project site.

Looking east across the Project site at the previously graded development pads.

Retension Basin located on the northwestern most portion of the site to capture and retain the nuisance water and runoff.

Looking south across the Project site.

Looking west at the Project Site.

Photos taken March 13, 2018

Looking north-west across the Project Site.

The Project site is utilized as a stock pile location for the active construction located on the property directly north to the Project site.

Photos taken March 13, 2018

Appendix B:

Special Status Plant Species Potential Occurrence Determination

APPENDIX B

Special Status Plant Species Potential Occurrence Determination

This table summarizes conclusions from analysis and field surveys regarding the potential occurrence of special status plant species within the Study Area. During the field surveys, the potential for special status plant species to occur within the Study Area was assessed based on the following criteria:

- Present: observed on the site during the field surveys, or recorded on-site by other qualified biologists.
- Known to Occur: observed on site in the recent past, but not observed during the most recent biological survey.
- High potential to occur: observed in similar habitat in the region by a qualified biologist or habitat on the site is a type often utilized by the species, and the site is within the known distribution and elevation range of the species.
- Moderate potential to occur: reported sightings in surrounding region, or the site is within the known distribution and elevation range of the species, and habitat on the site is a type occasionally used by the species.
- Low potential to occur: the site is within the known distribution and elevation range of the species, but habitat on the site is rarely used by the species or for which there are no known recorded occurrences of the species within or adjacent to the site.
- None: a focused study failed to detect the species or no suitable habitat is present.
- Unknown: the species' distributional/elevation range and habitat are poorly known.

Even with field surveys, biologists assessed the probability of occurrence rather than make a definitive conclusion about species presence or absence. Failure to detect the presence of the species is not definitive, and may be due to variable effects associated with fire, rainfall patterns, and/or season.

Special Status Plants: Potential to Occur within the Study Area

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
Artemisia palmeri	San Diego sagewort	CRPR: 4.2 MSHCP: Not covered	Perennial deciduous shrub found in sandy or mesic areas. Habitat include chaparral, coastal sage scrub, riparian forest, riparian scrub, or riparian woodland. Known from 15 to 915 meters (49 to 3,000 feet) MSL. Blooming period: May through September.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Berberis nevinii	Nevin's barberry	FE, SE CRPR: 1B.1, MSHCP: Covered	A perennial evergreen shrub that occurs in sandy or gravelly areas. Habitat communities include chaparral, cismontane woodland, coastal scrub, and riparian scrub. Occurs at approximately 70 to 825 meters (230 to 2,700-foot) elevation range. Blooming period: March to June	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Calochortus plummerae	Plummer's mariposa lily	CRPR:4.2 MSHCP: Covered	Perennial bulbiferous herb found in granitic or rocky areas. Habitat include chaparral, cismontane woodland, coastal sage scrub, lower montane coniferous forest, and valley and foothill grasslands. Known from 100 to 1,700 meters (330 to 5,500 feet) MSL. Blooming period: May through July	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Caulanthus simulans	Payson's jewelflower	CRPR:4.2 MSHCP: Covered	Annual herb found in sandy or granitic areas. Habitat include chaparral and coastal sage scrub. Known from 90 to 2,200 meters (295 to 7,200 feet) MSL. Blooming period: March through May	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Centromadia pungens ssp. laevis	smooth tarplant	CRPR:1B.2 MSHCP: Covered	Alkaline areas in chenopod scrub, meadows and seeps, ditches, playas, riparian woodland, and valley and foothill grassland. Known from below 480 meters (1,600 feet) MSL. Blooming period: April through Sept	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Chorizanthe leptotheca	Peninsular spineflower	CRPR:4.2 MSHCP: Covered	Annual herb found in granitic or alluvial fan areas. Habitat include chaparral, coastal sage scrub, and lower montane coniferous forest. Known from 300 to 1,900 meters (980 to 6,200 feet) MSL. Blooming period: May through August	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Chorizanthe parryi	Parry's spineflower	CRPR:1B.1 MSHCP:	Annual herb found in sandy, rocky, or open areas. Habitat include chaparral, cismontane woodland,	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
		Covered	coastal sage scrub, and valley and foothill grasslands. Known from 275 to 1,220 meters (900 to 4,000 feet) MSL. Blooming period: April through June	actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Deinandra paniculata	paniculate tarplant	CRPR: 4.2 MSHCP: Not covered	Coastal scrub and valley and foothill grassland/usually vernally mesic. Known from 25 to 9540 meters (80 to 3,085 feet) MSL. Blooming period: April through November.	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Lasthenia glabrate ssp. coulteri	Coulter's goldfields	CRPR:1B.1 MSHCP: Covered	Annual herb found in marshes and swamps, playas, and vernal pool habitats. Known from 1 to 1,220 meters (3 to 4,000 feet) MSL. Blooming period: February through June	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Symphyotrichum defoliatum	San Diego aster	CRPR: 1B.2 MSHCP: Not covered	Perennial herb found near streams, ditches or springs. Habitat include cismontane woodland, coastal sage scrub, lower montane coniferous forest, meadows and seeps, marches and swamps, and valley and foothill grasslands. Known from 2 to 2,040 meters (6 to 6,600 feet) MSL. Blooming period: July through November	None. No suitable habitat or soils are found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.

Legend

Federal Endangered Species Act (ESA) Listing Codes: federal listing is pursuant to the Federal Endangered Species Act of 1973, as amended (ESA).
FE = federally listed as endangered: any species, subspecies, or variety of plant or animal that is in danger of extinction throughout all or a significant portion of their range.
FT = federally listed as threatened: any species, subspecies, or variety of plant or animal that is considered likely to become endangered throughout all or a significant portion of its range within the foreseeable future.

California Endangered Species Act (CESA) Listing Codes: state listing is pursuant to § 1904 (Native Plant Protection Act of 1977) and §2074.2 and §2075.5 (California Endangered Species Act of 1984) of the Fish and Game Code, relating to listing of Endangered, Threatened and Rare species of plants and animals.
SE = state listed as endangered: any species, subspecies, or variety of plant or animal that are in serious danger of becoming extinct throughout all, or a significant portion, of their range.
ST = state listed as threatened: any species, subspecies, or variety of plant or animal that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future.

California Rare Plant Ranks (Formerly known as CRPR Lists): the CRPR is a statewide, non-profit organization that maintains, with CDFG, an Inventory of Rare and Endangered Plants of California. In the spring of 2011, CRPR and CDFG officially changed the name "CRPR List" or "CRPR Ranks" to "California Rare Plant Rank" (or CPRP). This was done to reduce confusion over the fact that CRPR and CDFG jointly manage the Rare Plant Status Review Groups and the rank assignments are the product of a collaborative effort and not solely a CRPR assignment.

CRPR: 1B - California Rare Plant Rank 1B (formerly List 1B): Plants Rare, Threatened, or Endangered in California and Elsewhere. All of the plants constituting California Rare Plant Rank 1B meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. It is mandatory that they be fully considered during preparation of environmental documents relating to CEQA.

CRPR: 2 - California Rare Plant Rank 2 (formerly List 2): Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere. All of the plants constituting California Rare Plant Rank 2 meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. It is mandatory that they be fully considered during preparation of environmental documents relating to CEQA.

CRPR: 4 - California Rare Plant Rank 4 (formerly List 4): Plants of Limited Distribution - A Watch List. Very few of the plants constituting California Rare Plant Rank 4 meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Secs. 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and few, if any, are eligible for state listing. Nevertheless, many of them are significant locally, and CRPR and CDFG strongly recommend that California Rare Plant Rank 4 plants be evaluated for consideration during preparation of environmental documents relating to CEQA.

California Native Plant Society (CRPR) Threat Ranks: The CRPR Threat Rank is an extension added onto the California Rare Plant Rank (CRPR) and designates the level of endangerment by a 1 to 3 ranking with 1 being the most endangered and 3 being the least endangered. A Threat Rank is present for all California Rare Plant Rank 1B's, 2's, 4's, and the majority of California Rare Plant Rank 3's. California Rare Plant Rank 4 plants are seldom assigned a Threat Rank of 0.1, as they generally have large enough populations to not have significant threats to their continued existence in California; however, certain conditions exist to make the plant a species of concern and hence be assigned a California Rare Plant Rank. In addition, all California Rare Plant Rank 1A (presumed extinct in California), and some California Rare Plant Rank 3 (need more information) plants, which lack threat information, do not have a Threat Rank extension.

0.1 = seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2 = fairly endangered in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

Sources:

- Calflora website - search for plants (Calflora 2016).
- CRPR Inventory of Rare and Endangered Plants (CRPR 2016).
- The Status of Rare, Threatened, and Endangered Plants and Animals of California, 2000–2004 (CDFG 2005).
- The Jepson Manual: *Vascular Plants of California,* second edition (Baldwin *et al.* 2012).
- RareFind, CDFW, California Natural Diversity Database (CNDDB) (CDFW 2016f).
- State and Federally Listed Endangered, Threatened, and Rare Plants of California (CDFW 2016i).
- Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP, 2016)

Appendix C:
Plant Species Recorded During the Field Surveys

Appendix C contains the list of vascular plant taxa recorded during the biological survey conducted within the Study Area. Plant nomenclature and taxonomic order is based on *The Jepson Manual: Vascular Plants of California, s*econd Edition (Baldwin *et al.* 2012).

Appendix C
Plant Species Observed during the Field Survey

Scientific Name	Common Name
***Asteraceae* (*Compositae*)**	**Sunflower Family**
*Centaurea melitensis**	tocalote (Malta star thistle)
Brassicaceae (Cruciferae)	**Mustard Family**
*Brassica nigra**	black mustard
Boraginacea	**Borage Family**
Amsinckia intermedia	Common fiddleneck
Chenopodiaceae	**Goosefoot Family**
*Salsola tragus**	Russian thistle (tumbleweed)
Monocots	
Poaceae	**Grass Family**
*Avena barbata**	slender oat
*Bromus diandrus**	ripgut grass
*Bromus madritensis ssp. Rubens**	red brome
Legend	
* exotic plant species	

Appendix D:
Special Status Wildlife Species Potential Occurrence Determination

APPENDIX D

Special Status Wildlife Potential Occurrence Determination

This table summarizes conclusions from analysis and field surveys regarding the potential occurrence of special status wildlife species within the Study Area. During the field surveys, the potential for special status wildlife species to occur within the Study Area was assessed based on the following criteria:

- Present: observed on the site during the field surveys, or previously recorded on-site by other qualified biologists.

- Known to Occur: observed on site in the recent past, but not observed during the most recent biological survey.

- High potential to occur: observed in similar habitat in the region by a qualified biologist or habitat on the site is a type often utilized by the species, and the site is within the known distribution and elevation range of the species.

- Moderate potential to occur: reported sightings in surrounding region, or the site is within the known distribution and elevation range of the species, and habitat on the site is a type occasionally used by the species.

- Low potential to occur: the site is within the known distribution and elevation range of the species, but habitat on the site is rarely used by the species or for which there are no known recorded occurrences of the species within or adjacent to the site.

- None: a focused study failed to detect the species or no suitable habitat is present.

- Unknown: the species' distributional/elevation range and habitat are poorly known.

Even with field surveys, biologists assessed probability of occurrence rather than make definitive conclusions about species presence or absence. Failure to detect the species is not definitive, and may be due to variable effects associated with migration, weather, fire, and/or time of day and year.

Special Status Wildlife: Potential to Occur within the Study Area

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
Accipiter cooperii	Cooper's hawk	WL MSHCP: Covered	The Cooper's hawk breeds primarily in riparian areas and oak woodlands and is most common in montane canyons. It frequents landscapes where wooded areas occur in patches and groves and often uses patchy woodlands and edges with snags for perching. Dense stands with moderate crown-depths are usually used for nesting. They hunt in broken woodland and habitat edges. Within the range in California, it most frequently uses dense stands of live oak, riparian deciduous or other forest habitats near water. They are also found and can breed in suburban and urban settings.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Agelaius tricolor	tricolored blackbird	BLMS, SSC, BCC MSHCP: Covered	Colonies require nearby water, a suitable nesting substrate, and open-range foraging habitat composed of grassland, woodland, or agricultural cropland.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	WL MSHCP: Covered	They are found on grass-covered hillsides, coastal sage scrub, and chaparral and often occur near the edges of the denser scrub and chaparral associations. Preference is shown for tracts of California sagebrush. Optimal habitat consists of sparse, low brush or grass, hilly slopes preferably interspersed with boulders and outcrops. The species may occur on steep grassy slopes without shrubs if rock outcrops are present. It is a very secretive species.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Ammodramus savannarum	grasshopper sparrow	SSC MSCHCP: Species-Specific Objectives	Grasshopper sparrows in California breed (and primarily apparently winter) on slopes and mesas containing grasslands of varying compositions. The grasshopper sparrow generally prefers moderately open grasslands and prairies with patchy bare ground. They also appear to use abandoned croplands that are dominated by grassy species. The species frequents dense, dry or well-drained grassland, especially native grassland with a mix of grasses and forbs for foraging and nesting and	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
			concealment. They require fairly continuous native grassland areas with occasional taller stems for breeding areas. They especially occur in grasslands composed of a variety of grasses and tall forbs with scattered shrubs for singing perches. They tend to avoid grassland areas with extensive shrub cover and the presence of native grasses is less important than the absence of trees. Species is found from southern Canada to the southern U.S., West Indies, Mexico, and Ecuador.	
Aquila chrysaetos	Golden Eagle	BLMS, FP, WL, BBC MSHCP: Covered	Rolling foothills, mountain areas, sage-juniper flats, & desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	None. Suitable habitat does not exist within the Project site. Not observed during field survey.
Artemisiospiza belli	Bell's sage sparrow	WL, BBC MSHCP: Covered	Chaparral and coastal sage scrub along the coastal lowlands, inland valleys and in the lower foothills of local mountains.	None. Suitable habitat does not exist within Study Area. Not observed during field survey.
Asio otus	long-eared owl	SSC MSHCP: Not Covered	Riparian habitats are required by the long-eared owl, but it also uses live-oak thickets and other dense stands of trees.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Aspidoscelis hyperythra beldingi	orangethroat whiptail	SSC, FSS MSHCP: Covered	The species is generally found in semi-arid brushy areas typically with loose soil and rocks, including washes, stream sides, rocky hillsides, and coastal chaparral. Habitat types include low elevation chaparral, non-native grassland, (Riversidian) coastal sage scrub, juniper woodland and oak woodland. Associations include alluvial fan scrub and riparian areas. Friable soil appears to be a necessary requirement for excavating burrows and hiding eggs.	None. Suitable habitat does not exist within Study Area. Not observed during field survey.
Aspidoscelis tigrus stejnegeri	coastal whiptail	SSC	This species is found in a variety of habitats, primarily hot and dry open areas with sparse vegetation including	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
		MSHCP: Covered	chaparral, woodland, and riparian areas. This subspecies is found in coastal southern California, north into Ventura County, and south into Baja California. Additional important habitat characteristics include Important habitat components include shrub cover with accumulated leaf litter, and an abundance of invertebrate prey, particularly termites.	state. Not observed during field survey.
Athene cunicularia hypugaea	burrowing owl	SSC, BLMS, BCC MSHCP: Covered	Burrowing owls are a year-round resident of California including habitats of open, dry grassland, and desert. They are generally restricted to mostly flat, open country with suitable nest sites. They use rodent or other burrows for roosting and nesting cover and acquire their burrows from either abandonment or eviction. Burrowing owls typically hunt from a perch.	Low potential to occur onsite due to ongoing maintenance of habitat on site and lack of burrows observed onsite. Not observed during field survey.
Buteo swainsoni	Swainson's hawk	ST, BLMS, BCC MSHCP: Covered	Swainson's hawks require large, open areas with abundant prey in association with suitable nest trees. Suitable foraging areas include native grasslands or lightly grazed pastures and croplands, open deserts, sparse shrub lands. Swainson's hawks often nest peripherally to riparian systems of the valley, as well as utilizing lone trees or groves of trees, such as oaks, cottonwoods, walnuts and willows, adjacent to their hunting areas. In the Great Basin, they typically nest in juniper trees of juniper-sage flats not near riparian zones.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Chaetodipus fallax	northwestern San Diego pocket mouse	SSC MSHCP: Not Covered	This species is a common resident of sandy herbaceous areas, often on sandy substrates (rocks or coarse gravel) in southwestern California. In San Diego County the species occurs mainly in arid coastal and desert border areas. Habitats include coastal scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon-juniper, and annual grassland.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Circus cyaneus	northern harrier	SSC MSHCP:	Occurs from annual grassland up to lodge pole pine and alpine meadow habitats. Frequents open fresh and	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
		Covered	saltwater wetlands, grasslands, pastures, upland prairies, dry uplands, croplands, shrub-steppe, meadows, desert sinks. It is seldom found in wooded areas. It uses tall grasses and forbs in wetlands for cover and it roosts on ground. It is mostly found in flat, open areas of tall, dense grasses, moist or dry shrubs, in the vicinity of marshes, rivers, ponds, or grassy valleys for nesting, cover, and feeding.	maintained and in a consistent non-vegetated state. Not observed during field survey.
Coccyzus americanus occidentalis	western yellow-billed cuckoo	FT, SE, FSS, BCC MSHCP: Covered	This species is an uncommon to rare summer resident of valley foothill and desert riparian habitats in scattered locations in California. Formerly much more common and widespread throughout lowland California. Roosts and nests in densely foliaged, deciduous trees and shrubs in extensive thickets, particularly willows.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Coleonyx variegatus abbotti	San Diego banded gecko	MSHCP: Covered	Prefers rocky areas in coastal sage and chaparral.	None. Suitable habitat does not exist within Study Area. Not observed during field survey.
Crotalus ruber	red-diamond rattlesnake	SSC, FSS MSHCP: Covered	It can be found from the desert, through dense chaparral in the foothills (it avoids the mountains above around 4,000 feet), to warm inland mesas and valleys, all the way to the cool ocean shore. It is most commonly associated with heavy brush with large rocks or boulders. Dense chaparral in the foothills, cactus or boulder associated coastal sage scrub, oak and pine woodlands, and desert slope scrub associations are known to carry populations of the northern red-diamond rattlesnake, however, chamise and red shank associations may offer better structural habitat for refuges and food resources for this species than other habitats. They need rodent burrows, cracks in rocks or surface cover objects.	None. Suitable habitat does not exist within Study Area. Not observed during field survey.
Dipodomys merriami parvus	San Bernardino kangaroo rat	FE, SSC MSHCP: Covered	Typically found in Riversidean alluvial fan sage scrub and sandy loam soils, alluvial fans and floodplains, and along washes with nearby sage scrub.	None. No suitable habitat on site. Not observed during field survey.

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
Dipodomys stephensi	Stephen's kangaroo rat	FE, ST MSHCP: Covered	This species prefers large areas of disturbed or patchy annual and perennial grasslands and open coastal sage scrub. Preferred perennials plant species include buckwheat and chamise and preferred annual plant species include brome grass. The nearest known populations are in Rancho Guejito and at the Naval Weapons Station in Fallbrook.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Elanus leucurus	White-tailed kite	FP MSHCP: Covered	Low elevation open grasslands, savannah-like habitats, agricultural areas, wetlands and oak woodlands. Dense canopies used for nesting and cover.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Empidonax traillii extimus	Southwestern willow flycatcher	FE, SE MSHCP: Covered	Riparian woodlands along streams and rivers with mature dense thickets of trees and shrubs.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Emys marmorata	southwestern pond turtle	SCC MSHCP: Covered	Inhabits permanent or nearly permanent water below 1,830 meters (6000 feet) throughout California, west of the Sierra Cascade.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Eremophila alpestris actia	California horned lark	WL MSHCP: Covered	A year-long resident within the state and within a variety of open habitats, usually where trees and large shrubs are absent. They are not particular about the nature of the field, so long as it has very little vegetation. Range-wide, they breed in level or gently sloping short grass prairies, montane meadows, "bald" hills, open coastal plains, fallow grain fields, alkali flats, and rangelands. Within southern California, California horned larks breed primarily in open fields, (short) grasslands, and rangelands. Grasses, shrubs, forbs, rocks, litter, clods of soil, and other surface irregularities provide cover.	Moderate potential to occur on site due to the bare nature of the site. Not observed during field survey.
Eumops perotis californicus	western mastiff bat	SSC, BLMS MSHCP: Not covered	Western mastiff bats are found in a variety of habitats, such as semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban, but the species' distribution may be	None. No suitable habitat on site. Not observed during field survey.

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
			geomorphically determined, occurring primarily where there are significant rock features offering suitable roosting habitat. A cliff dwelling species, where maternity colonies of 30 to several hundred roost generally under exfoliating rock slabs and rock crevices along cliffs. Western mastiff bats can also be found in similar crevices in large boulders and buildings. When roosting in rock crevices they require a sizable drop from their roost in order to achieve flight. Western mastiff bats prefer deep crevices that are at least 15 or 20 feet above the ground. Foraging is concentrated around bodies of water but also includes coastal sage scrub, chaparral, and grassland habitats.	
Icteria virens	yellow-breasted chat	SSC MSHCP: Covered	In southern California they are primarily found in tall, dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush with well-developed understories. Nesting areas are associated with streams, swampy ground, and the borders of small ponds. Breeding habitat must be dense to provide shade and concealment. It winters south to Central America.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Lasiurus xanthinus	Western yellow bat	SSC MSHCP: Not covered	Roost in trees, hanging from the underside of a leaf. Commonly found in the southwestern U.S. roosting in the skirt of dead fronds in both native and non- native palm trees and have also been documented roosting in cottonwood trees.	None. No suitable habitat on site. Not observed during field survey.
Nyctinomops femorosaccus	pocketed free-tailed bat	SSC MSHCP: Not covered	This bat species prefers rocky desert areas with high cliffs or rock outcrops. Rock crevices in cliffs are preferred as roosting sites, since the bat must drop from the roost to gain flight speed. Typically reproduces in rock crevices, caverns, or buildings. Ranges from southern California to New Mexico.	None. No suitable habitat on site. Not observed during field survey.
Perognathus blainvili	Los Angeles Pocket Mouse	SSC MSHCP: Covered	Prefers sandy soil for burrowing. Also known to occur on gravel washes and in rocky soils. Associated with coastal scrub.	Low. No suitable habitat on site. Not observed during field survey.

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
Phrynosoma blainvillii	coast horned lizard	SSC, BLMS MSHCP: Covered	Occurs in a variety of vegetation types including coastal sage scrub, chaparral, annual grassland, oak woodland and riparian woodlands.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Polioptila californica californica	coastal California gnatcatcher	FT, SSC MSHCP: Covered	A non-migratory, permanent resident of coastal sage scrub habitat, which is a broad category of vegetation that includes the following plant communities: Ventura coastal sage scrub, Diegan coastal sage scrub, maritime succulent scrub, Riversidean sage scrub, Riversidean alluvial fan sage scrub, southern coastal bluff scrub, and coastal sage-chaparral scrub. They also use chaparral, grassland and riparian habitats next to coastal sage scrub, but these habitats are used dispersal and foraging. They avoid nesting on steep slopes.	None. No suitable habitat on site. Not observed during field survey.
Setophaga petechial	Yellow warbler	SSC, BBC MSHCP: Covered	Riparian plant associations in close proximity to water. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Spea hammondii	western spadefoot toad	SSC, BLMS MSHCP: Covered	May be found in coastal sage scrub, open chaparral, pine-oak woodlands and grassland habitats, but is most common in grasslands with vernal pools or mixed grassland/coastal sage scrub areas. Within these habitats, they require rain pools/vernal pools in which to reproduce and that persist with more than three weeks of standing water in which to metamorphose successfully. They can also breed in slow-moving streams (e.g., areas flooded by intermittent streams). Water breeding sites must lack fish, bullfrogs, and crayfish in order for to successfully reproduce and metamorphose. They estivates in sandy, gravelly soil in upland habitats adjacent to potential breeding sites in burrows approximating 1 meter in depth.	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively maintained and in a consistent non-vegetated state. Not observed during field survey.
Vireo bellii pusillus	least Bell's vireo	FE, SE	Least Bell's vireos primarily occupy riverine riparian habitats that typically feature dense cover within 1-2 m	None. No suitable habitat is found within the Study Area. Furthermore, the Project site is actively

Scientific Name	Common Name	Status	General Habitat Description	Potential For Occurrence within the Study Area
		MSHCP: Covered	of the ground and a dense, stratified canopy. Typically, it is associated with southern willow scrub, cottonwood-willow forest, mule fat scrub, sycamore alluvial woodland, coast live oak riparian forest, arroyo willow riparian forest, or mesquite in desert localities. It uses habitat which is limited to the immediate vicinity of water courses. 2,000 feet elevation in the interior. This species is generally restricted to major river systems in San Diego County.	maintained and in a consistent non-vegetated state. Not observed during field survey.

Legend

Federal Endangered Species Act (ESA) Listing Codes: federal listing is pursuant to the Federal Endangered Species Act (ESA) of 1973, as amended. The official federal listing of Endangered and Threatened Animals is published in the Federal Register, 50 CFR 17.11.
FE = federally listed as endangered: any species, subspecies, or variety of plant or animal that is in danger of extinction throughout all or a significant portion of their range.
FT = federally listed as threatened: any species, subspecies, or variety of plant or animal that is considered likely to become endangered throughout all or a significant portion of its range within the foreseeable future.
FC = federal candidate for listing.
FPT = federally proposed threatened.

California Endangered Species Act (CESA) Listing Codes: state listing is pursuant to §2074.2 and §2075.5 (California Endangered Species Act of 1984) of the Fish and Game Code, relating to listing of Endangered, Threatened and Rare species of plants and animals. The official California listing of Endangered and Threatened animals is contained in the California Code of Regulations, Title 14, and Section 670.5.
SE = state listed as endangered: any species, subspecies, or variety of plant or animal that are in serious danger of becoming extinct throughout all, or a significant portion, of their range.
ST = state listed as threatened: any species, subspecies, or variety of plant or animal that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future.
SCT = state candidate for listing as threatened.

California Department of Fish and Wildlife (CDFW):
SSC = species of special concern: status applies to animals which 1) are declining at a rate that could result in listing, or 2) historically occurred in low numbers and known threats to their persistence currently exist. The CDFW has designated certain vertebrate species as "species of special concern" because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.
Fully protected: animal species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.
WL = watch list: these birds have been designated as "Taxa to Watch" in the *California Bird Species of Special Concern report* (Shuford and Gardali 2008). The report defines

"Taxa to Watch" as those that are not on the current special concern list that (1) formerly were on the 1978 (Remsen 1978) or 1992 (CDFG 1992) special concern lists and are not currently listed as state threatened and endangered; (2) have been removed (delisted) from either the state or federal threatened and endangered lists (and remain on neither), or (3) are currently designated as "fully protected" in California.

United States Fish and Wildlife Service (USFWS):
BCC = USFWS bird of conservation concern: listed in the USFWS'S 2008 *Birds of Conservation Concern* report. The report identifies species, subspecies, and populations of all migratory non-game birds that, without additional conservation actions, are likely to become candidates for listing under the ESA. While all of the bird species included in the report are priorities for conservation action, the list makes no finding with regard to whether they warrant consideration for ESA listing.

United States Forest Service (USFS):
FSS = Forest Service sensitive: those plant and animal species identified by a Regional Forester that are not listed or proposed for listing under the ESA and for which population viability is a concern, as evidenced by: (a) significant current or predicted downward trends in population numbers or density or (b) significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution."

United States Bureau of Land Management (BLM):
BLMS = BLM sensitive: those plant and animal species on BLM administered lands and that are (1) under status review by the USFWS/NMFS; or (2) whose numbers are declining so rapidly that federal listing my become necessary, or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats. BLM policy is to provide the same level of protection as USFWS candidate species.

California Department of Forestry and Fire Protection (CDF):
CDF: S = CDF sensitive: species is a California Department of Forestry and Fire Protection sensitive species. The Board of Forestry classifies as sensitive species those species that warrant special protection during timber operations.

Sources:

- A Guide to the Reptiles and Amphibians of California (CaliforniaHerps.com 2018).
- *A Field Guide to Hawks of North America, Second Edition* (Clark and Wheeler 2001).
- *Atlas of Breeding Birds, Orange County, California* (Gallagher 1997).
- Amphibian and Reptile Species of Special Concern in California (Jennings and Hayes 1994).
- *A Field Guide to Mammals of North America North of Mexico. Fourth Edition* (Reid 2006).
- *A Natural History of California* (Schoenherr 1992).
- *A Field Guide to Western Reptiles and Amphibians*, *Third Edition* (Stebbins 2003).
- Amphibian species accounts (Amphibiaweb 2018).
- AOU website (AOU 2018).
- *California Bird Species of Special Concern*: *A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California* (Shuford and Gardali 2008).
- Check-List of North American Birds, 7th edition (American Ornithologists' Union [AOU] 1998).
- *Complete Birds of North America* (National Geographic Society 2006).

- *Field Guide to the Birds of North America*, 4th Ed (National Geographic Society 2002).
- Fifty-first supplement to the AOU Check-List of North American Birds (Chesser et. al. 2010).
- Life History Accounts and Range Maps (CDFW 2018e).
- *Life on the Edge: A Guide to California's Endangered Natural Resources. Wildlife* (Thelander et al. 1994).
- *Mammals of North America* (Bowers et al. 2004).
- *Mammals of California* (Eder 2005).
- *Mammals of North America* (Kays and Wilson 2002).
- Mammalian Species of Special Concern in California (Williams 1986).
- *Mammal Species of the World* (Wilson and Reeder 2005).
- NatureServe Explorer (NatureServe 2018).
- *National Audubon Society, the Sibley Guide to Birds* (Sibley 2000).
- RareFind, CDFW, California Natural Diversity Database (CNDDB) (CDFW 2018).
- *Reference Atlas to the Birds of North America* (National Geographic Society 2003).
- *Shorebirds of North America. The Photographic Guide* (Paulson 2005).
- Special Animals List (CDFW 2018h).
- Standard Common and Current Scientific Names (Center for North American Herpetology website [CNAH] website 2018).
- *The Smithsonian Book of North American Mammals* (Wilson and Ruff 1999).
- Terrestrial Mammal Species of Special Concern in California (Bolster 1998).

Appendix C:
Site Photographs

Looking north-west across the Project site.

Looking north-east across the Project site.

Looking east across the Project site at the previously graded development pads.

Retension Basin located on the northwestern most portion of the site to capture and retain the nuisance water and runoff.

Looking south across the Project site.

Looking west at the Project Site.

Photos taken March 13, 2018

Looking north-west across the Project Site.

The Project site is utilized as a stock pile location for the active construction located on the property directly north to the Project site.

Cultural and Paleontological Resources Assessment

Moreno Valley Ranch Specific Plan No. 193 Amendment No. X

City of Moreno Valley,

Riverside County, California

Prepared for:

Peter Carlson, Principal
Carlson Strategic Land Solutions
27134A Paseo Espada, Suite #323
San Juan Capistrano, CA 92675

Prepared by:

Benjamin Scherzer, M.S., Sarah Nava, B.A. and
Curt Duke, M.A., R.P.A. (Principal Investigator)
Duke Cultural Resources Management, LLC
18 Technology Drive, Suite #103
Irvine, CA 92618
(949)356-6660
www.DukeCRM.com

Duke CRM Project Number: C-0254

July 11, 2018

Per California Government Code 6254.10 archaeological site location information is exempt from the California Public Records Act. Therefore archaeological site location information should be kept confidential and not be made available for public view.

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Figures

Tables:

Appendix A:

Resumes

MANAGEMENT SUMMARY

Duke Cultural Resources Management, LLC (DUKE CRM) is under contract to Carlson Strategic Land Solutions to provide cultural and paleontological resources services for the Moreno Valley Ranch Specific Plan No. 193 Amendment No. X (Project), located northwest of Lake Perris in the southern portion of the City of Moreno Valley, Riverside County, California. The Project boundaries encompass approximately 11.64 acres. The purpose of this report is to document efforts made to comply with the California Environmental Quality Act (CEQA). The Applicant, Continental East Fund III, LLC, proposes to amend a previously approved project within the Moreno Valley Ranch Specific Plan No. 193.

The cultural and paleontological resources assessment includes background research and a field survey to identify cultural and paleontological resources. The cultural resources record search did not reveal any cultural resources within the Project boundary; however, 17 previously recorded cultural resources were identified within a one-mile buffer of the project. No fossil localities were documented within the Project; however, fossils are known from other nearby projects in similar geologic contexts. The field survey did not identify any cultural or paleontological resources within the Project boundaries.

DUKE CRM recommends that no archaeological and/or historic resources are likely to be impacted by the Project. However, there is a high sensitivity for paleontological resources in the Project. There is a high sensitivity for paleontological resources in the very old alluvial fan deposits that underlie the Project. Therefore, significant and unique paleontological resources may be impacted by the project during earth disturbing activities. These impacts would be considered potentially significant. In order to reduce the potential for impacts to paleontological resources to a level that is less than significant under CEQA paleontological monitoring is recommended during ground disturbance associated with the project.

If archaeological and/or paleontological resources are discovered during construction, a qualified archaeologist and/or paleontologist shall be retained to assess the nature and significance of the discovery.

If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

INTRODUCTION

Duke Cultural Resources Management, LLC (DUKE CRM) is under contract to Peter Carlson, Principal Carlson Strategic Land Solutions to provide cultural and paleontological resources services for Moreno Valley Ranch Specific Plan No. 193 Amendment No. X (Project). The Moreno Valley Ranch Specific Plan boundaries generally extend from Kitching Street east to the Lake Perris State Recreation Area in Riverside County, California. The Project boundaries encompass approximately 11.64 acres and the Project is located in the southwest portion of the Specific Plan Area. The purpose of this report is to document efforts made to comply with the California Environmental Quality Act (CEQA).

Project Description

The Applicant, Continental East Fund III, LLC, proposes to amend a previously approved 19-acre project within the Moreno Valley Ranch Specific Plan No. 193.

In 2012, the City approved a subdivision of approximately 19 acres (PA 11-0026) to build three types of residential products for a total of 216 dwelling units. Conditional Use Permit (CUP) PA11-0027 provided for 36 detached single family and 55 cluster residential units. A CUP was required because the housing was less than the minimum density established for the property's land use and zoning designations. Plot Plan PA11-0025 provided for a 125 unit multiple family apartment project with a recreation building and tot lot on approximately 7.25 acres. A variance was also approved to allow parking to encroach into street side setbacks given the unique site constraints. At that time the City reviewed the project pursuant to CEQA and adopted a Negative Declaration because the Project had no significant impacts on the environment.

The Applicant initiated construction in 2017; rough graded the 7.25-acre portion of the site and has begun constructing the 125 unit apartment project. The remainder of the site, 11.64 acres, has been left vacant, in a previously rough graded condition. Due to a change in market conditions, the Applicant has requested an approval to modify the previous development approvals to 1) change the approved land use on 2.8 acres from High Density Residential to Neighborhood Commercial; and 2) construct multi-family housing consistent with the existing zoning requirements instead of the single family detached and cluster units previously approved.

The remaining portion of the 19-acre project is 11.64 acres and is the Project that is the subject of this report. The current Project is comprised of 2.8 acres of commercial development and 8.8 acres of high density residential development. The 7.25-acre portion of the prior approved 19 acres is already under development and is not part of the current Project.

The Applicant, Continental East Fund III, LLC, proposes to modify the previous development approvals to 1) change the approved land use on 2.8 acres (Parcel 2) from High Density Residential to Neighborhood Commercial; and 2) construct multi-family housing within Parcel 3 consistent with the existing zoning requirements instead of the single family detached and cluster units previously approved. The Applicant's proposal would require a General Plan Amendment, Zone Change, Specific Plan Amendment, Plot Plan, Tentative Parcel Map, and environmental documentation pursuant to CEQA. Grading associated with the Project includes approximately 50,000 cubic yards. Cut and fill depths are not anticipated to exceed 10 feet (GEOCON WEST, INC 2018) and cut slopes are not expected.

Project Location

The Project is located in the City of Moreno Valley, in Riverside County, California (Figure 1). The Project is depicted on the United States Geological Survey (USGS) 7.5-Minute Topographic Map *Sunnymead* Quadrangle (Figure 2). It includes assessor parcel numbers (APN) 308-040-053 and 308-040-054 and is bounded by Lasselle Street to the west, Krameria Avenue to the south, Cahuilla Drive to the north and Lasselle Elementary School and the 7.25-acre project to the northeast (Figure 3).

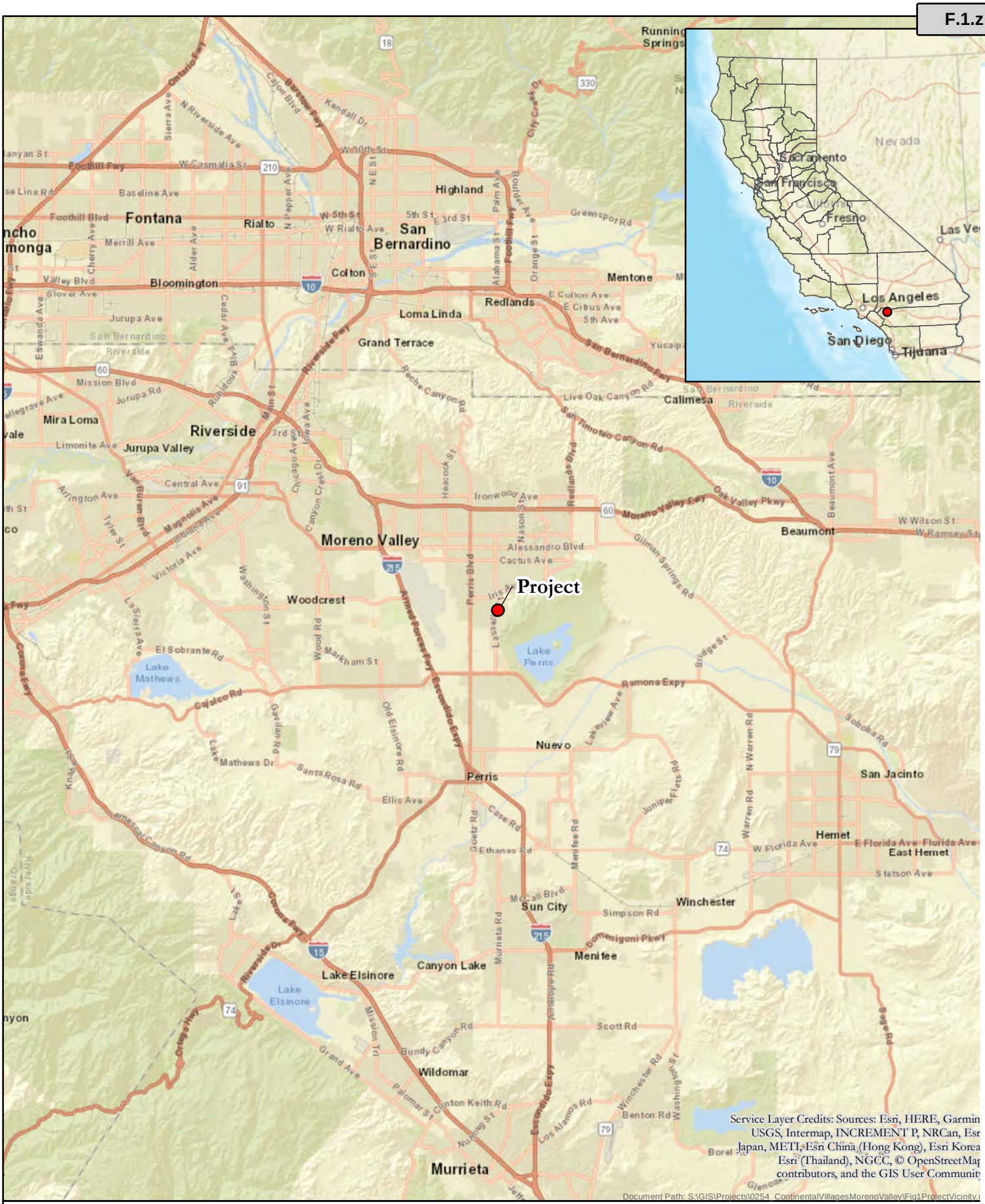


Figure 1- Project Vicinity

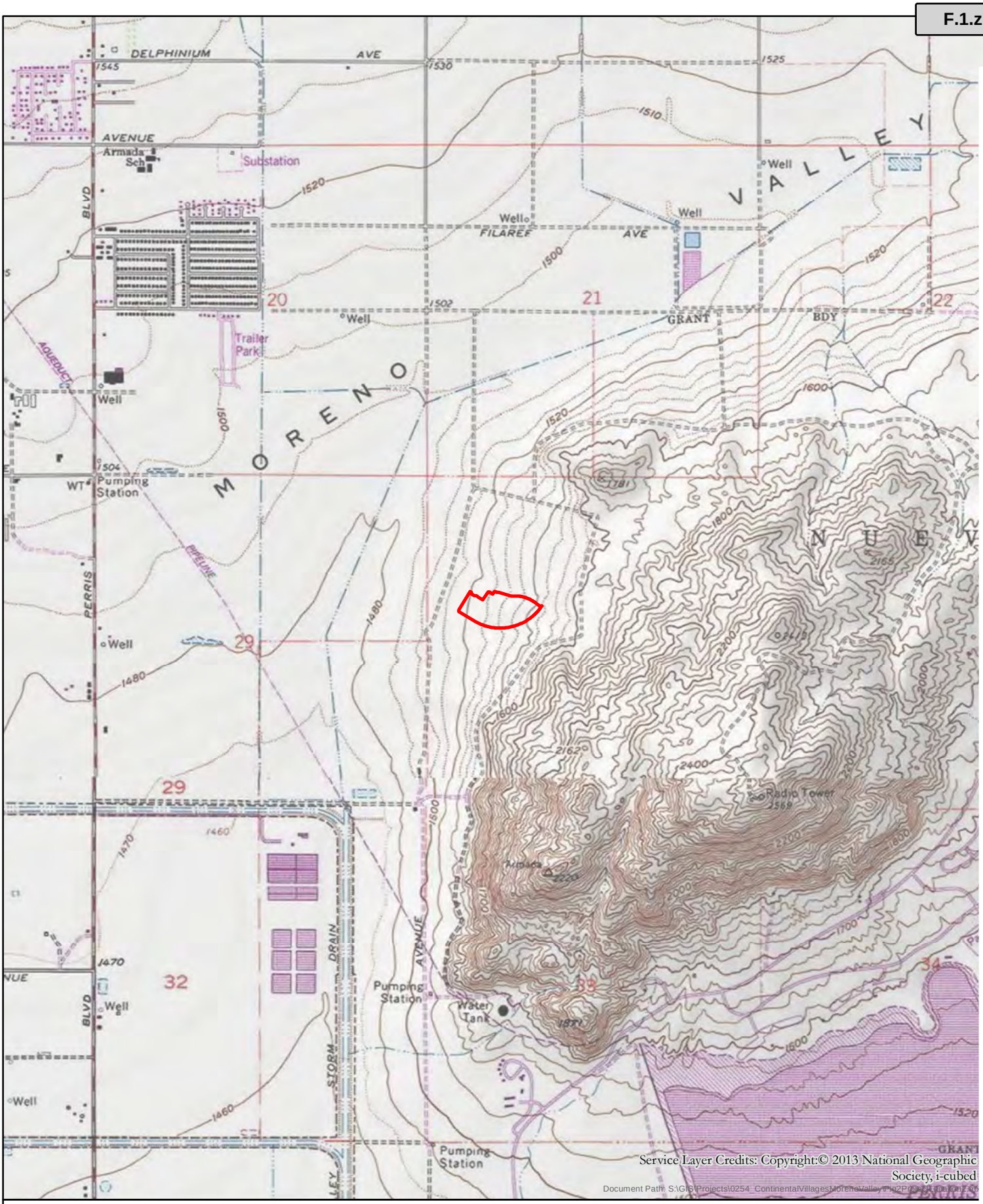
Moreno Valley Ranch Specific Plan No. 193
Amendment No. X Project
Moreno Valley, County of Riverside

DUKE CRM

0 5 10 Miles

N

1 inch = 5 miles 1:316,800



Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed

Document Path: S:\GIS\Projects\0254_ContinentalVillages\MorenoValley\Phase2\Project_Location_2.mxd

Figure 2- Project Location
Moreno Valley Ranch Specific Plan No. 193 Amendment No. X Project
Moreno Valley, County of Riverside

DUKE CRM

Sunnymead USGS
7.5-Min. Quadrangle

Project Boundary

0 2,000 4,000 Feet

1 inch = 2,000 feet 1:24,000

N

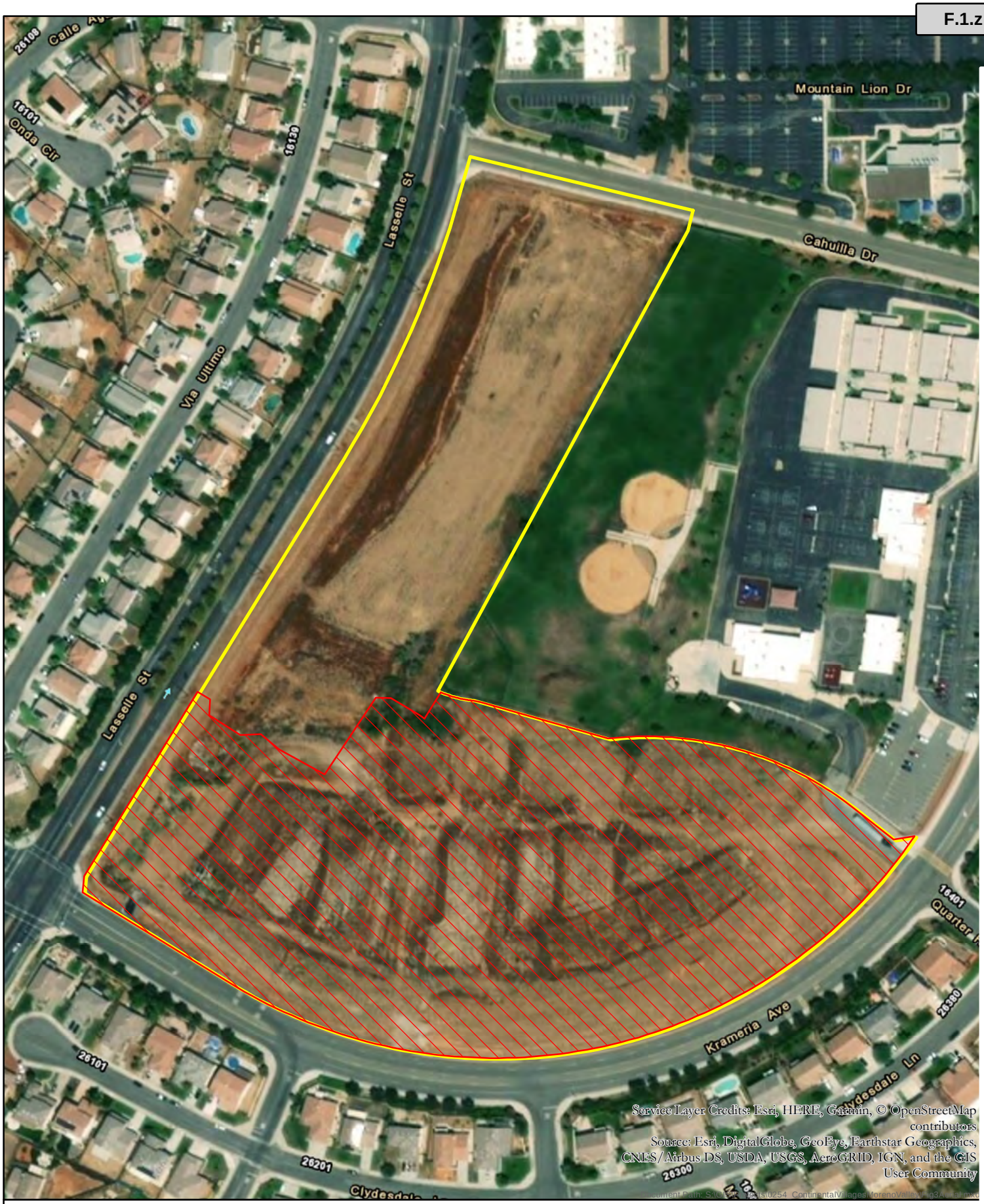


Figure 3- Aerial

Moreno Valley Ranch Specific Plan No. 193 Amendment No. X Project
Moreno Valley, County of Riverside

DUKE CRM

11.64-Acre Current Project
19-Acre Previously Approved Project Area

0 200 400 Feet
1 inch = 200 feet 1:2,400
N

SETTING

Natural

California is divided into 11 geomorphic provinces, each naturally defined by unique geologic and geomorphic characteristics. The Project is located in the northeast portion of the Peninsular Ranges geomorphic province which is distinguished by northwest trending mountain ranges and valleys following branches of the San Andreas Fault. The Peninsular Ranges are bound to the east by the Colorado Desert and extend north to the San Bernardino Mountains, west into the submarine continental shelf, and south to the California state line.

The Project is located in the northern portion of the Perris Block, a tectonically stable package of Cretaceous and older granitic and metasedimentary basement rocks from the Peninsular Ranges Batholith (Morton and Matti 2001, Springer et al. 2009). Locally, the Project is situated at the base of local highlands composed of plutonic rocks from the Perris Block (Morton and Matti 2001), on alluvial deposits that can reach up to 2,000 feet in thickness (City of Moreno Valley 2006).

The geology in the vicinity of the project has been mapped by Morton and Matti (2001) at a scale of 1:24,000 (Figure 4).A review of this map indicated that the Project is exclusively underlain by very older alluvial fan deposits(Qvofa).

Very old alluvial fan deposits (Qvofa) (early Pleistocene)
Very old alluvial fan deposits in this area are composed of slightly to well consolidated to indurated sediments, capped by moderately- to well-developed pedogenic soils (Morton and Matti, 2001). In the Project, these deposits are dominated by sand-sized sediment (arenaceous), and are sourced by the adjoining highlands to the south (Morton and Matti, 2001). These deposits underlie the entire Project.

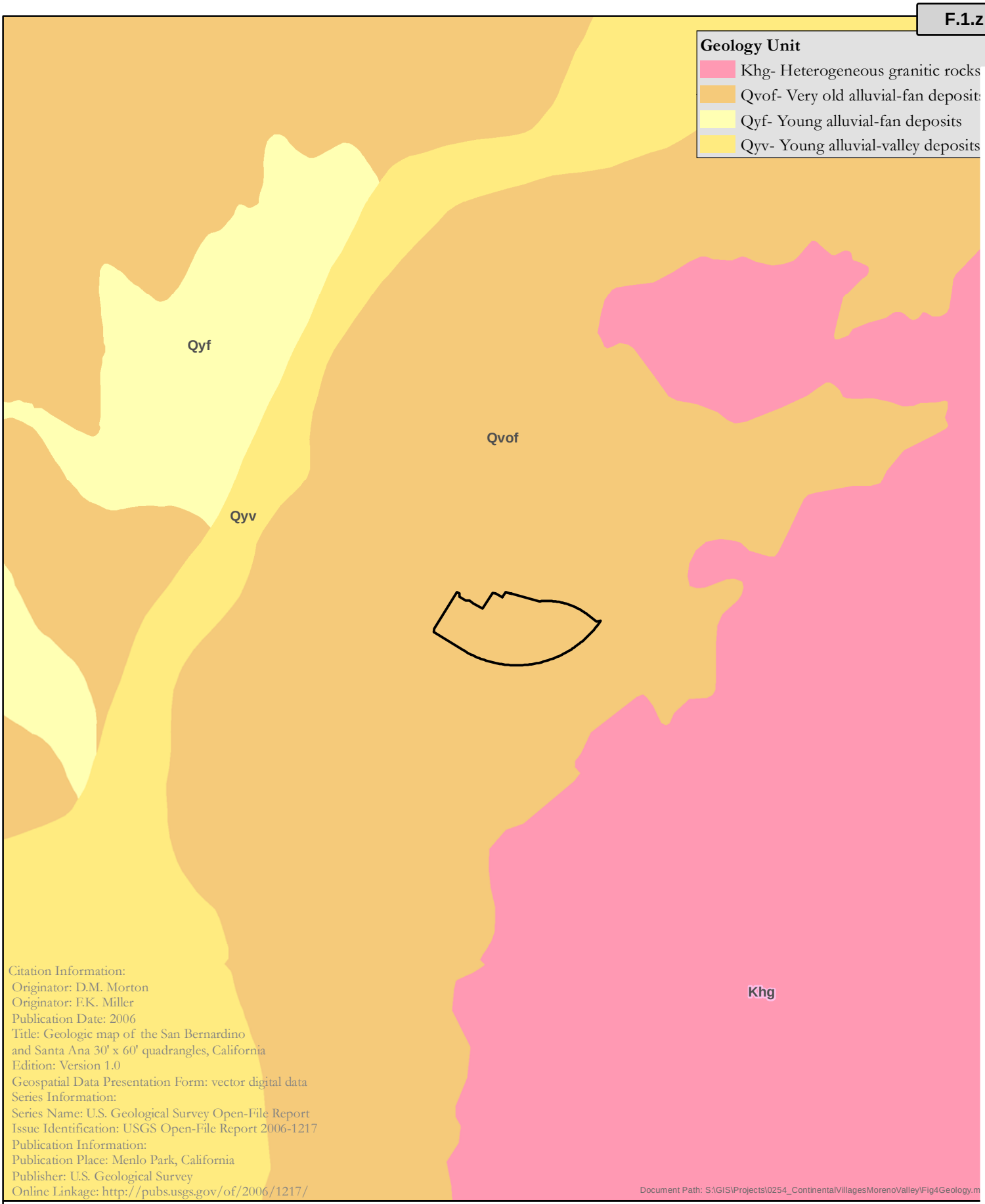


Figure 4- Geology
Moreno Valley Ranch Specific Plan No. 193
Amendment No. X Project
Moreno Valley, County of Riverside

DUKE CRM

Project Boundary

0 1,000 2,000 Feet

N

1 inch = 1,000 feet 1:12,000

Cultural

Prehistory

Two primary regional schemas are commonly cited in the archaeological literature for western Riverside County where the Project is located. These schemas or syntheses generalize the presence or absence of certain artifact types into explanatory frameworks of temporal chronologies and/or subsistence practices. Schemas are necessary because many archaeological sites lack absolute datable material (ex. Carbon for radiometric ^{14}C dating) and so researchers need to cross-date sites by comparison to either coastal or desert chronologies with established chronological sequences backed by absolute dates. In western Riverside County, it is thought to be the meeting ground of both coastal and inland desert schemas and neither exclusively explains prehistoric finds.

The first schema, advanced by Wallace (1955), defines four cultural horizons for the southern California coastal province, each with characteristic local variations:

I. Early Man (~9000–8500 B.P.) is a hunting culture based on almost exclusive evidence of chipped-stone hunting materials: dart points, scrapers, choppers, and bifaces.
II. Milling Stone (8500–4000 B.P.) reflects a change to a more sedentary, plant-collecting lifestyle as evidenced by the introduction and dominance of milling stone artifacts and a decrease in well-made projectile points.
III. Intermediate (4000–1500 B.P.) is characterized by a larger dependency on hunting, use of the dart and atlatl, and the shift from using the mano/metate to mortar/pestle. However, knowledge of this horizon suffers from lack of knowledge about what occurred during this time, not a lack of inhabitants along the southern California coast.
IV. Late Prehistoric (1500~200 B.P.) contains a more nuanced artifact assemblage indicative of a more complex lifestyle and an increase of population. This horizon is characterized by an increase in bow and arrow use, steatite containers, pottery, circular fish hooks, perforated stones, asphaltum, diversified bone tools, ample shell ornaments, and elaborate mortuary customs.

Warren and Crabtree (1986) employ a more ecological approach to the deserts of southern California, defining five traditions in prehistory:

I. Lake Mojave (12000–7000 B.P.)
II. Pinto (7000–4000 B.P.)
III. Gypsum (4000–1500 B.P.)
IV. Saratoga Springs (1500–800 B.P.)
V. Shoshonean (800~200 B.P.)

Warren and Crabtree (1986) viewed cultural continuity and change in terms of various significant environmental shifts, defining the cultural ecological approach for archaeological research of the California deserts. The authors viewed changes in settlement pattern and subsistence as cultural adaptations to a changing environment, beginning with the gradual environmental warming in the late Pleistocene, the desiccation of the desert lakes during the early Holocene, the short return to pluvial conditions during the middle Holocene, and the general warming and drying trend, with periodic reversals, that continues to this day. The work by Warren and Crabtree (1986) is built upon, in part, by Warren (1980) in which he argued for a chronology based on projectile points as period markers backed by radiocarbon assays providing absolute dates.

The two schemas contrast in important ways. The units employed by Warren are "traditions," and in contrast to Wallace (1955), traditions may be spatially restricted but display temporal continuity. For Wallace, "horizons" or "periods," are extensive through space but restricted in time. More recent schema have been attempted to reconcile these differences.

Early Holocene (11,600 – 7,600 BP)

Traditional models of the prehistory of California hypothesize that its first inhabitants were the big game hunting Paleoindians who lived at the close of the last ice-age (~11,000 years before present [BP]). As the environment warmed and dried, large Ice Age fauna died out, requiring adaption by groups to survive. The western Great Basin and deserts of southern California were characterized by large pluvial (rainfall-fed) lakes, streams, marshes, and grasslands. The human response to this environment is known as the Western Pluvial Lakes Tradition (WPLT) (Moratto 1984). The WPLT is generally identified by an advanced flaked-stone industry of foliate knives/points, Silver Lake and Lake Mojave points, lanceolate bifaces, and long-stemmed points. Other flaked-stone tools include crescents, scrapers, choppers, scraper-planes, hammer stones, cores, drills, and gravers. People of this period hunted diverse populations of smaller animals and collected a wide number of plants from diverse eco-zones. Importantly, this period lacks widespread evidence of milling stones, and, therefore, hard seed processing was likely not widely practiced. Sites are generally found along the shores of former pluvial lakes, marshes, and streams (Moratto 1984). The desert manifestation of the WPLT is the Lake Mojave Complex, while along the coast the WPLT is seen in the San Dieguito Complex. Along the coast, rising sea levels created bays and estuaries. Following initial settlement along the coast, groups adopted marine subsistence including fish and shellfish. These shell middens contain flaked cobble tools, metates, manos, discoidals, and flexed burials and allowed for a semi sedentary life style (Byrd and Raab 2007). Eventually, shellfish became the primary source of food, while plant gathering, hunting and fishing were less important.

The Paleocoastal Tradition (PCT) has many similarities to the WPLT but it reflects a coastal adaptation (Davis et al. 1969). PCT sites are located along bays and estuaries. Subsistence patterns indicate the eating of mollusks, sea mammals, sea birds, and fish in addition to land plants and animals. The argument for a PCT has gained momentum. This is based on a vast amount of recent research that has been conducted along the California coast and the Channel Islands (Byrd and Raab 2007). A recent study dates habitation on San Miguel Island back to ~11,300 BP (Daisy Cave), while a site on San Clemente (Eel Point) shows that a Paleocoastal Tradition was entrenched at Eel point in the early Holocene, with the hunting of seals, sea lions, and dolphins, as well as the gathering of shellfish.

Middle Holocene (7,600 – 3,650 BP)

The middle Holocene is a time of change and transition. As conditions continued to warm and dry, lakes and streams in the desert disappeared. This resulted in a shift in subsistence strategies, namely a shift to the gathering of plant seeds, grasses and shellfish along the coast as the primary dietary staple. Fishing and the hunting of smaller animals played a less important role in day to day activity. This shift in subsistence is what Wallace named the Millingstone Horizon (Wallace 1955) and this name has continued among archaeologists working on the coastal province of southern California. Large habitations are seen in the inland areas and considerable variability is seen along coastal occupation of southern California. Occupation revolved around seasonal and semi-sedentary movements in coastal Orange and San Diego counties. Trade networks are postulated by researchers that have dated Ollivella grooved rectangle shell beads as far north as central Oregon dating to 4900-3500 BP (Byrd and Raab 2007). Characteristics of the middle Holocene sites include ground stone artifacts (manos and metates) used for processing plant material and shellfish, flexed burial beneath rock or milling stone cairns, flaked core or cobble tools, dart points, cogstones, discoidals, and crescentics.

Late Holocene (3,650 – 233 BP)

During the late Holocene there was a migration of Takic speakers from the Great Basin into southern California. Sutton (2009) was able to show while Takic speakers did in fact physically migrate, linguistic, biological, and archaeological evidence indicates that by about 1,500 B.P., the Gabrielino language had become sufficiently distinct from its northern origins to be classified in a different branch of Takic. About this same time, the language was adopted by an existing Yuman group to the south that would become Luiseño (Sutton 2009:62). Characteristics of the late Holocene include the introduction of the bow and arrow, mortar and pestle, use of ceramics, and a change in mortuary behavior from inhumations to cremations in southern California. This was also a period of climatic fluctuation. Paleoenvironmental data show that periods of drought alternated with cooler and moister periods (Vellanoweth and Grenda 2002; Byrd and Raab 2007;

Jones et al. 2004). This resulted in dynamic regional cultural patterns with considerable local variation. Byrd and Raab (2007) suggest that foragers in southern California over-exploited high-ranked food, such as shellfish, fish, marine and land mammals, and plant remains. This led to resource depression, causing people to forage more costly resources that were more abundant.

Ethnography

The Project is located within two tribal territories, the Cahuilla and the Luiseño Indians. Both are Takic speakers and descended from prehistoric populations of the region. Takic is part of the larger Uto-Aztecan language stock which migrated west from the Great Basin (Bean and Smith 1978).

Cahuilla territory included the Coachella Valley, the San Jacinto and Santa Rosa Mountain ranges. Bean and Shipek (1978) estimated that the Cahuilla numbered between 6,000 and 10,000 people at the time of Spanish Contact. Politically and ceremonially Cahuilla clans were led by a Chief or Net. The Net had charge of the sacred dance house and the sacred bundle, masut, which consisted of matting which was wrapped around items sacred to the clan such as ritual paraphernalia. Importantly, the masut was the sacred expression of each clan. A Paha, ritual assistant, is also found among other Takic speaking groups. The office of Paha varied however, as it was not always present within some of the southern-most Desert Cahuilla clans (Bean and Saubel 1972, Bean and Shipeck1978; Hooper 1920). As other Takic speaking groups did, the Cahuilla would publically gather for the naming of children, marriage, female and male initiation ceremonies, for the ascendency of a Net, for an Eagle-Killing Ceremony and the mourning ceremony. The mourning ceremony took place as a way to collectively mourn all those that died since the previous mourning ceremony. Each person was cremated along with his or her individual possessions in a ceremony separate from the mourning ceremony. Mourning ceremonies were one of the most important ceremonies for clan in that sacred songs were sung, sacred dances were danced, and moieties exchanged food and valued goods.

Cahuilla diet emphasized acorn, Salvia islay, yucca, agave and pinyon gathering, or the gathering of mesquite, cactus, and hard seeds such as screwbean, juniper and mesquite depending upon the local environment (Bean and Saubel 1972). The Cahuilla were also observed to cultivate small quantities of corn, beans, squashes, pumpkins, melons and wheat as early as 1824 by the Romero expedition. These crops and the cultivation of them potentially made their way from the Colorado River area to the Coachella Valley. The inhabitants of the Coachella did not practice flood recessional agriculture of the Colorado River groups (Bean and Lawton 1993).

The territory of the Luiseño extended along the coast south to Agua Hedionda Lagoon, northwestward to Aliso Creek just north of San Juan Capistrano, and eastward to the Elsinore Valley and Palomar Mountain. Like other Native American groups in southern California, the Luiseño caught and collected seasonally available food resources and led a semi-sedentary lifestyle with the majority of individuals residing at the village for the entire year (Oxendine 1983:57). Luiseño villages were generally located in valley bottoms near to water. The Luiseño had a well-developed sense of ownership (White 1963:122), and their concept of property rights included the idea of private property. Property rights covered items and land owned by the village as well as items such as houses, gardens, ritual equipment, trade beads, eagle nests, and songs that were owned by individuals. Luiseño villages were politically independent and were administered by a chief, who inherited his position from his father (Bean and Shipek 1978).

Subsistence was based primarily on seeds from local grasses, manzanita, sunflower, sage, chía, and pine nuts, as well as acorns. Seeds were dried, ground, and cooked into a mush. Seasonal camps were also established along the coast and near bays and estuaries to gather shellfish and hunt waterfowl (Hudson 1971). Game animals such as deer, rabbit, jackrabbit, wood rat, mice, antelope, and many types of birds were regularly hunted (Bean and Shipek 1978). In addition, the Luiseño utilized fire for crop management and communal rabbit drives (Bean and Shipek 1978). Small seasonal habitation sites in the area would contain quantities of fire affected rock (FAR), some burned bone, and small amounts of ground and flaked stone tools. They might be found as open sites atop knolls or ridges, or in protected areas near streams, or even in rock shelters.

History

The first Europeans to explore what would become the state of California belonged to the 1542 expedition of Juan Rodriguez Cabrillo, who sailed along and occasionally landed on the coast. Europeans are thought to have first visited portions of the interior in 1769, when Gaspar de Portola (Brown 2001) led a 62-person overland expedition from San Diego to Monterey (Cramer 1988). Two later expeditions, led by Juan Bautista de Anza in 1774 and 1775 from Sonora through southwestern Arizona and southern California, crossed the Santa Ana River at Anza Narrows in today's Santa Ana River Regional Park.

The Spanish government subsequently established missions and military outposts in San Diego in 1769 to facilitate colonization of the area and to keep rival European nations out of the area. After Mexico won independence from Spain in 1822, colonization efforts in Alta California decreased. The Spanish mission system was largely abandoned and the Mexican government bestowed land grants or ranchos to those loyal to the Mexican government including some Anglo settlers. The Mexican period (1822-1848) is largely identified with the ranchos acquired by individuals through the land grant system as well as the secularization of the missions. Mission secularization began on July 25, 1826 with a decree by Governor Jose Maria Echeandfa and was completed by 1836 after an additional decree in 1831 (Engstrand and Ward 1995).

The end of the Mexican period in California began on June 14, 1846 when a band of American settlers supported by the American explorer John C. Fremont and his team captured Mexican General Mariano Guadalupe Vallejo in a dawn raid in Sonoma (Ide 1967, Rolle 2003). The Americans raised a flag for the "California Republic" and their actions became known as the "Bear Flag Revolt." The so-called California Republic was short-lived however, as on July 7, 1846, U.S. Navy forces captured Monterey, California, where the U.S. flag was raised (Rolle 2003). On February 2, 1848, the war between the U.S. and Mexico ended with the signing of the Treaty of Guadalupe Hidalgo, which greatly expanded U.S. territory (including California) and resulted in Mexico being paid $15 million for the land (Rolle 2003).

Although gold had been found prior to this in various parts of California, the well-publicized discovery of gold near Sutter's fort in 1848 dramatically increased the Anglo settlement of California. Despite property rights of rancho owners being secured by provisions in the Treaty of Guadalupe Hidalgo, California in the early American period experienced the transfer and subdivision of many of the ranchos as well as a shift from ranching to agriculture as the primary means of subsistence.

The Anza Expedition moved through the City of Moreno Valley in the late 1770's about a half-mile north of present-day March Air Reserve Base. U.S. settlement began in the 1850's and was an open landscape used for farming. The land was supported by Frank E. Brown's Bear Valley Land and Water Company. The City of Moreno Valley was named after Frank E. Brown, in that "*Moreno*" in Spanish, means, "brown" (Gudde 1998). The Bear Valley Land and Water Company closed in 1899 when the City of Redlands claimed eminent domain; therefore most of the population in Moreno Valley soon diminished until March Field was built in 1918. This helped to create residences within the area and by 1950's the population grew even more when the Riverside International Raceway was built.

METHODS

Research materials, including historic maps, previous surveys, planning documents, ordinances, and published local and regional historical accounts were collected and reviewed

Record Search

A cultural records search was conducted at the Eastern Information Center (EIC) on March 22, 2018 by DUKE CRM Archaeologist Alex Bulato, B.A. The EIC is part of the California Historical Resources Information System (CHRIS) and is located at the University of California, Riverside. The records search included a review of all recorded historic and prehistoric archaeological sites within a one-mile radius of the Project, as well as a review of known cultural resource survey and excavation reports. In addition, Ms. Bulato examined the California State Historic Property Data File (HPD), which includes the National Register of Historic Places (National Register), California Register of Historical Resources (California Register),

California Historical Landmarks (CHL), and California Points of Historical Interest (CPHI). The paleontological research conducted for the Project was conducted by Benjamin Scherzer, M.S. This included a paleontological records search though the Western Science Center (WSC) in Hemet. In addition, Mr. Scherzer performed a search of the online collections for the Natural History Museum of Los Angeles County (LACM), the San Bernardino County Museum (SBCM), the University of California Museum of Paleontology (UCMP) and San Diego Natural History Museum (SDNHM), the online Paleobiology Database (PBDB) and The Quaternary Faunal Mapping Project (FAUNMAP), and other published literature for fossil localities from similar deposits near the Project.

Field Survey

The goal of the pedestrian survey was to identify cultural or paleontological resources that may be within the Project boundaries. The pedestrian survey covered the entire Project using 15 meter transects. Transects covered all areas within the Project which included areas of minimal disturbance, areas that had a moderate to high sensitivity for cultural resources, as well as various areas of prior disturbance.. Special attention was paid to rodent burrows and erosion cuts that allowed the observation of soils below the surface. Digital photographs of the Project were taken, along with detailed field notes.

Personnel

Mr. Duke is the Principal Archaeologist of DUKE C R M . Mr. Duke meets the professional qualifications of the Secretary of the Interior for prehistoric and historical archaeology; he is also a Registered Professional Archaeologist (RPA) who has worked in all phases of archaeology (archival research, field survey, testing and data recovery excavation, laboratory analysis, construction monitoring) since 1994. Mr. Duke holds a Master of Arts degree in Anthropology with an emphasis in archaeology from California State University, Fullerton and a Bachelor of Arts degree in Anthropology from the University of California, Santa Cruz. Mr. Duke has worked throughout southern and Northern California and parts of Arizona and Nevada. He is included on the County's list of qualified archaeologists.

Benjamin Scherzer, Master of Science, Paleontologist, holds a M.S. in Earth Sciences from Montana State University, Bozeman. He has 15 years of experience in paleontological research, field surveys, fossil salvage, laboratory identification, report preparation, and curatorial experience. Mr. Scherzer is a registered paleontologist with the Riverside County. Mr. Scherzer is a member of the Society for Vertebrate Paleontology, Geological Society of America, Society for Sedimentary Geology, and the Paleontological Society.

Curt Duke, M.A. RPA is the primary author; and Sarah Nava, B.A. and Andrew DeLeon, M.A. are contributing authors of the report. Paleontologist Benjamin Scherzer, M.S., prepared the paleontology and geology sections. Mr. Scherzer and Mr. DeLeon conducted the field survey, and Alex Bulato, B.A. conducted the record search. Mr. Duke is the Principal Investigator and oversaw completion of all tasks and reviewed this report. Please see Appendix A for staff resumes.

RESULTS

Background Research

Cultural Resources Records Search

On March 22, 2018, Alex Bulato conducted a records search at the EIC. There are 17 cultural reports on file within one mile of the Project which are listed in Table 1. Approximately 50 percent of the one-mile radius has been surveyed for cultural resources. One of the reports covers the Project, *Cultural Resource Survey Report on Wolfskill Ranch* (SRS 1984). This project was a large pedestrian survey that included at least 4,000 acres. The report documents 51 archaeological resources; however, none of them is near the current Project.

Table 1- Prior Cultural Reports within One Mile of the Project

Report No.	Year	Author	Title
RI-00137	1974	James F. O'Conell, Philip J. Wilke, Thomas F. King, and Carol L. Mix	Perris Reservior Archaeology, Late Prehistoric Demographic Change in Southeastern California
RI-00698	1979	Roger J. Desautels	Archaeological/Paleontological Survey Report on the Proposed Lake Perris Power Plant and Bypass Project Located in the Perris Reservoir of the County of Riverside, W.O. 4-4485
RI-01665	1983	Wirth Associates	Devers-Serrano-Villa Park Transmission System Supplement to the Cultural Resources Technical Report - Public Review Document and Confidential Appendices
RI-01843	1984	Scientific Resource Surveys, Inc.	Cultural Resource Survey Report on Wolfskill Ranch
RI-02171	1987	McCarthy, Daniel F.	Cultural Resources Inventory for the City of Moreno Valley, Riverside County, California
RI-03693	1991	Foster, John M., James J. Schmidt, Carmen A. Weber, Gwendolyn R. Romani, and Roberta S. Greenwood	Cultural Resource Investigation: Inland Feeder Project, Metropolitan Water District of Southern California
RI-04010	1996	White, Robert S.	An Archaeological Assessment of the 7300-Foot Perris Valley Channel Stage 1 Project, Moreno Valley, Riverside County
RI-04417	1989	McCarthy, Daniel F.	Rock Art Studies at Lake Perris State Recreation Area, Riverside County, California
RI-04745	2004	Thal, Erika	Letter Report: Proposed Cellular Tower Project(s) in Riverside County. California, Site Name/Number: CA-8863A/Iris
RI-06140	2004	Aislin-Kay, Marnie	Letter Report: Records Search and Site Visit Results for Cingular Telecommunications Facility Candidate SC-313-01 (El Potrero Park), Arroyo Park and Laselle Street, Moreno Valley, Riverside County, CA
RI-06693	2007	Tang, Bai "Tom"	Letter Report: Historical/Archaeological Resources Study: MVRWRF Bardenpho Plant Modification Project, City of Moreno Valley, Riverside County, California
RI-07618	2007	Tang, B. and Hogan, M.	Identification and Evaluation of Historic Properties: Moreno Valley Regional Water Reclamation Facility Bardenpho Plant Modification Project
RI-08125	2008	Bonner, Wayne and Aislin-Kay, Marnie	Letter Report: Cultural Resources Records Search Telecommunications Facility Candidate
RI-08235	2001	James E. Workman	Cupules A Type of Petroglyphic Rock Art. A Study of the Pitted Boulders in the San Jacinto Wildlife Area and the Lake Perris State Recreational Area

RI-08802	2012	Bai "Tom" Tang, Michael Hogan, Deirdre Encarnacion, and Daniel Ballester	Phase I archaeological Assessment: Moreno Master Drainage Plan Revision
RI-09413	2013	Brian F. Smith and Associates Inc.	A Phase I Cultural Resource Assessment for the Modular Logisitics Center, Moreno Valley, Riverside County, California
RI-09934	2005	Bonner, Wayne and Aislin-Kay, Marnie	Cultural Resource Records Search and Site Visit Results for Cingular Telecommunications Facility Candidate RS-0058-01 (Riverside Community College), 16130 Lasselle Street, Moreno Valley, Riverside County, California

Records from the EIC indicate that there are 17 cultural resources mapped within one mile of the Project boundary and that none are recorded within the Project. Sixteen of the cultural resources within the 1-mile search buffer are prehistoric cultural resources, and one is a 1944 army bomber "Liberator" crash historic site. All of the prehistoric cultural resources recorded within the search radius are rock features discussed in the *Cultural Resource Survey Report on Wolfskill Ranch* report (SRS 1984). The 17 cultural resources are summarized in Table 2, below.

Table 2- Cultural Resources within One Mile of the Project

Primary #	Resource Type	Resource Description	Distance (miles)
33-000715	Prehistoric Site	Bedrock milling station	0.15 SE
33-000533	Prehistoric Site	Milling station	0.3 E
33-000534	Prehistoric Site	Milling station	0.3 NE
33-000531	Prehistoric Site	Bedrock milling station	0.3 S
33-000532	Prehistoric Site	Bedrock milling station	0.35 E
33-002829	Prehistoric Site	Milling station	0.35 E
33-000535	Prehistoric Site	Milling station	0.4 NE
33-000530	Prehistoric Site	Bedrock milling station	0.55 S
33-000536	Prehistoric Site	Milling station	0.6 NE
33-000538	Prehistoric Site	Milling station	0.6 NE
33-002994	Prehistoric Site	Milling station	0.65 N
33-000537	Prehistoric Site	Milling station	0.7 NE
33-000539	Prehistoric Site	Milling station	0.7 NE
33-000541	Prehistoric Site	Bedrock milling station	0.85 NE
33-017939	Historic Site	Site consisting of plane debris, human remains	0.85 SE
33-000012	Prehistoric Site	Site consisting of milling features, rock shelters, rock art	0.9 S
33-000540	Prehistoric Site	Milling station	0.95 NE

Historic Maps and Photograph Analysis

Historic topographic maps and historic aerial photographs were examined to identify historic buildings and other features near the Project. The earliest map examined of the area is a USGS topographic map of

Elsinore, CA from 1901. This map shows the Project and surrounding area as entirely undeveloped; the only developments shown in the vicinity are an Indian school 3.5 miles southwest and the Southern California Railroad 3.75 miles west of the Project (U.S. Department of the Interior, U.S. Geologic Survey). The Indian school is no longer visible on a USGS topographic map of the same area from 1904; the next available topographic map is of Perris, CA from 1942, on which Highway 395 (now I-215) is now visible alongside the Southern California Railroad. This 1942 map also shows the development of March Air Force Base, then called March Field, 3.75 miles northwest of the Project by this time. USGS topographic maps from as late as 1985 show no development to the Project; residential development directly west of the Project is visible on a historic aerial photograph from 1997, meaning that the area was developed between 1985 and 1997 (Nationwide Environmental Title Research, LLC)

Paleontological Resources Records Search

On March 26, 2018 the WSC performed a paleontological records search to locate fossil localities within and in the vicinity (within a 1 mile radius) of the proposed Project. No fossil localities were documented within the Project, but did indicate that the Diamond Valley Lake Project to the south produced over 250,000 fossil specimens, representing over 105 taxa of large and small mammals, reptiles, invertebrates, and plants (Springer, et al., 2009). In addition, B. Scherzer performed a search of the online collections for the LACM, SBCM, UCMP SDNHM, PBDB and FAUNMAP, and other published literature for fossil localities from similar deposits nearby (within ~3 miles).

Paleontological Sensitivity

The Lake View Hot Springs (~3 miles away) produced remains of mammoth/mastodon, horse, and turtle (Jefferson, 1991a, b). Due to their potential to contain significant fossils, very old alluvial fan deposits are assigned a high paleontological sensitivity (Table 3 and Figure 5)).

Table 3: Geologic Units and Their Paleontological Potential

Age	Geologic Unit	Fossils Present	Paleontological Sensitivity
Pleistocene	Very old alluvial fan deposits ($Qvof_a$)	Mammoth/mastodon, horse, large and small mammal, turtle, reptile, invertebrate, plant[1]	High

[1] Jefferson, 1991a,b; McDonald, 2018

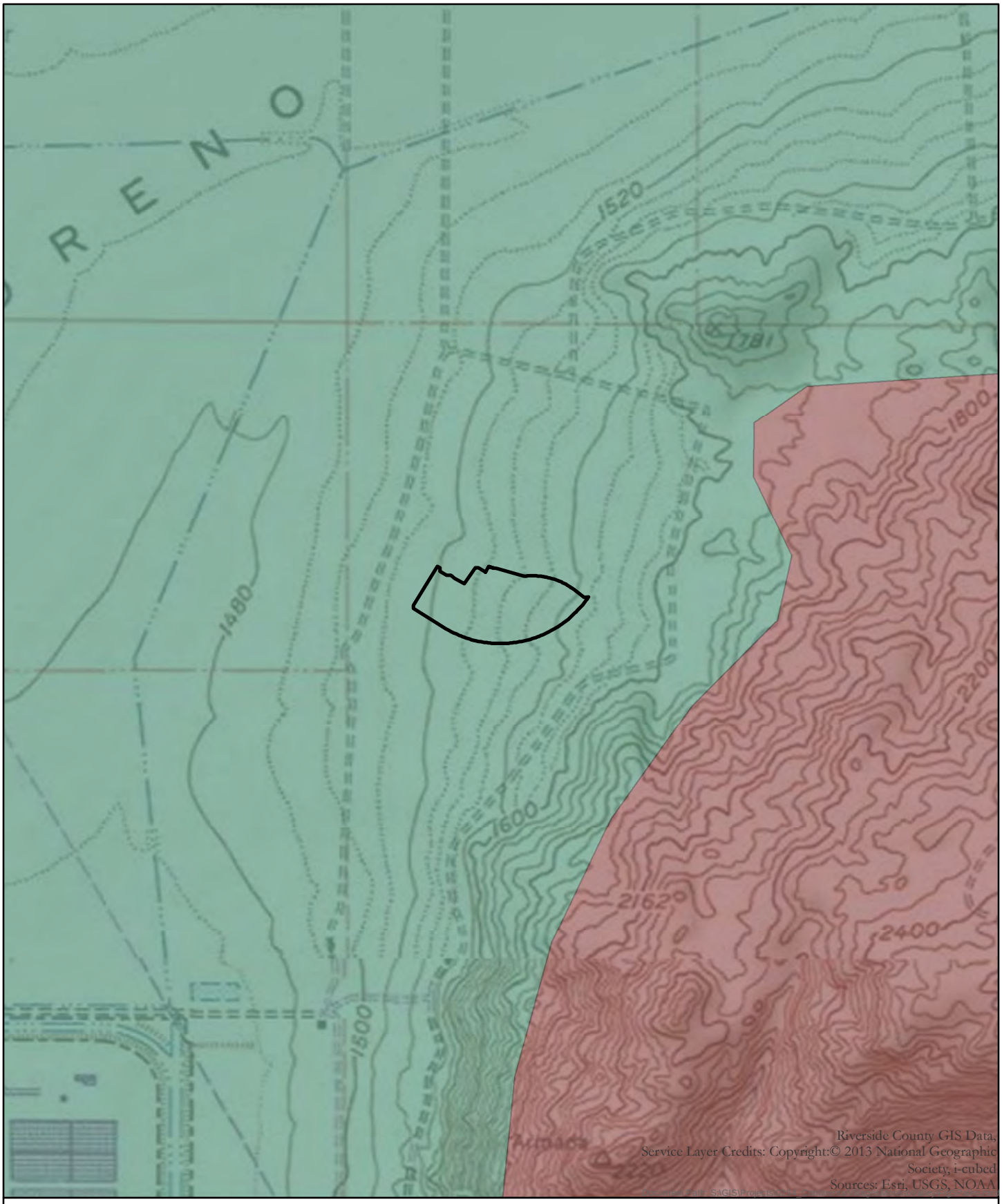


Figure 5- Paleontological Sensitivity
Moreno Valley Ranch Specific Plan No. 193
Amendment No. X Project
Moreno Valley, County of Riverside

DUKE CRM

Project Boundary

Sensitivity

High Below Surface

Low

0 1,000 2,000 Feet

N

1 inch = 1,000 feet 1:12,000

Field Survey

On April 12, 2018 a pedestrian survey of the Project (Figures 6 and 7) was conducted by DUKE CRM archaeologist Andrew DeLeon, M.A., RPA. The survey covered the entire Project using 15 meter transects. Attention was paid to the current conditions of the site in terms of disturbances. The site was heavily disturbed due to previous grading activity conducted prior to the survey. Terraced dirt lots were present throughout the site for housing foundations. Activity seems to have been on hold for some time due to weed growth covering roughly 70 percent of the ground. Patches of gravel and small stones were found throughout the site in various locales. Soil present was homogeneous brown sandy silt resulting from previous grading activity. A fence runs along the perimeter of the site. Ground visibility was approximately 45-50 percent due to weed growth and various construction materials.

Disturbances include graded terraces, modern ground disturbance, various construction equipment, and scatter of modern refuse found throughout. Modern ground disturbance consisted of two drainage channels. One channel measures approximately 3 feet wide and 300 feet long and ran east to west along the southwestern portion of the site (Figure 8). The second measures approximately 10 feet wide and 750 feet long winding from the northern center edge to the southwestern corner of the site. This drainage was covered with plastic lining and sandbags along the edges (Figure 9).Construction equipment included two storage containers on site, along with one 623E scraper that was parked. Construction materials were also found throughout the site and included wooden pallets, a cache of wrapped brick, and various plastic tubing. A scatter of modern refuse also found throughout the site. Lastly, there was a deposit of large imported boulders located near the center of the northern edge of the site (Figure 10). No cultural or paleontological resources were observed during the survey.

Figure 6: Overview Project Photo North East From Southwestern Corner of Project.

Figure 7: Overview Project Photo West, Taken From Eastern Corner of Project.

Figure 8: Photo of Drainage Channel Running East to West on Southwestern Corner of Project.

Figure 9: Photo of Drainage Channel Running From Northern Center Edge of Site to Southwestern Corner.

Figure 10: Photo of Boulder Deposit in Center of Northern Edge of Site.

Figure 11: Project Overview

IMPACTS ANALYSIS AND RECOMMENDATIONS

This section addresses the Project's potential to impact cultural and paleontological resources.

Paleontological Resources

Our research indicates that, although no paleontological resources are recorded within the project, there is a high sensitivity for paleontological resources in the very old alluvial fan deposits that underlie the Project. Therefore, significant and unique paleontological resources may be impacted by the project during earth disturbing activities. These impacts would be considered potentially significant. In order to reduce the potential for impacts to paleontological resources to a level that is less than significant under CEQA paleontological monitoring is recommended during ground disturbance associated with the project.

Paleontological Monitoring - A paleontological monitor shall be present to observe ground disturbing activities within the Project property. The monitor shall work under the direct supervision of a qualified paleontologist (B.S. /B.A. in geology, or related discipline with an emphasis in paleontology and demonstrated experience and competence in paleontological research, fieldwork, reporting, and curation).

1. The qualified paleontologist shall be on-site at the pre-construction meeting to discuss monitoring protocols.
2. Paleontological monitoring shall start at part-time. If no paleontological resources are discovered after half of the ground disturbance has occurred, monitoring can be reduced to spot-checking.
3. The monitor shall be empowered to temporarily halt or redirect grading efforts if paleontological resources are discovered.
4. In the event of a paleontological discovery the monitor shall flag the area and notify the construction crew immediately. No further disturbance in the flagged area shall occur until the qualified paleontologist has cleared the area.
5. In consultation with the qualified paleontologist the monitor shall quickly assess the nature and significance of the find. If the specimen is not significant it shall be quickly removed and the area cleared.
6. If the discovery is significant the qualified paleontologist shall notify the applicant and the City immediately.
7. In consultation with the applicant, the qualified paleontologist shall develop a plan of mitigation which will likely include salvage excavation and removal of the find, removal of sediment from around the specimen (in the laboratory), research to identify and categorize the find, curation of the find in a local qualified repository, and preparation of a report summarizing the find.

Cultural Resources

DUKE CRM conducted a records search field survey and supplemental research for archaeological and historical resources. The results of this research indicate that there are no cultural resources recorded within the Project. However, there are 16 recorded prehistoric resources and one recorded historic resource within a one-mile radius of the Project. The majority of the prehistoric resources are milling station sites consisting of small numbers of milling surfaces on granitic boulders or bedrock outcrops. One site, 33-000012, is a prehistoric site consisting of milling features and rock shelters, with one rock shelter containing rock art, located 0.9 miles south of the Project. Historic site 33-017939 is a 40-acre site 0.85 miles southeast of the Project containing debris and human remains from the 1944 crash of a military plane. Based on the lack of recorded cultural resources within the Project, combined with the documented high level of prior grading at the Project DUKE CRM recommends that no archaeological and/or historical resources are likely to be impacted by the Project.

Due to the low potential to impact cultural resources, DUKE CRM does not recommend archaeological monitoring of the Project. If previously unidentified cultural materials are un-earthed during ground disturbing activity, work shall be halted in that area until a qualified archaeologist can assess the significance of the find.

If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials. In addition, according to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and unauthorized disturbance of Native American cemeteries is a felony (Section 7052).

If the proposed Project changes, additional efforts may be necessary.

REFERENCES

Bean, Lowell J., and Harry W. Lawton
1993 Some Explanations for the Rise of Cultural Complexity in Native California with Comments on Proto-Agriculture and Agriculture. In *Before the Wilderness: Environmental Management by Native Californians*, edited by Thomas C. Blackburn and Kat Anderson, pp. 27-55. Ballena Press, Menlo Park.

Bean, Lowell J. and Florence C. Shipek
1978 Luiseño. In *California*, edited by Robert F. Heizer, pp.550-563. Handbook of North American Indians, Vol. 8, William C Sturtevant, general editor, Smithsonian Institution, Washington, DC.

Bean, Lowell J. and Katherine S. Saubel
1972 *Temalpakh (from the Earth): Cahuilla Indian Knowledge and Usage of Plants*. Malki Museum Press, Banning.

Bean, Lowell J. and Charles R. Smith
1978 Gabrielino. In *California*, edited by Robert F. Heizer, pp.538-549. Handbook of North American Indians, Vol. 8, William C Sturtevant, general editor, Smithsonian Institution, Washington, DC.

Brown, Alan K.
2001 A Description of Distant Roads. Original Journals of the First Expedition into California, 1769-1770.

Byrd, Brian F. and L. Mark Raab
2007 Prehistory of the Southern Bight: Models for a New Millenium. In *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 215-227. AltaMira Press, New York.

City of Moreno Valley
2006 Moreno Valley General Plan Final Program EIR, 5.6 – Geology and Soils. Electronic document, www.moreno-valley.ca.us/city_hall/general-plan/06gpfinal/ieir/5_6-geo-soils.pdf, accessed May 18, 2017.

Cramer, Esther Ridgway
1988 European Discovery. In *A Hundred Years of Yesterdays*, edited by Esther Cramer, et al. Orange County Centennial, Inc., Santa Ana.

GEOCON WEST, INC.
2018 *Geotechnical Update Investigation Continental Villages Southeast of Lasselle Street & Krameria Avenue Moreno Valley, California*. Prepared for Continental East Fund III, LLC. Murrieta, California.

Engstrand, Iris H. W. and Mary F. Ward
1995 Rancho Guajome: An Architectural Legacy Preserved. Electronic document, http://www.sandiegohistory.org/journal/1995/october/archlegacy/, accessed May 18, 2017.

Gudde, Erwin G.
1998 *California Place Names: The Origin and Etymology of Current Geographical Names*. 4th edition, revised by William Bright. University of California Press, Berkeley.

Hooper, Lucile.
1920 The Cahuilla Indians. *University of California Publications in American Archaeology and Ethnology* 16:315-380.

Hudson, D.T.
1971 Proto-Gabrielino Patterns of Territorial Organizations in South Coastal California. *Pacific Coast Archaeological Society Quarterly* 7(2): 49-76.

Ide, Simeon
1967 *The Conquest of California by the Bear Flag Party A Biographical Sketch of the Life of William B. Ide*. Reprinted Rio Grande Press, Glorieta. Originally published 1880, publisher and place unknown.

Jefferson, G.T.
1991a *A Catalogue of late Quaternary Vertebrates from California: Part one. Non-Marine Lower Vertebrate and Avian Taxa:* Technical Report #5. Natural History Museum of Los Angeles, Los Angeles.

1991b *A Catalogue of late Quaternary Vertebrates from California: Part two, Mammals*. Technical Report #7. Natural History Museum of Los Angeles, Los Angeles.

Jones, Terry L., Gary M. Brown, L. Mark Raab, Janet L. McVickar, W. Geoffrey Spaulding, Douglas M. Kennett, Andrew York, and Phillip L. Walker
2004 Environmental Imperatives Reconsidered: Demographic Crises in Western North America During the Medieval Climatic Anomaly. In *Prehistoric California: Archaeology and the Myth of Paradise*, edited by L. Mark Raab and Terry L. Jones, pp. 12-32. University of Utah Press, Salt Lake City.

Koerper, H. C., and C. E. Drover
1983 Chronology Building for Coastal Orange County: The Case from CA-ORA-119A. *Pacific Coast Archaeological Society Quarterly* 19(2):1–34.

McDonald, A.
2018 Re: Records Search for Continental Villages Project, City of Moreno Valley, County of Riverside: submitted to DUKE CRM, March 26.

Moratto, Michael J.
1984 *California Archaeology*. Academic Press, Inc., Orlando.

Morton, D.M., and J.C. Matti
2001 Geologic Map of the Sunnymead 7.5' Quadrangle, Riverside County, California: U.S. Geological Survey Open-File Report. Electronic document, http://geopubs.wr.usgs.gov/open-file/of01-450, accessed May 18, 2017.

Nationwide Environmental Title Research, LLC (NETR)
2018 Historic and modern aerial photographs. Electronic document, http://historicaerials.com/viewer accessed April, 2018.

Oxendine, Joan
1983 Luiseño Village During the Late Prehistoric Era. PhD. Dissertation, Department of Anthropology, University of California, Riverside.

Rolle, Andrew
2003 *California A History* (sixth edition). Harlan Davidson, Wheeling.

Springer, K.B., Scott, E., Sagebiel, J.C., and L.K. Murray
2009 The Diamond Valley Lake Local Fauna: Late Pleistocene Vertebrates from Inland Southern California. *Papers on Geology, Vertebrate Paleontology and Biostratigraphy in Honor of Michael O. Woodburne* (L.B. Albright III, ed). Museum of Northern Arizona Bulletin 65, 217-235.

Sutton, Mark Q.
2009 People and Language: Defining the Takic Expansion into Southern California. PCAS Quarterly, 41(2, 3) 31-93

U.S. Department of the Interior, U.S. Geologic Survey
2018 Historic and modern topographic maps (1947-present). Electronic document, https://ngmdb.usgs.gov/topoview/ accessed April, 2018.

Vellanoweth, Rene L. and Donn R. Grenda
2002 Paradise or Purgatory: Environments, Past and Present. In *Islanders and Mainlanders: Prehistoric Context for the Southern California Bight*, edited by Jeffrey H. Altchul and Donn R. Grenda, pp. 67-84. SRI Press, Tucson.

Wallace, William
1955 A Suggested Chronology for Southern California Coastal Archaeology. *Southwestern Journal of Anthropology* 2:214-230.

Warren, Claude N.
1980 The Desert Region. In *California Archaeology*, edited by Michael J. Moratto, pp. 339-428. Academic Press, Inc. Salinas.

Warren, Claude N. and Robert H. Crabtree
1986 Prehistory of the Southwestern Area. In *Great Basin*, edited by Warren L. D'Azevedo, pp. 183-193. Handbook of North American Indians, Vol. 11, William C. Sturtevant, general editor, Smithsonian Institution, Washington, DC.

White, Raymond C.
1963 Luiseño Social Organization. *University of California Publications in American Archaeology and Ethnology* 48:91–194.

Appendix A

Resumes

DUKE CRM
18 Technology Dr., Ste.
Irvine, CA 92618
949-356-6660
www.dukecrm.com

Curt Duke

President/Archaeologist

Expertise

Cultural Resources Management
California Prehistory
Section 106 Compliance
CEQA Compliance
Native American Consultation

Education

CSU, Fullerton, M.A., Anth, 2006
SDSU, Grad Studies, Anth, 1996/97
UC Santa Cruz, B.A., Anth, 1994

Professional Registrations

RPA, No. 15969
County of Riverside (No. 151)
County of Orange

Professional Memberships

Society for California Archaeology
Society for American Archaeology
Pacific Coast Archaeological Society
Assoc. of Environmental Professionals
Building Industry Association

Professional Experience

President/Archaeologist, DUKE CRM, March 2011 to present.
Archaeologist/Principal, LSA Associates, 1997-2011.
Archaeological Technician, SRI, 1997.
Archaeological Technician, Petra Resources, 1997.
Archaeological Technician, KEA Environmental, 1997.
Archaeological Technician, Keith Companies, 1997.
Archaeological Technician, KEA Environmental, 1997.
Archaeological/Paleontological Technician, LSA Associates, 1996.
Archaeological/Paleontological Technician, Petra Resources, 1996.
Archaeological Technician, Affinis Environmental Services, 1996.
Archaeological Technician, KEA Environmental, 1996.
Archaeological Technician, Macko Archaeological Consulting, 1995 to 1996.
Archaeological Technician, Heritage Resource Consultants, 1995.
Archaeological Technician, Chambers Group, 1995.
Archaeological Technician/Teachers Assistant, Cabrillo College, 1994
Anthropological Laboratory Technician, UC Santa Cruz, 1994.

Selected Project Experience

Vantage Point Church Monitoring, Eastvale, 2018-Present
Ventura Cnty. Transportation On-Call, Ventura Cnty, 2018-Present
6th Street Viaduct Mission/Myers Roundabout, Los Angeles, 2018-President
Union Street Two-Way Protected Bikeway, Pasadena, 2017-Present
Murrieta's Hospitality Commons, Murrieta, 2017-Present
Pleasant Valley Turn Lanes, Camarillo, 2017
VA WLA Master Plan, Los Angeles, 2017-Present
Golden Avenue Bridge, Placentia, 2017
Avenue S-8 and 40th St. E. Roundabout, Palmdale, 2017
Soto Street Widening, Los Angeles, 2017
SR-110 Improvements, Los Angeles, 2017
Vanderham Monitoring, Jurupa Valley, 2017
Diamond Valley Estates Specific Plan, Hemet, 2017
Veterans Affairs West Los Angeles Campus Hospital Replacement, 2016-Present
Shoemaker Bridge Replacement, Los Angeles, 2016-Present
Spruce Goose Hangar, Playa Vista, 2016
Duarte 3rd and Oak Residential, Duarte, 2016
Vila Borba, Chino Hills, 2013-Present
Skyridge Residential, Mission Viejo, 2011-Present
Lincoln Specific Plan, Whittier, 2014
Baker Water Treatment Plant, Lake Forest, 2014-2015
Bryn Mawr Road Extension, Loma Linda, 2014-Present
VA Clinic, Loma Linda, 2014-Present
Evanston Inn, Pasadena, 2014-2016
California Street/Highway 101, Ventura, 2014-Present
Dhammakaya International Mediation Center, Azusa, 2013-2014
6th Street Bridge Replacement, Los Angeles, 2013-Present
Colton Bridges, 2013-14
Petersen Ranch, Leona Valley, 2013-2014
1st Street over Glendale Boulevard, Los Angeles, 2012
City of Los Angeles, DPW, On-Call, Cultural/Paleontological Resource Services, 2008-2011
San Fernando Road Widening, Los Angeles, 2011-121

DUKE CRM
18 Technology Dr., Ste. 10
Irvine, CA 92618
949-356-6660
www.dukecrm.com

Benjamin Scherzer

Paleontologist

Expertise

Paleontological Resources Management
Fossil excavation
Fossil preparation
Stratigraphy
Natural gas mudlogging
Directional drilling

Education

M.S., Earth Science, 2008, MSU, Bozeman, MT
B.A., Geology/Math, 2002, Earlham College, IN

Professional Registrations

Paleontologist, County of Orange
Paleontologist, County of Riverside

Professional Memberships

Society of Vertebrate Paleontology
Geological Society of America
Society for Sedimentary Geology
American Association of Petroleum Geologists, Pacific Section

Publications and Professional Papers

Scherzer, B. 2017. A possible physeteroid (cetacea: odontoceti) from the Yorba member of the Puente Formation, Orange County, California: Western Association of Vertebrate Paleontology Annual Meeting: Program with Abstracts, PaleoBios, v. 34 (supplemental), p. 11.

Scherzer, B. 2016. An archaic baleen whale (Cetacea: Mysticeti) from the Vaqueros Formation, and other fossil material from the Skyridge Project, Orange County, California: 76th Annual Meeting, Society of Vertebrate Paleontology, abstracts of papers, Journal of Vertebrate Paleontology.

Scherzer, B. 2015. Miocene teleost fish from Chino Hills: preliminary results from the Vila Borba Project, San Bernardino County, California: Western Association of Vertebrate Paleontology Annual Meeting, PaleoBios, v. 32, no. 1, p. 4.

Scherzer, B., and R. Benton. 2011. An evaluation of sixteen years of paleontological visitor site reports in Badlands National Park, South Dakota: Proceedings of the 9th Conference on Fossil Resources, Brigham Young University Geology Studies, v. 49(A), p. 31.

Professional Experience

Paleontologist, DUKE CRM, February 2014 to present.
Paleontologist, L&L Environmental, October 2017 to present.
Stratigrapher, Archeological Resource Management Corporation, November 2015 to present.
Paleontological Specialist II, San Diego Natural History Museum, October 2013 to present.
Paleontological Specialist II, SWCA Environmental Consultants (Pasadena), March 2012 to present.
Paleontologist, SWCA Environmental Consultants (Vernal, UT), 2011 to 2012.
Fossil Preparator, Carter County Museum, 2010 to 2011.
Physical Science Technician, Badlands National Park, 2010.
Mudlogger/Geologist, Pason Systems USA, 2006 to 2009.
Paleontological Field Assistant, ARCADIS US, 2006 to 2007.

Selected Project Experience

Vanderham Monitoring, Jurupa Valley, 2017-present
Ave S-8 and 40th St Roundabout, Palmdale, 2017-present
Gold Flora Farms, Desert Hot Springs, 2017-present
I-5 HOV Truck Lanes, Santa Clarita, 2017-present
Brasada Homes, San Dimas, 2017-present
Indus Light Industrial Building, Chino Hills, 2017-present
Murrieta's Hospitality Commons, Murrieta, 2017
6th Street Viaduct, Los Angeles, 2017-present
I-15 TEL, Riverside and San Bernardino Counties, 2017
Lewis Street, Anaheim, 2017
The Crossings, Chino Hills, 2016-2017
Reata Glen, Mission Viejo, 2016 - present
Greenville-Banning Channel, Costa Mesa, 2016
Fairfield Ranch, Chino Hills, 2016
Diamond Valley, Hemet, 2017
Marywood Residential, Orange, 2016-2018
Rancho Mission Viejo, Mission Viejo, 2015-present
Santa Margarita Water District Tesoro Reservoirs, Mission Viejo, 2015
Evanston Inn, Pasadena, 2015
Village of Terrasa, Corona, 2015
Sycamore to Peñasquitos 230 kV Tranmission Line, San Diego, 2015
Lakeside Temescal Valley, Temescal Valley, 2015-present
Vila Borba, Chino Hills, CA, 2013-present
Proposed State Route 60/Interstate 605 (SR-60/I-605) Interchange Improvement Project, Los Angeles County, 2014
RP-Outfall Relocation, Ontario, 2014
Serrano Ridge, Temesca Valley, 2014
Lago Los Serranos, Chino Hills, 2014
Vila Borba, Chino Hills, 2014-present
Baker WTP, Lake Forest, 2014
Skyridge Residential, Mission Viejo, 2014-present
Willow Heights, Diamond Bar, 2014
Pacific Highlands, San Diego, 2014
Sol y Mar, Ranchos Palos Verdes, 2013-2014
Mojave Solar Power, Hinkley, 2013
Genesis Solar Energy, Blythe, 2012-13

DUKE CRM
18 Technology Dr., Ste. 103
Irvine, CA 92618
949-356-6660
www.dukecrm.com

Sarah Nava

Archaeologist/GIS Specialist

Expertise

Cultural Resources Management
California Prehistory
Lab Analysis
ArcGIS
GPS Software
Geographical Information Systems
Cultural Resources Management
California Prehistory
Cultural Records Searches

Education

CSU, Long Beach, B.A., Anth, 2008

Southwestern Comm.College, GIS Certification Program, 2014

Professional Memberships

Society for California Archaeology
Society for American Archaeology

Professional Experience

Archaeologist/GIS Specialist, DUKECRM, Feb. 2017 to present
Sr. GIS Specialist/Archaeology Technician, Sapphos Env., 2016-17
Archaeologist/GIS Specialist, Cogstone, 2016
Archaeological Crew Chief/GIS Technician, SRI, 2015-16
GIS Specialist/Research Assistant, Easter Island Statue Project, 2015
GIS Consultant, UCLA Rock Art Archive, 2015
Archaeology/GIS Technician, Cogstone, 2011-2014

Selected Project Experience

-Vila Borba, Chino Hills, 2017

-Azusa Greens, Azusa, 2017

-Golden Avenue Bridge Replacement, Placentia, 2017

-Soto Street, Los Angeles, 2017

-Sativa Water District Well Replacement, Compton, 2017

-Strauss Wind Energy Project, 2016-2017

-Fair Oaks Hospital Construction, Arroyo Grande, California, 2016

-Section 110 Intensive Archaeological Inventory on Ranges at Naval Air Weapons Station (NAWS) China Lake, 2015-2016

-California State University, Long Beach Piping Project, 2016

-Olive View Medical Center, 2016

-Evaluation of 11 Prehistoric Sites on Marine Corps Base Camp Pendleton, California, 2015-2016

-Metrolink Purple Line Extension, Los Angeles, 2016

-FY14 Section 110 Archaeological Evaluations and Eligibility Investigations on Ranges at Naval Air Weapons Station, China Lake, 2015

- FY 14 Section 110 Archaeological Surveys and Site Recordation as Supplemental, Naval Air Station (NAS), NAVFAC Southwest Division, Lemoore, California, 2015

-Emergency Archaeological Data Recovery at CA-LAN-2768, Marina del Rey 2015

-Easter Island Statue Project, Santa Monica, 2015

-Metropole Vault Replacement, SCE, Avalon California, 2014.

-Pimu, Catalina Island Archaeology Project, Two Harbors, 2013-2014

GEOTECHNICAL UPDATE INVESTIGATION

CONTINENTAL VILLAGES
SOUTHEAST OF LASSELLE STREET & KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

GEOCON
WEST, INC.
GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED FOR

CONTINENTAL EAST FUND III, LLC.
MURRIETA, CALIFORNIA

MARCH 26, 2018
PROJECT NO. T2809-22-01

GEOCON
WEST, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. T2809-22-01
March 26, 2018

Continental East Fund III, LLC.
25467 Medical Center Drive, Suite 201
Murrieta, California 92562

Attention: Mr. Andrew Spousta

Subject: GEOTECHNICAL UPDATE INVESTIGATION
CONTINENTAL VLLAGES
SOUTHEAST OF LASSELLE STREET & KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

Dear Mr. Spousta:

In accordance with your authorization of Geocon Proposal IE-2098 dated February 20, 2018, Geocon West, Inc. (Geocon) herein submits the results of our geotechnical update investigation for the proposed residential and commercial development. The accompanying report presents the results of our study and conclusions and recommendations pertaining to the geotechnical aspects of the proposed multi-family and commercial project. The site is considered suitable for development provided the recommendations of this report are followed.

Should you have questions regarding this report, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON WEST, INC.

PROFESSIONAL GEOLOGIST
LISA A. BATTIATO
No. 2316
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

Lisa A. Battiato
CEG 2316

REGISTERED PROFESSIONAL ENGINEER
CHET E. ROBINSON
No. 2890
GEOTECHNICAL
STATE OF CALIFORNIA

Chet E. Robinson
GE 2890

LAB:CER:JV:hd

Distribution: Addressee (email)

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GEOTECHNICAL DUE DILIGENCE AND UPDATE INVESTIGATION

1. PURPOSE AND SCOPE

This report presents the results of our geotechnical update investigation for the proposed multi-family and commercial development located immediately southeast of the intersection of Lasalle Street and Krameria Avenue in the city of Moreno Valley, California (see *Vicinity Map*, Figure 1). The purpose of the investigation was to review existing geotechnical information for the site, perform subsurface exploration and, based on the conditions encountered, provide recommendations pertaining to the geotechnical aspects of developing the property with respect to the *Preliminary Site Layout* for Continental Villages prepared by Anderson Consulting Engineers, Inc.

The scope of our investigation included review of previous project reports, geologic mapping, subsurface exploration, percolation testing, laboratory testing, engineering analyses, and the preparation of this report. A summary of the information reviewed for this study is presented in the *List of References*.

The site was explored on March 1, 2018, by drilling seven small-diameter geotechnical borings to depths of 21.5 to 31.5 feet and eight percolation tests to depths of 3 to 4 feet. We utilized a CME 75 truck mounted drill rig. Percolation testing was performed on March 5, 2018. The approximate locations of the exploratory excavations are depicted on the *Geotechnical Map (*Figure 2). A detailed discussion of the field investigation, including excavation logs, is presented in *Appendix A*. Boring logs from the 2016 Geotechnical Interpretive Report by Earth Strata Geotechnical Services, Inc (ESI) are also included in Appendix A.

Laboratory tests were performed on selected soil samples obtained during the investigation to evaluate pertinent physical and chemical soil properties. *Appendix B* presents a summary of the laboratory test results. Lab testing from the 2016 Geotechnical Interpretive Report by ESI are also included in Appendix B.

2. SITE AND PROJECT DESCRIPTION

The planned Continental Villages development is on approximately 11 ½ acres located immediately east of the intersection of Lasselle Street and Krameria Avenue in Moreno Valley, California. The project is located within Section 28 of Township 3 South, Range 3 West; at latitude 33.8824, longitude -117.2052. Site elevations currently range from approximately 1,521 to 1,555 feet above mean sea level (MSL). Access is currently gained from the job site entrance on Krameria Avenue.

At the time of our field investigation, the site was in a previously rough graded condition. An active jobsite trailer is present in the eastern portion of the site near the entrance. Temporary Conex storage containers are present along the southern and western areas of the site. The sub-surface storm drain from the adjacent site has been outlet to a plastic lined channel through the site to the far western end where the site has been excavated to allow drainage into a storm drain whistle.

The central and easterly portion of the site will support multi-family development and the westerly portion is planned for commercial development. The Phase I portion of the project (not part of this investigation), north of the commercial site, is currently under construction. The open land has been stripped of vegetation and covered with an erosion control coating.

Site development is planned to include a recreational center and 14 multi-family buildings with covered parking. The commercial development is currently expected to consist of a central building with parking lots surrounding the building. We expect that finish grade elevations will descend across the site from east to west. Maximum cut and fill depths (exclusive of remedial grading) are expected to be approximately 10 feet or less. Cut slopes are not expected at the site. Existing fill slopes are 15 feet high at approximately 2:1 (h:v). We expect that future fill slopes will be 15 feet or less in height at inclinations of 2:1 (h:v). Retaining walls may be utilized within the site and are expected to be 15 feet or less in height.

We expect that the buildings will be constructed of wood or light gauge steel framing with shallow foundations and concrete slab-on-grade floors. The residential buildings are expected to be three stories and the commercial structure is expected to be one story. Due to preliminary nature of the design at this time, wall and column loads were not available. It is expected that column loads for the proposed structures will be up to 100 kips, and wall loads will be up to 5 kips per linear foot. Once the design phase and foundation loading configuration proceeds to a more finalized plan, the recommendations within this report should be reviewed and revised, if necessary.

References to elevations presented in this report are based on topography given in Google Earth applications. Geocon does not practice in the field of land surveying and is not responsible for the accuracy of such topographic information.

The locations and descriptions provided herein are based on a site reconnaissance, our field exploration, review of previously completed reports, and project information provided by the client. If project details differ significantly from those described, Geocon should be contacted for review and possible revision to this report.

3. BACKGROUND

Geocon reviewed aerial images of the site as part of our work. The site was vacant and undeveloped prior to 2004. It appeared to have been periodically plowed prior to grading. In 2004, the site was mass graded to a super pad concurrent with grading of the adjacent school site. The area along Lasselle including the proposed commercial site remained ungraded at that time. The site was subsequently graded into separate building pads, including the commercial site, in 2005. Since that time the subject property has remained relatively unchanged. Phase I, located west of the school and north of the proposed commercial site was re-graded in 2017 with geotechnical testing and observation provided by Earth Strata Geotechnical Services, Inc. (ESI) Phase I is currently under construction at the time of this report.

A geotechnical investigation was performed on the entire site (including Phase I) by ESI in 2016. ESI drilled 10 geotechnical borings throughout the site, performed laboratory testing and engineering analyses, and prepared their report, see *References*. ESI reported encountering 7 to 19 feet of previously placed fill over Quaternary Very Old Fan Deposits. The fill was reported as medium dense to dense overlying medium dense to dense older fan deposits. Both soil units were reported to consist of clayey to silty sands. ESI did not encounter groundwater to depths of 51.5 feet. ESI laboratory test results indicate the soil samples tests have a very low expansion potential (non-expansive); have a collapse potential for the two samples tested of 0.13 to 0.25 percent under in-situ loading; have negligible sulfate content and would not be classified as corrosive. Their boring logs are included in *Appendix A* and the laboratory test results are included in *Appendix B*.

4. GEOLOGIC SETTING

The site is located within the Perris Block of the Peninsular Ranges Geomorphic Province. The Perris Block is characterized by granitic highlands which display three elevated erosional surfaces surrounded by alluviated valleys. The Peninsular Ranges are bound by the Transverse Ranges (San Gabriel and San Bernardino Mountains) to the north and the Colorado Desert Geomorphic Province to the east. The Peninsular Ranges extend westward into the Pacific Ocean and southward to the tip of Baja California. Overall, the province is characterized by Cretaceous-age granitic rock and a lesser amount of Mesozoic-age metamorphic rock overlain by terrestrial and marine sediments.

Faulting within the province is typically northwest trending and includes the San Andreas, San Jacinto, Elsinore, and Newport-Inglewood faults. The site is located on the southeastern margin of the Moreno Valley, north of Lake Perris. Granitic hills that surround Lake Perris are present approximately 1,000 feet southeast of the site. The entire site is underlain by older alluvium above granitic basement rock.

5. GEOLOGIC MATERIALS

5.1 General

Based on the exploration performed by Geocon and others, the primary geologic units at the site consist of previously placed fill and Very Old Alluvial Fan Deposits above granitic basement rock. Geologic unit classification follows that of Morton and Matti (2001) from the Sunnymead Quadrangle map. The descriptions of the soil and geologic conditions are shown on the boring logs located in *Appendix A* and described herein in order of increasing age.

5.2 Previously Placed Fill (af)

Previously placed fill was encountered within Geocon's and other's borings within the site to depths of 4 to 22 feet. A geotechnical report of testing and observation was not available for our review. The fill consists of clay sand which was found to be medium dense to very dense, and moist. Consolidation test results indicate the fill hydrocompressed less than 0.5 percent upon wetting when loaded to the expected post grading pressures. In situ moisture and density test results indicate the samples below a depth of 3 feet are generally at or near optimum moisture contents and meet or exceed 90 percent relative compaction when compared to the maximum density/optimum moisture test results (ASTM D1557).

5.3 Quaternary Very Old Fan Deposits (Qvof) – Not a Mapped Unit

Very old fan deposits (older alluvium) were encountered beneath the fill and consist of silty and clayey sand with occasional layers of poorly graded sand. The soil was generally medium dense to dense and slightly moist to moist.

5.4 Tonalite (Kt) – Not a Mapped Unit

Tonalite comprises the hill east of the site. The rock is described as gray, medium-grained, and typically foliated. Bedrock was not encountered during our exploration and is not expected to be encountered during site grading or construction.

6. GEOLOGIC STRUCTURE

The geologic structure consists of an older alluvial fan surface emanating northeastward from the adjacent granitic highlands. As such, the underlying older alluvial surface likely strikes north east and dips moderately, following the topographic surface at the time of deposition, to the northwest. For the purposes of this study and due to the previously placed fill across the site, the geologic structure should be considered as a locally massive, medium dense to dense clayey sand.

7. GROUNDWATER

Groundwater was not encountered to maximum depths explored of 51.5 feet. There are no well records near the site located in similar geologic conditions. Based on the lack of groundwater encountered during explorations on the site and the geologic conditions, we expect groundwater is likely more than 50 feet deep at the site.

It is not uncommon for seepage conditions to develop where none previously existed due to the permeability characteristics of the geologic units encountered. During the rainy season, localized perched water conditions may develop that may require special consideration during grading operations. Groundwater elevations are dependent on seasonal precipitation, irrigation, and land use, among other factors, and vary as a result.

8. GEOLOGIC HAZARDS

8.1 Surface Fault Rupture

The numerous faults in southern California include active, potentially active, and inactive faults. The criteria for these major groups are based on data developed by the California Geological Survey (CGS, formerly known as CDMG) for the Alquist-Priolo Earthquake Fault Zone Program (Bryant and Hart, 2007). By definition, an active fault is one that has had surface displacement within Holocene time (about the last 11,000 years). A potentially active fault has demonstrated surface displacement during Quaternary time (approximately the last 1.6 million years), but has had no known Holocene movement. Faults that have not moved in the last 1.6 million years are considered inactive.

The site is not within a currently established State of California or Riverside County Earthquake Fault Zone for surface fault rupture hazards. No active or potentially active faults with the potential for surface fault rupture are known to pass directly beneath the site.

The closest active fault to the site is the San Jacinto fault located approximately 5+ miles northeast of the site. Faults within a 50-mile radius of the site are listed in Table 8.1.1. Historic earthquakes in southern California of magnitude 6.0 and greater, their magnitude, distance, and direction from the site are listed in Table 8.1.2.

TABLE 8.1.1
ACTIVE FAULTS WITHIN 50 MILES OF THE SITE

Fault Name	Maximum Magnitude (Mw)	Geometry (Slip Character)	Slip Rate (mm/yr)	Information Source	Distance from Site (mi)	Direction from Site
San Jacinto (Casa Loma)	6.9	RL-SS	12	a	6	SE
San Jacinto (Claremont)	6.7	RL-SS	12	a	8	SE
San Andreas (San Bernardino)	7.5	RL-SS	24	a	16	N
Elsinore Fault (Glen Ivy)	6.8	RL-SS	5	a	17	W
San Gorgonio Pass	n/a	THRUST	n/a	a	17	E
Elsinore (Wildomar)	6.8	RL-SS	5	a	18	W
San Jacinto (Glen Helen)	6.7	RL-SS	12	a	19	NW
North Frontal Thrust	7.2	R	1	a	19	NE
North Frontal	6.7	R	0.5	a	19	NE
San Jacinto (Clark)	7.2	RL-SS	12	a	23	SE
Chino	6.7	RL-R-O	1	a	24	W
Cucamonga	6.9	R	5	a	25	NW
Whittier	6.8	RL-R-O	2.5	a	29	W
Pinto Mountain	7.2	LL-SS	2.5	a	30	NE
San Andreas Fault (South Branch)	7.5	RL-SS	24	a	30	E
Morongo Valley	7.2	LL-SS	2.5	a	36	E
Helendale	7.3	RL-SS	0.6	a	40	NE
Burnt Mountain	6.5	RL-SS	0.6	a	46	E
Newport-Inglewood-Rose Canyon	7.1	RL-SS	1	a	47	W
Lenwood	7.5	RL-SS	0.6	a	47	NE

Geometry: BT = blind thrust, LL = left lateral, N = normal, O = oblique, R = reverse, RL = right lateral, SS = strike slip.

Information Sources: a = Cao, T., Bryant, W.A., Rowshandel, B., Branum, D., and Wills, C.J., 2003, The Revised 2002 California Probabilistic Seismic Hazard Maps, including Appendices A, B, and C, dated June; b = online Fault Activity Map of California website, maps.conservation.ca.gov/cgs/fam/, as of 1/2017.

n/a = data not available

TABLE 8.1.2
HISTORIC EARTHQUAKE EVENTS WITH RESPECT TO THE SITE

Earthquake (Oldest to Youngest)	Date of Earthquake	Magnitude	Distance to Epicenter (Miles)	Direction to Epicenter
San Jacinto	April 21, 1918	6.8	15	SE
Loma Linda Area	July 22, 1923	6.3	9	NNW
Long Beach	March 10, 1933	6.4	47	WSW
Buck Ridge	March 25, 1937	6.0	63	ESE
Imperial Valley	May 18, 1940	6.9	54	ENE
Desert Hot Springs	December 4, 1948	6.0	47	E
Arroyo Salada	March 19, 1954	6.4	77	SE
Borrego Mountain	April 8, 1968	6.5	83	SE
San Fernando	February 9, 1971	6.6	83	WNW
Joshua Tree	April 22, 1992	6.1	56	E
Landers	June 28, 1992	7.3	53	ENE
Big Bear	June 28, 1992	6.4	32	NE
Northridge	January 17, 1994	6.7	87	WNW
Hector Mine	October 16, 1999	7.1	77	NE

8.2 Liquefaction

Liquefaction typically occurs when a site is located in a zone with seismic activity, onsite soils are cohesionless/silt or clay with low plasticity, static groundwater is encountered within 50 feet of the surface, and soil relative densities are less than about 70 percent. If the four previous criteria are met, a seismic event could result in a rapid pore-water pressure increase from the earthquake-generated ground accelerations. Seismically induced settlement may occur whether the potential for liquefaction exists or not. The site is located mapped by the County of Riverside as having a low Liquefaction Potential. Based on the dense consistency of the shallow soils overlying bedrock and groundwater deeper than 50 feet, the potential for liquefaction and seismically induced settlement occurring within the site soil is considered very low.

8.3 Expansive Soil

The on-site soils generally consist of silty and clayey sands with. Laboratory test results indicate samples of the near surface soils exhibit a “very low” expansion potential with measured expansion indices of 2 to 4. Atterberg Limit test results indicate the plasticity index of the soils is 7 to 9 with the fine-grained component classified as low-plastic clay.

8.4 Collapsible Soils

Hydrocompression is the tendency of unsaturated soil structure to collapse upon wetting resulting in compression of the effected soil and the potential for distress to the overlying foundations or improvements. Potentially compressible soils underlying the site are limited to the upper 3 to 5 feet and will be removed and compacted during remedial site grading.

Soils obtained during our investigation were tested for collapse and exhibited a collapse potential of 0.2 percent to 0.7 percent when loaded to the expected post-grading pressures. The test results indicate that the site soils are generally classified as having a slight (0.1 to 2.0 percent) degree of specimen collapse when tested in accordance with ASTM D5333.

8.5 Landslides

We did not observe evidence of previous or incipient slope instability within the site or adjacent hillsides during our aerial photograph review or investigation. Further, no landslides have been geologically mapped on or adjacent to the site. Therefore, landslide hazard to the site is not a design consideration.

8.6 Rockfall

The site is located 1,000 feet from the granitic hillside with a residential subdivision in between. Rockfall hazards are not a design consideration for this project.

8.7 Slope Stability

Grading plans were not available at the time of this update. Based on existing grades and the proposed site usage, we expect fill slopes will be 15 feet or less at inclinations no steeper than 2:1 (h:v). Cut slopes are not expected on or adjacent to the site. In general, permanent, graded fill slopes constructed with on-site soils inclined no steeper than 2:1 (h:v) with vertical heights of 20 feet or less will possess Factors of Safety of 1.5 or greater (see Figures 3 to 5). Fill keys should be constructed in accordance with the standard grading specifications in *Appendix C*. Grading of fill slopes should be designed in accordance with the requirements of the local building codes of the City of Moreno Valley and the 2016 California Building Code (CBC).

8.8 Tsunamis and Seiches

A tsunami is a series of long period waves generated in the ocean by a sudden displacement of large volumes of water. Causes of tsunamis include underwater earthquakes, volcanic eruptions, or offshore slope failures. The first order driving force for locally generated tsunamis offshore southern California is expected to be tectonic deformation from large earthquakes (Legg et al., 2002). The site is located 40+ miles from the nearest coastline, with the Santa Ana Mountains lying between the site and the Pacific Ocean; therefore, the risk associated with tsunamis is not a design consideration.

A seiche is a run-up of water within a lake or embayment triggered by fault- or landslide-induced ground displacement. The site is not located downstream from Lake Skinner. Therefore, a seiche hazard from this reservoir is not a design consideration.

9. SITE INFILTRATION

Percolation testing was performed in accordance with the procedures in *Riverside County Flood Control and Water Conservation District LID BMP, Appendix A.* The percolation test locations are depicted on the *Geotechnical Map* (see Figure 2).

A 3-inch diameter perforated PVC pipe in silt filter sock was placed in each percolation test hole and approximately 2 inches of gravel was placed at the bottom of the PVC pipe. The test locations were pre-saturated prior to testing. Percolation testing was begun 24 hours after the holes were presaturated. Percolation data sheets are presented in *Appendix A* of this report. Calculations to convert the percolation test rate to infiltration test rates are presented in Table 9.0. Note that the Handbook requires a factor of safety of 3 be applied to the values below based on the test method used.

TABLE 9.0
INFILTRATION TEST RATES FOR PERCOLATION AREAS

Parameter	P-1	P-2	P-3	P-4
Area	6	7	8	2
Depth (inches)	40.3	32.3	80.2	53.6
Test Type	Normal	Normal	Normal	Normal
Change in head over time: ΔH (inches)	0.1	0.1	1.6	0.1
Average head: Havg (in)	29.6	24.9	14.5	14.7
Time Interval (minutes): Δt (minutes)	30	30	30	30
Radius of test hole: r (inches)	4	4	4	4
Tested Infiltration Rate: It (inches/hour)	0.01	0.02	0.4	0.03

Parameter	P-5	P-6	P-7	P-8
Area	3	4	5	1
Depth (inches)	43.4	51.0	34.4	44.6
Test Type	Normal	Normal	Normal	Normal
Change in head over time: ΔH (inches)	0.1	0.5	0.6	0.4
Average head: Havg (in)	11.8	12.4	13.0	12.5
Time Interval (minutes): Δt (minutes)	30	30	30	30
Radius of test hole: r (inches)	4	4	4	4
Tested Infiltration Rate: It (inches/hour)	0.03	0.1	0.2	0.1

10. CONCLUSIONS AND RECOMMENDATIONS

10.1 General

10.1.1 No soil or geologic conditions were encountered that would preclude the development of the property as proposed, provided the recommendations of this report are followed.

10.1.2 Based on our investigation and available geologic information, active, potentially active, or inactive faults are not present on or trending toward the site.

10.1.3 The upper portion of the previously placed fill is considered unsuitable for the support of compacted fill or settlement-sensitive improvements based on the conditions as described on the boring logs and in-situ moisture and density test results. Remedial grading in the form of removal and compaction of the upper 3 to 5 feet of the previously placed fill will be required. However, deeper removals may be necessary based on the conditions encountered during grading.

10.1.4 Groundwater was not encountered during this field work. Standing water was observed in the temporary basin located in the western corner of the site. Although we did not encountered groundwater in the geotechnical borings, seepage and perched groundwater conditions may be encountered during the grading operations, especially during the rainy seasons.

10.1.5 In general, slopes should possess calculated factors of safety of at least 1.5 when graded at inclinations of 2:1(fill), or flatter with maximum fill slope heights of 20 feet.

10.1.6 Proper surface drainage should be maintained to prevent ponding and saturation of the fill in pad and slope areas. Recommendations for site drainage are provided herein.

10.1.7 Changes in the design, location or elevation of improvements, as outlined in this report, should be reviewed by this office. Once grading plans become available, they should be reviewed by this office to determine the necessity for review and possible revision of this report.

10.2 Soil Characteristics

10.2.1 The soil encountered in the field investigation are “non-expansive” (Expansion Index [EI] less than 20) as defined by 2016 California Building Code (CBC) Section 1803.5.3. Table 10.2.1 presents soil classifications based on the expansion index.

TABLE 10.2.1
SOIL CLASSIFICATION BASED ON EXPANSION INDEX

Expansion Index (EI)	Expansion Classification	2016 CBC Expansion Classification
0 – 20	**Very Low**	**Non-Expansive**
21 – 50	Low	Expansive
51 – 90	Medium	
91 – 130	High	
Greater Than 130	Very High	

10.2.2 The existing site soils are expected to possess a "very low" expansion potential. Additional testing for expansion potential should be performed during grading and once final grades are achieved. Further, plasticity index testing should be performed on soils with expansion indices of more than 20.

10.2.3 Laboratory tests performed on a sample of the site materials by ESI (2016to evaluate the water-soluble sulfate content tests are presented in *Appendix B* and indicate that the on-site materials possess a sulfate content of 0.038 percent equating to a S0 negligible sulfate exposure to concrete structures as defined by 2016 CBC Section 1904.3 and ACI 318. Table 10.2.3 presents a summary of concrete requirements set forth by 2016 CBC Section 1904.3 and ACI 318. The presence of water-soluble sulfates is not a visually discernible characteristic; therefore, other soil samples from the site could yield different concentrations. Additionally, over time landscaping activities (i.e., addition of fertilizers and other soil nutrients) may affect the concentration.

TABLE 10.2.3
REQUIREMENTS FOR CONCRETE
EXPOSED TO SULFATE-CONTAINING SOLUTIONS

Sulfate Exposure	Exposure Class	Water-Soluble Sulfate Percent by Weight	Cement Type	Maximum Water to Cement Ratio by Weight	Minimum Compressive Strength (psi)
Not Applicable	**S0**	**0.00-0.10**	--	--	**2,500**
Moderate	S1	0.10-0.20	II	0.50	4,000
Severe	S2	0.20-2.00	V	0.45	4,500
Very Severe	S3	> 2.00	V+ Pozzolan or Slag	0.45	4,500

10.2.4 Based on the ESI (2016) the site soils are not classified as corrosive to metal improvements in accordance with Caltrans Corrosion Guidelines (Caltrans, 2012).

TABLE 10.2.4
CALTRANS CORROSION GUIDELINES

Corrosion Exposure	Resistivity (ohm-cm)	Chloride (ppm)	Sulfate (ppm)	pH
Corrosive	<1,000	500 or greater	2,000 or greater	5.5 or less

10.2.5 Geocon does not practice in the field of corrosion engineering. Therefore, further evaluation by a corrosion engineer may be performed if improvements that could be susceptible to corrosion are planned.

10.3 Grading

10.3.1 Grading should be performed in accordance with the *Recommended Grading Specifications* contained in *Appendix C* and the City of Moreno Valley Grading Ordinance.

10.3.2 Prior to commencing grading, a preconstruction conference should be held at the site with the county inspector, owner or developer, grading contractor, civil engineer, and geotechnical engineer in attendance. Special soil handling and/or the grading plans can be discussed at that time.

10.3.3 Site preparation should begin with the removal of deleterious material, debris and vegetation. The depth of removal should be such that material exposed in cut areas or soil to be used as fill is relatively free of organic matter. Material generated during stripping and/or site demolition should be exported from the site.

10.3.4 The upper 3 to 5 feet of previously placed fill within structural areas should be removed to expose previously placed fill or older alluvium with an in-situ relative compaction of 90 and 85 percent or greater, respectively. The removals should extend to a depth of at least 1 foot below the bottom of the planned foundations. The actual depth of remedial grading should be evaluated by the engineering geologist during grading operations. The bottom of the excavations should be scarified to a depth of at least 1 foot, moisture conditioned to above optimum moisture content, and compacted to 90 percent of the maximum dry density (ASTM D1557), prior to fill placement.

10.3.5 The upper 1 to 2 feet of previously placed fill within roadway and flatwork areas is expected to be loose and disturbed and consequently require remedial grading prior to the placement of additional fill. For estimating purposes, the upper one foot of previously placed fill should be removed below pavement and flatwork subgrade. The exposed surface should then be scarified, moisture conditioned and compacted to 90 percent of the maximum dry density at or above optimum moisture content.

10.3.6 The site should be brought to finish grade elevations with fill compacted in layers. Layers of fill should be no thicker than will allow for adequate bonding and compaction. Fill, including backfill and scarified ground surfaces, should be compacted to a dry density of at least 90 percent of the laboratory maximum dry density near to slightly above optimum moisture content as determined by ASTM D1557. Fill materials placed below optimum moisture content may require additional moisture conditioning prior to placing additional fill.

10.3.7 The fill placed within 3 feet of proposed finish grade should possess a "low" expansion potential (EI of 50 or less), where practical.

10.3.8 Oversized rock (i.e. greater than 6-inches in maximum dimension) could be encountered during grading. If encountered, the rock will require special handling and placement. Rocks 6 inches in maximum dimension should be placed in soil fill within the outer 3 feet of finish grade. Rocks 6 to 12 inches in maximum dimension may be placed deeper than 3 feet below finished grade elevations. Rocks 12 inches or larger in maximum dimension should be exported from the site or placed at least 10 feet below finished grades in accordance with the *Standard Grading Specifications, Appendix E*.

10.3.9 Import fill (if necessary) should consist of granular materials with a "low" expansion potential (EI of 50 or less), generally free of deleterious material and rock fragments larger than 6 inches, and should be compacted as recommended herein. Geocon should be notified of the import soil source and should perform laboratory testing of import soil prior to its arrival at the site to evaluate its suitability as fill material.

10.3.10 Fill slopes should be overbuilt at least 2 feet and cut back to design grades.

10.3.11 Finished slopes should be landscaped with drought-tolerant vegetation having variable root depths and requiring minimal landscape irrigation. In addition, the slopes should be drained and properly maintained to reduce erosion.

10.4 Earthwork Grading Factors

10.4.1 Estimates of shrinkage factors are based on empirical judgments comparing the material in its existing or natural state as encountered in the exploratory excavations to a compacted state. Variations in natural soil density and in compacted fill density render shrinkage value estimates very approximate. As an example, the contractor can compact the fill to a dry density of 90 percent or higher of the laboratory maximum dry density. Thus, the contractor has an approximately 10 percent range of control over the fill volume. Based on our experience and in-situ density test results with respect to maximum density/optimum moisture test results for the upper 5 feet, the shrinkage of the previously placed fill is expected to be approximately 0 to 5 percent. This estimate is for preliminary quantity estimates only. Due to the variations in the actual shrinkage/bulking factors, a balance area should be provided to accommodate variations.

10.5 Utility Trench Backfill

10.5.1 Utility trenches should be properly backfilled in accordance with the requirements of City of Moreno Valley and the latest edition of the *Standard Specifications for Public Works Construction* (Greenbook). The pipes should be bedded with well graded crushed rock or clean sands (Sand Equivalent greater than 30) to a depth of at least one foot over the pipe. The use of well graded crushed rock is only acceptable if used in conjunction with filter fabric to prevent the gravel from having direct contact with soil. The remainder of the trench backfill may be derived from onsite soil or approved import soil, compacted as necessary, until the required compaction is obtained. The use of 2-sack slurry and controlled low strength material (CLSM) are also acceptable. However, consideration should be given to the possibility of differential settlement where the slurry ends and earthen backfill begins. These transitions should be minimized and additional stabilization should be considered at these transitions.

10.5.2 Utility excavation bottoms must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon), prior to placing bedding materials, fill, gravel, concrete, or geogrid.

10.5.3 During the rainy season, localized perched water conditions may develop above bedrock that may require special consideration during grading operations. The contractor should be prepared to mitigate seepage and perched water conditions. Groundwater, seepage, and perched water are dependent on seasonal precipitation, irrigation, and land use, among other factors, and vary as a result.

10.6 Seismic Design Criteria

10.6.1 The following table summarizes summarizes site-specific design criteria obtained from the 2016 California Building Code (CBC; Based on the 2015 International Building Code [IBC] and ASCE 7-10), Chapter 16 Structural Design, Section 1613 Earthquake Loads. The data was calculated using the computer program *U.S. Seismic Design Maps*, provided by the USGS. The short spectral response uses a period of 0.2 second. We evaluated the Site Class based on the discussion in Section 1613.3.2 of the 2016 CBC and Table 20.3-1 of ASCE 7-10. The values presented on the following table are for the risk-targeted maximum considered earthquake (MCE_R).

2016 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2016 CBC Reference
Site Class	D	Section 1613.3.2
MCE_R Ground Motion Spectral Response Acceleration – Class B (short), S_S	1.502g	Figure 1613.3.1(1)
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.621g	Figure 1613.3.1(2)
Site Coefficient, F_A	1.0	Table 1613.3.3(1)
Site Coefficient, F_V	1.5	Table 1613.3.3(2)
Site Class Modified MCE_R Spectral Response Acceleration (short), S_{MS}	1.502g	Section 1613.3.3 (Eqn 16-37)
Site Class Modified MCE_R Spectral Response Acceleration – (1 sec), S_{M1}	0.931g	Section 1613.3.3 (Eqn 16-38)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	1.002g	Section 1613.3.4 (Eqn 16-39)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.621g	Section 1613.3.4 (Eqn 16-40)

10.6.2 The table below presents the mapped maximum considered geometric mean (MCE_G) seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-10.

ASCE 7-10 PEAK GROUND ACCELERATION

Parameter	Value	ASCE 7-10 Reference
Mapped MCE_G Peak Ground Acceleration, PGA	0.573	Figure 22-7
Site Coefficient, F_{PGA}	1.000g	Table 11.8-1
Site Class Modified MCE_G Peak Ground Acceleration, PGA_M	0.573g	Section 11.8.3 (Eqn 11.8-1)

10.6.3 The Maximum Considered Earthquake Ground Motion (MCE) is the level of ground motion that has a 2 percent chance of exceedance in 50 years, with a statistical return period of 2,475 years. According to the 2016 California Building Code and ASCE 7-10, the MCE is to be utilized for the evaluation of liquefaction, lateral spreading, seismic settlements, and it is our understanding that the intent of the Building code is to maintain "Life Safety" during a MCE event. The Design Earthquake Ground Motion (DE) is the level of ground motion that has a 10 percent chance of exceedance in 50 years, with a statistical return period of 475 years.

10.6.4 Deaggregation of the MCE peak ground acceleration was performed using the USGS online BETA Unified Hazard Tool, 2008 Conterminous U.S. Dynamic edition. The result of the deaggregation analysis indicates that the predominant earthquake contributing to the MCE peak ground acceleration is characterized as a 7.17 magnitude event occurring at a hypocentral distance of 10.8 kilometers from the site.

10.6.5 Deaggregation was also performed for the Design Earthquake (DE) peak ground acceleration, and the result of the analysis indicates that the predominant earthquake contributing to the DE peak ground acceleration is characterized as a 7.11 magnitude occurring at a hypocentral distance of 13.3 kilometers from the site.

10.6.6 Conformance to the criteria in the above tables for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

10.7 Foundation and Concrete Slabs-On-Grade Recommendations

10.7.1 A conventional spread foundation system may be utilized for support of the proposed structures provided foundations derive support in newly placed engineered fill.

10.7.2 The foundation recommendations presented herein are for the proposed structures following remedial grading. We separated the foundation recommendations into three categories based on either the maximum and differential fill thickness or Expansion Index. We expect most structures will be Category II due to the low expansion potential and expected geometry of the planned fill and underlying alluvial materials. However, the category may be increased to Category III where expansion potential or fill geometry dictates based on as-graded conditions. The foundation category criteria for the expected conditions are presented in Table 10.7.2. Final foundation categories will be evaluated once site grading has been completed.

TABLE 10.7.2
FOUNDATION CATEGORY CRITERIA

Foundation Category	Maximum Fill Thickness, T (Feet)	Differential Fill Thickness, D (Feet)	Expansion Index (EI)
I	T<20	D<10	EI≤50
II	20≤T<50	10≤D<20	50<EI≤90
III	T≥50	D≥20	EI>90

10.7.3 Foundations for the structures may consist of either continuous strip footings and/or isolated spread footings. Conventionally reinforced continuous footings should be at least 12 inches wide, and isolated spread footings should have a minimum width of 24 inches. Footings should extend to the minimum footing embedment in Table 10.7.3. A wall/column footing dimension detail is provided on Figure 6.

TABLE 10.7.3
CONVENTIONAL FOUNDATION RECOMMENDATIONS BY CATEGORY

Foundation Category	Minimum Footing Embedment Depth (inches)	Continuous Footing Reinforcement	Interior Slab Reinforcement
I	18	Two No. 4 bars, one top and one bottom	6 x 6 - 10/10 welded wire mesh at slab mid-point
II	24	Four No. 4 bars, two top and two bottom	No. 3 bars at 24 inches on center, both directions
III	30	Four No. 5 bars, two top and two bottom	No. 3 bars at 18 inches on center, both directions

10.7.4 As an alternative to the conventional foundation recommendations, consideration should be given to the use of post-tensioned concrete slab and foundation systems for the support of the proposed structures. The post-tensioned systems should be designed by a structural engineer experienced in post-tensioned slab design and design criteria of the Post-Tensioning Institute (PTI) DC 10.5-12 *Standard Requirements for Design and Analysis of Shallow Post-Tensioned Concrete Foundations on Expansive Soils* or *WRI/CRSI Design of Slab-on-Ground Foundations*, as required by the 2016 CBC Section 1808.6.2. Although this procedure was developed for expansive soil conditions, it can also be used to reduce the potential for foundation distress due to differential fill settlement. The post-tensioned design should incorporate the geotechnical parameters presented in Table 10.7.4 for the particular Foundation Category designated. The parameters presented in Table 10.7.4 are based on the guidelines presented in the PTI DC 10.5 design manual.

TABLE 10.7.4
POST-TENSIONED FOUNDATION SYSTEM DESIGN PARAMETERS

Post-Tensioning Institute (PTI) DC 10.5-12 Design Parameters	Foundation Category		
	I	II	III
Thornthwaite Index	-20	-20	-20
Equilibrium Suction	3.9	3.9	3.9
Edge Lift Moisture Variation Distance, e_M (feet)	5.3	5.1	4.9
Edge Lift, y_M (inches)	0.61	1.10	1.58
Center Lift Moisture Variation Distance, e_M (feet)	9.0	9.0	9.0
Center Lift, y_M (inches)	0.30	0.47	0.66

10.7.5 The foundations for the post-tensioned slabs should be embedded in accordance with the recommendations of the structural engineer. If a post-tensioned mat foundation system is planned, the slab should possess a thickened edge with a minimum width of 12 inches and extend below the clean sand or crushed rock layer.

10.7.6 If the structural engineer proposes a post-tensioned foundation design method other than the PTI DC 10.5:

- The deflection criteria presented in Table 10.7.4 are still applicable.
- Interior stiffener beams should be used for Foundation Category II and III.
- The width of the perimeter foundations should be at least 12 inches.
- The perimeter footing embedment depths should be at least 12, 18, and 24 inches for Foundation Categories I, II, and III, respectively. The embedment depths should be measured from the lowest adjacent pad grade.

10.7.7 Our experience indicates post-tensioned slabs may be susceptible to excessive edge lift, regardless of the underlying soil conditions. Placing reinforcing steel at the bottom of the perimeter footings and the interior stiffener beams may mitigate this potential. The structural engineer should design the foundation system to reduce the potential of edge lift occurring for the proposed structures.

10.7.8 During the construction of the foundation system, the concrete should be placed monolithically. Under no circumstances should cold joints form between the footings/grade beams and the slab during the construction of the post-tension foundation system unless specifically designed by the structural engineer.

10.7.9 Category I, II, or III foundations may be designed for an allowable soil bearing pressure of 3,500 pounds per square foot (psf) (dead plus live load). This bearing pressure may be increased by one-third for transient loads due to wind or seismic forces. We estimate the total settlements under the imposed allowable loads to be up to 1 inch with differential settlements on the order of ½ inch over a horizontal distance of 40 feet.

10.7.10 Isolated footings, if present, should have the minimum embedment depth and width recommended above for a particular foundation category. Where this condition cannot be avoided, the isolated footings should be connected to the building foundation system with grade beams.

10.7.11 Slabs-on-grade that may receive moisture-sensitive floor coverings or may be used to store moisture-sensitive materials should be underlain by a vapor retarder placed directly beneath the slab. The vapor retarder and acceptable permeance should be specified by the project architect or developer based on the type of floor covering that will be installed. The vapor retarder design should be consistent with the guidelines presented in Section 9.3 of the American Concrete Institute's (ACI) Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials (ACI 302.2R-06) and should be installed in general conformance with ASTM E1643 (latest edition) and the manufacturer's recommendations. A minimum thickness of 15 mils extruded polyolefin plastic is recommended; vapor retarders which contain recycled content or woven materials are not recommended. The vapor retarder should have a permeance of less than 0.01 perms demonstrated by testing before and after mandatory conditioning. The vapor retarder should be installed in direct contact with the concrete slab with proper perimeter seal. If the California Green Building Code requirements apply to this project, the vapor retarder should be underlain by 4 inches of clean aggregate. It is important that the vapor retarder be puncture resistant since it will be in direct contact with angular gravel. As an alternative to the clean aggregate suggested in the Green Building Code, the concrete slab-on-grade may be

underlain by a vapor retarder over 4 inches of clean sand (sand equivalent greater than 30), since the sand will serve as a capillary break and will minimize the potential for punctures and damage to the vapor barrier.

10.7.12 The bedding sand thickness should be determined by the project foundation engineer, architect, and/or developer. However, we should be contacted to provide recommendations if the bedding sand is thicker than 4 inches. Placement of 3 inches and 4 inches of sand is common practice in southern California for 5-inch and 4-inch thick slabs, respectively. The foundation engineer should provide appropriate concrete mix design criteria and curing measures that may be utilized to assure proper curing of the slab to reduce the potential for rapid moisture loss and subsequent cracking and/or slab curl.

10.7.13 Special subgrade presaturation is not deemed necessary prior to placing concrete; however, the exposed foundation and slab subgrade soil should be moisture conditioned, as necessary, to maintain a moist condition as would be expected in such concrete placement.

10.7.14 Where buildings or other improvements are planned near the top of a slope steeper than 3:1 (horizontal to vertical), special foundations and/or design considerations and possible building set backs are recommended due to the tendency for lateral soil movement to occur.

- Building footings should be deepened such that the bottom outside edge of the footing is at least 7 feet horizontally from the face of the slope.
- Geocon should be contacted to review the pool plans and the specific site conditions to provide additional recommendations, if necessary.
- Swimming pools located within 7 feet of the top of cut or fill slopes are not recommended. Where such a condition cannot be avoided, the portion of the swimming pool wall within 7 feet of the slope face be designed assuming that the adjacent soil provides no lateral support
- Although other improvements, which are relatively rigid or brittle, such as concrete flatwork or masonry walls, may experience some distress if located near the top of a slope, it is generally not economical to mitigate this potential. It may be possible, however, to incorporate design measures that would permit some lateral soil movement without causing extensive distress. Geocon should be consulted for specific recommendations.

10.7.15 The recommendations of this report are intended to reduce the potential for cracking of slabs and foundations due to expansive soil (if present) or differential settlement of fill soil with varying thicknesses. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade placed on such conditions may still exhibit some cracking due to soil movement and/or shrinkage. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics.

Their occurrence may be reduced by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

10.7.16 Geocon should be consulted to provide additional design parameters as required by the structural engineer.

10.7.17 Foundation excavations should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon), prior to the placement of reinforcing steel and concrete to verify that the excavations and exposed soil conditions are consistent with those expected. If unexpectd soil conditions are encountered, foundation modifications may be required.

10.7.18 This office should be provided a copy of the final grading and foundation plans so that the recommendations presented herein can be properly reviewed and revised if necessary.

10.8 Exterior Concrete Flatwork

10.8.1 Exterior concrete flatwork not subject to vehicular traffic should be constructed in accordance with the recommendations herein assuming the subgrade materials possess an Expansion Index of 50 or less. Subgrade soils should be compacted to 90 percent relative compaction. Slab panels should be a minimum of 4 inches thick and when in excess of 8 feet square should be reinforced with No. 3 reinforcing bars spaced 18 inches center-to-center in both directions to reduce the potential for cracking. In addition, concrete flatwork should be provided with crack control joints to reduce and/or control shrinkage cracking. Crack control spacing should be determined by the project structural engineer based upon the slab thickness and intended usage. Criteria of the American Concrete Institute (ACI) should be taken into consideration when establishing crack control spacing. Subgrade soil for exterior slabs not subjected to vehicle loads should be compacted in accordance with criteria presented in the *Grading* section prior to concrete placement. Subgrade soil should be properly compacted and the moisture content of subgrade soil should be verified prior to placing concrete. Base materials will not be required below concrete improvements.

10.8.2 Even with the incorporation of the recommendations of this report, the exterior concrete flatwork has a potential to experience some uplift due to expansive soil beneath grade. The steel reinforcement should overlap continuously in flatwork to reduce the potential for vertical offsets within flatwork. Additionally, flatwork should be structurally connected to the curbs, where possible, to reduce the potential for offsets between the curbs and the flatwork.

10.8.3 Where exterior flatwork abuts the structure at entrant or exit points, the exterior slab should be dowelled into the structure's foundation stem wall. This recommendation is intended to reduce the potential for differential elevations that could result from differential settlement or minor heave of the flatwork. Dowelling details should be designed by the project structural engineer.

10.8.4 The recommendations presented herein are intended to reduce the potential for cracking of exterior slabs as a result of differential movement. However, even with the incorporation of the recommendations presented herein, slabs-on-grade will still crack. The occurrence of concrete shrinkage cracks is independent of the soil supporting characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of the concrete, the use of crack control joints and proper concrete placement and curing. Crack control joints should be spaced at intervals no greater than 12 feet. Literature provided by the Portland Concrete Association (PCA) and American Concrete Institute (ACI) present recommendations for proper concrete mix, construction, and curing practices, and should be incorporated into project construction.

10.9 Conventional Retaining Walls

10.9.1 The recommendations presented herein are generally applicable to the design of rigid concrete or masonry retaining walls having a maximum height of 15 feet. In the event that walls higher than 15 feet or other types of walls are planned, Geocon should be consulted for additional recommendations.

10.9.2 Retaining walls not restrained at the top and having a level backfill surface should be designed for an active soil pressure equivalent to the pressure exerted by a fluid density of 35 pounds per cubic foot (pcf). Where the backfill will be inclined at no steeper than 2:1 (horizontal to vertical), an active soil pressure of 60 pcf is recommended. These soil pressures assume that the backfill materials within an area bounded by the wall and a 1:1 plane extending upward from the base of the wall possess an EI of 50 or less. For walls where backfill materials do not conform to the criteria herein, Geocon should be consulted for additional recommendations.

10.9.3 Unrestrained walls are those that are allowed to rotate more than 0.001H (where H equals the height of the retaining portion of the wall in feet) at the top of the wall. Where walls are restrained from movement at the top, walls with a level backfill surface should be designed for a soil pressure equivalent to the pressure exerted by a fluid density of 55 pcf.

10.9.4 The structural engineer should determine the seismic design category for the project in accordance with Section 1613 of the CBC. If the project possesses a seismic design category of D, E, or F, proposed retaining walls in excess of 6 feet in height should be designed with seismic lateral pressure (Section 1803.5.12 of the 2016 CBC).

10.9.5 A seismic load of 10 pcf should be used for design of walls that support more than 6 feet of backfill in accordance with Section 1803.5.12 of the 2016 CBC. The seismic load is applied as an equivalent fluid pressure along the height of the wall and the calculated loads result in a maximum load exerted at the base of the wall and zero at the top of the wall. This seismic load should be applied in addition to the active earth pressure. The earth pressure is based on half of two-thirds of PGA_M calculated from ASCE 7-10 Section 11.8.3.

10.9.6 Unrestrained walls will move laterally when backfilled and loading is applied. The amount of lateral deflection is dependent on the wall height, the type of soil used for backfill, and loads acting on the wall. The retaining walls and improvements above the retaining walls should be designed to incorporate an appropriate amount of lateral deflection as determined by the structural engineer.

10.9.7 Retaining walls should be provided with a drainage system adequate to prevent the buildup of hydrostatic forces and waterproofed as required by the project architect. The soil immediately adjacent to the backfilled retaining wall should be composed of free draining material completely wrapped in Mirafi 140N (or equivalent) filter fabric for a lateral distance of 1 foot for the bottom two-thirds of the height of the retaining wall. The upper one-third should be backfilled with less permeable compacted fill to reduce water infiltration. Alternatively, a drainage panel, such as a Miradrain 6000 or equivalent, can be placed along the back of the wall. A typical drain detail for each option is shown on Figure 7. The use of drainage openings through the base of the wall (weep holes) is not recommended where the seepage could be a nuisance or otherwise adversely affect the property adjacent to the base of the wall. The recommendations herein assume a properly compacted backfill (EI of 20 or less) with no hydrostatic forces or imposed surcharge load. If conditions different than those described are expected or if specific drainage details are desired, Geocon should be contacted for additional recommendations.

10.9.8 Wall foundations should be designed in accordance with the above foundation recommendations.

10.10 Lateral Loading

10.10.1 To resist lateral loads, a passive pressure exerted by an equivalent fluid weight of 350 pounds per cubic foot (pcf) should be used for the design of footings or shear keys poured neat against compacted fill. The allowable passive pressure assumes a horizontal surface extending at least 5 feet, or three times the surface generating the passive pressure, whichever is greater. The upper 12 inches of material in areas not protected by floor slabs or pavement should not be included in design for passive resistance.

10.10.2 If friction is to be used to resist lateral loads, an allowable coefficient of friction between soil and concrete of 0.40 should be used for design.

10.11 Swimming Pool/Spa

10.11.1 If swimming pools or spas are planned, the proposed swimming pool shell bottom should be designed as a free-standing structure and may derive support in newly placed engineered fill or the competent native older alluvium. We recommend that uniformity be maintained beneath the proposed swimming pools where possible. However, swimming pool foundations may derive support in engineered fill or undisturbed older alluvium.

10.11.2 Swimming pool foundations and walls may be designed in accordance with the *Foundation* and *Retaining Wall* sections of this report. A hydrostatic relief valve should be considered as part of the swimming pool design unless a gravity drain system can be placed beneath the pool shell.

10.11.3 If the proposed pool is in proximity to a proposed building, consideration should be given to construction sequence. If the proposed pool is constructed after building foundation construction, the excavation required for pool construction could remove a component of lateral support from the foundations and would therefore require shoring. Once information regarding the pool location and depth becomes available, this information should be provided to Geocon for review and possible revision of these recommendations.

10.12 Preliminary Pavement Recommendations

10.12.1 The final pavement design should be based on R-value testing of soils at subgrade. Streets should be designed in accordance with the City of Moreno Valley specifications when final Traffic Indices and R-Value test results of subgrade soil are completed. For preliminary design purposes, we used an R-value test result of 40 based on the soil classification. A value of 78 was considered for aggregate base materials for the purposes of this preliminary analysis. Pavements should meet the minimum requirement for asphalt thickness in the city of Moreno Valley. Preliminary flexible pavement sections are presented in Table 10.12.1. Geocon should be contacted if other roadway classifications and traffic indices are appropriate for the project.

TABLE 10.12.1
PRELIMINARY FLEXIBLE PAVEMENT SECTIONS

Road Classification	Assumed Traffic Index	Assumed Subgrade R-Value	Asphalt Concrete (inches)	Crushed Aggregate Base (inches)
Parking Areas	5.0	50	3.0	6.0
Local Street/Interior Tract Streets	5.5	50	3.0	6.0
Local Street/Interior Tract Streets	6.0	50	3.5	6.0
Local Street/Interior Tract Streets	6.5	50	3.5	7.0
Collector	7.0	50	4.0	7.0
Collector	7.5	50	4.5	7.5
Collector	8.0	50	4.5	9.0
Secondary Highway	8.5	50	5.0	9.0
Major Highway	9.0	50	5.5	9.5

10.12.2 The upper 12 inches of the subgrade soil should be compacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content beneath pavement sections.

10.12.3 The crushed aggregated base and asphalt concrete materials should conform to Section 200-2.2 and Section 203-6, respectively, of the Greenbook and the latest edition of the County of Riverside Specifications. Base materials should be compacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content. Asphalt concrete should be compacted to a density of 95 percent of the laboratory Hveem density in accordance with ASTM D 1561.

10.12.4 A rigid Portland cement concrete (PCC) pavement section should be placed in driveway aprons and cross gutters. We calculated the rigid pavement section in general conformance with the procedure recommended by the American Concrete Institute report ACI 330R-08 Guide for Design and Construction of Concrete Parking Lots using the parameters presented in Table 10.12.4.

TABLE 10.12.4
RIGID PAVEMENT DESIGN PARAMETERS

Design Parameter	Design Value
Modulus of subgrade reaction, k	150 pci
Modulus of rupture for concrete, M_R	550 psi
Traffic Category, TC	C and D
Average daily truck traffic, ADTT	100 and 700

10.12.5 Based on the criteria presented herein, the PCC pavement sections should have a minimum thickness as presented in Table 10.12.5.

TABLE 10.12.5
RIGID PAVEMENT RECOMMENDATIONS

Location	Portland Cement Concrete (inches)
Roadways (TC=C)	6.5
Bus Stops (TC=D)	7.5

10.12.6 The PCC pavement should be placed over subgrade soil that is compacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content. This pavement section is based on a minimum concrete compressive strength of approximately 3,000 psi (pounds per square inch). Base material will not be required beneath concrete improvements.

10.12.7 A thickened edge or integral curb should be constructed on the outside of concrete slabs subjected to wheel loads. The thickened edge should be 1.2 times the slab thickness or a minimum thickness of 2 inches, whichever results in a thicker edge, and taper back to the recommended slab thickness 4 feet behind the face of the slab (e.g., a 9-inch-thick slab would have an 11-inch-thick edge). Reinforcing steel will not be necessary within the concrete for geotechnical purposes with the possible exception of dowels at construction joints as discussed herein.

10.12.8 In order to control the location and spread of concrete shrinkage cracks, crack-control joints (weakened plane joints) should be included in the design of the concrete pavement slab in accordance with the referenced ACI report.

10.12.9 Performance of the pavements is highly dependent on providing positive surface drainage away from the edge of the pavement. Ponding of water on or adjacent to the pavement surfaces will likely result in pavement distress and subgrade failure. Drainage from landscaped areas should be directed to controlled drainage structures. Landscape areas adjacent to the edge of asphalt pavements are not recommended due to the potential for surface or irrigation water to infiltrate the underlying permeable aggregate base and cause distress. Where such a condition cannot be avoided, consideration should be given to incorporating measures that will significantly reduce the potential for subsurface water migration into the aggregate base. If planter islands are planned, the perimeter curb should extend at least 6 inches below the level of the base materials.

10.13 Temporary Excavations

10.13.1 Excavations on the order of 5 to 15 feet below the existing ground surface are expected for construction of the proposed utility improvements; and it is expected that the proposed utilities will be installed with conventional cut-and-cover methods.

10.13.2 The excavations are expected to expose previously placed fill and alluvial soils which are suitable for vertical excavations up to 5 feet where loose soils or caving sands are not present and where not surcharged by adjacent traffic or structures.

10.13.3 Vertical excavations greater than 5 feet will require sloping measures in order to provide a stable excavation. Where sufficient space is available, temporary unsurcharged embankments should be designed by the contractor's competent person in accordance with OSHA regulations.

10.13.4 Where there is insufficient space for sloped excavations, shoring or trench shields should be used to support excavations. Shoring may also be necessary where sloped excavation could remove vertical or lateral support of existing improvements, including existing utilities and adjacent structures. Recommendations for temporary shoring are provided in the following section.

10.13.5 Where sloped embankments are utilized, the top of the slope should be barricaded to prevent vehicles and storage loads at the top of the slope within a horizontal distance equal to the height of the slope. If the temporary construction embankments are to be maintained during the rainy season, berms are suggested along the tops of the slopes where necessary to prevent runoff water from entering the excavation and eroding the slope faces. The contractor's competent person should inspect the soils exposed in the cut slopes during excavation in accordance with OSHA regulations so that modifications of the slopes can be made if variations in the soil conditions occur.

10.14 Shoring

10.14.1 Where there is insufficient space to perform sloped excavations, shoring may be implemented. It is expected that braced shoring, such as conventionally braced shields or cross-braced hydraulic shoring, will be utilized; however, the selection of the shoring system is the responsibility of the contractor. Shoring systems should be designed by a California licensed civil or structural engineer with experience in designing shoring systems.

10.14.2 We recommend that an equivalent fluid pressure based on the table below, be utilized for design of shoring. These pressures are based on the assumption that the shoring is supporting a level backfill and there are no hydrostatic pressures above the bottom of the excavation.

TABLE 10.14.2
RECOMMENDED SHORING PRESURES

HEIGHT OF SHORED EXCAVATION (FEET)	EQUIVALENT FLUID PRESSURE (Pounds Per Cubic Foot) (ACTIVE PRESSURE)	EQUIVALENT FLUID PRESSURE (Pounds Per Cubic Foot) (AT-REST PRESSURE)
Up to 20	30	50

10.14.3 Active pressures can only be achieved when movement in the soil (earth wall) occurs. If movement in the soil is not acceptable, such as adjacent to an existing structure or where braced shoring will be utilized the at-rest pressure should be considered for design purposes.

10.14.4 Additional active pressure should be added for a surcharge condition due to sloping ground, construction equipment, vehicular traffic, or adjacent structures and should be designed for each condition as the project progresses.

10.14.5 In addition to the recommended earth pressure, the upper ten feet of the shoring adjacent to roadways or driveway areas should be designed to resist a uniform lateral pressure of 100 psf, acting as a result of an assumed 300 psf surcharge behind the shoring due to normal street traffic. If the traffic is kept back at least ten feet from the shoring, the traffic surcharge may be neglected. Higher surcharge loads may be required to account for construction equipment.

10.14.6 It is difficult to accurately predict the amount of deflection of a shored embankment. It should be realized that some deflection will occur. We recommend that the deflection be minimized to prevent damage to existing structures and adjacent improvements. Where public right-of-ways are present or adjacent offsite structures do not surcharge the shoring excavation, the shoring deflection should be limited to less than 1 inch at the top of the shored embankment. Where offsite structures are within the shoring surcharge area it is recommended that the beam deflection be limited to less than ½ inch at the elevation of the adjacent offsite foundation, and no deflection at all if deflections will damage existing

structures. The allowable deflection is dependent on many factors, such as the presence of structures and utilities near the top of the embankment, and will be assessed and designed by the project shoring engineer.

10.15 Site Drainage and Moisture Protection

10.15.1 Adequate site drainage is critical to reduce the potential for differential soil movement, erosion and subsurface seepage. Under no circumstances should water be allowed to pond adjacent to footings. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with 2016 CBC 1804.4 or other applicable standards. In addition, surface drainage should be directed away from the top of slopes into swales or other controlled drainage devices. Roof and pavement drainage should be directed into conduits that carry runoff away from the proposed structure.

10.15.2 Underground utilities should be leak free. Utility and irrigation lines should be checked periodically for leaks, and detected leaks should be repaired promptly. Detrimental soil movement could occur if water is allowed to infiltrate the soil for prolonged periods of time.

10.15.3 Landscaping planters adjacent to paved areas are not recommended due to the potential for surface or irrigation water to infiltrate the pavement's subgrade and base course. We recommend that area drains to collect excess irrigation water and transmit it to drainage structures or impervious above-grade planter boxes be used. In addition, where landscaping is planned adjacent to the pavement, we recommend construction of a cutoff wall along the edge of the pavement that extends at least 6 inches below the bottom of the base material.

10.15.4 If not properly constructed, there is a potential for distress to improvements and properties located hydrologically down gradient or adjacent to infiltration areas. Factors such as the amount of water to be detained, its residence time, and soil permeability have an important effect on seepage transmission and the potential adverse impacts that may occur if the storm water management features are not properly designed and constructed. We have not performed a hydrogeology study at the site. Down-gradient and adjacent structures may be subjected to seeps, movement of foundations and slabs, or other impacts as a result of water infiltration.

10.16 Plan Review

10.16.1 Grading, shoring and foundation plans should be reviewed by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to finalization to verify that the plans have been prepared in substantial conformance with the recommendations of this report and to provide additional analyses or recommendations, if necessary.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that expected herein, Geocon West, Inc. should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous materials was not part of the scope of services provided by Geocon West, Inc.

2. This report is issued with the understanding that it is the responsibility of the owner, or of his representative, to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

3. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

4. The firm that performed the geotechnical investigation for the project should be retained to provide testing and observation services during construction to provide continuity of geotechnical interpretation and to check that the recommendations presented for geotechnical aspects of site development are incorporated during site grading, construction of improvements, and excavation of foundations. If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for their records. In addition, that firm should provide revised recommendations concerning the geotechnical aspects of the proposed development, or a written acknowledgement of their concurrence with the recommendations presented in our report. They should also perform additional analyses deemed necessary to assume the role of Geotechnical Engineer of Record.

LIST OF REFERENCES

1. Anderson Consulting Engineers, Inc., *Continental Villages Preliminary Site Layout*, undated.

2. Boore, D.M. and G.M Atkinson, *Ground-Motion Prediction for the Average Horizontal Component of PGA, PGV, and 5%-Damped PSA at Spectral Periods Between 0.01 and 10.0 S*, Earthquake Spectra, Volume 24, Issue 1, pages 99-138, February 2008.

3. California Geological Survey, 2003, *Earthquake Shaking Potential for California*, from USGS/CGS Seismic Hazards Model, CSSC No. 03-02.

4. California Geological Survey, 2002, *Seismic Shaking Hazards in California*, Based on the USGS/*CGS Probabilistic* Seismic Hazards Assessment (PSHA) Model, 10% probability of being exceeded in 50 years; revised April 2003; http://redirect.conservation.ca.gov/cgs/rghm/pshamap/pshamain.html.

5. California Department of Transportation (Caltrans), Division of Engineering Services, Materials Engineering and Testing Services, 2012, *Corrosion Guidelines, Version 2.0*, dated November.

6. Campbell, K.W. and Y. Bozorgnia, *NGA Ground Motion Model for the Geometric Mean Horizontal Component of PGA, PGV, PGD and 5% Damped Linear Elastic Response Spectra for Periods Ranging from 0.01 to 10 s*, Preprint of version submitted for publication in the NGA Special Volume of Earthquake Spectra, Volume 24, Issue 1, pages 139-171, February 2008.

7. Chiou, B.S.J., and R.R. Youngs, *A NGA Model for the Average Horizontal Component of Peak Ground Motion and Response Spectra*, preprint for article to be published in NGA Special Edition for Earthquake Spectra, Spring 2008.

8. Earth Strata Geotechnical Services, Inc., 2017, *Geotechnical Design Parameters for Keystone Retaining Wall, Proposed Residential Development, located on the Northeast Corner of Krameria Street [sic] and Lasalle [sic] Street, City of Moreno Valley, Riverside County, California*, dated January 26.

9. Earth Strata Geotechnical Services, Inc., 2016, *Geotechnical Interpretive Report, Proposed Residential Development, located on the Northeast Corner of Krameria Street [sic] and Lasalle [sic] Street, City of Moreno Valley, Riverside County, California*, dated July 15.

10. Google, 2017, Google Earth software, v. 7.1.5.1557; accessed March 20, 2018.

11. Jennings, C.W. and W.A. Bryant, 2010, *Fault Activity Map of California*, California Division of Mines and Geology Map No. 6.

12. Legg, M.R., J.C. Borrero, and C.E. Synolakis, 2003, *Evaluation of Tsunami Risk to Southern California Coastal Cities*, EERI, NEHRP Professional Fellowship Report PF2002-11, dated January.

13. Mains, Steven, 2017, *Spring 2017 Cooperative Well Measuring Program*, June.

LIST OF REFERENCES (continued)

14. Morton, DM and Matti, JC, 2001, *Geologic Map of the Sunnymead 7.5' Quadrangle, Riverside County, California*, Version 1.0, USGS Open File Report 01-450.

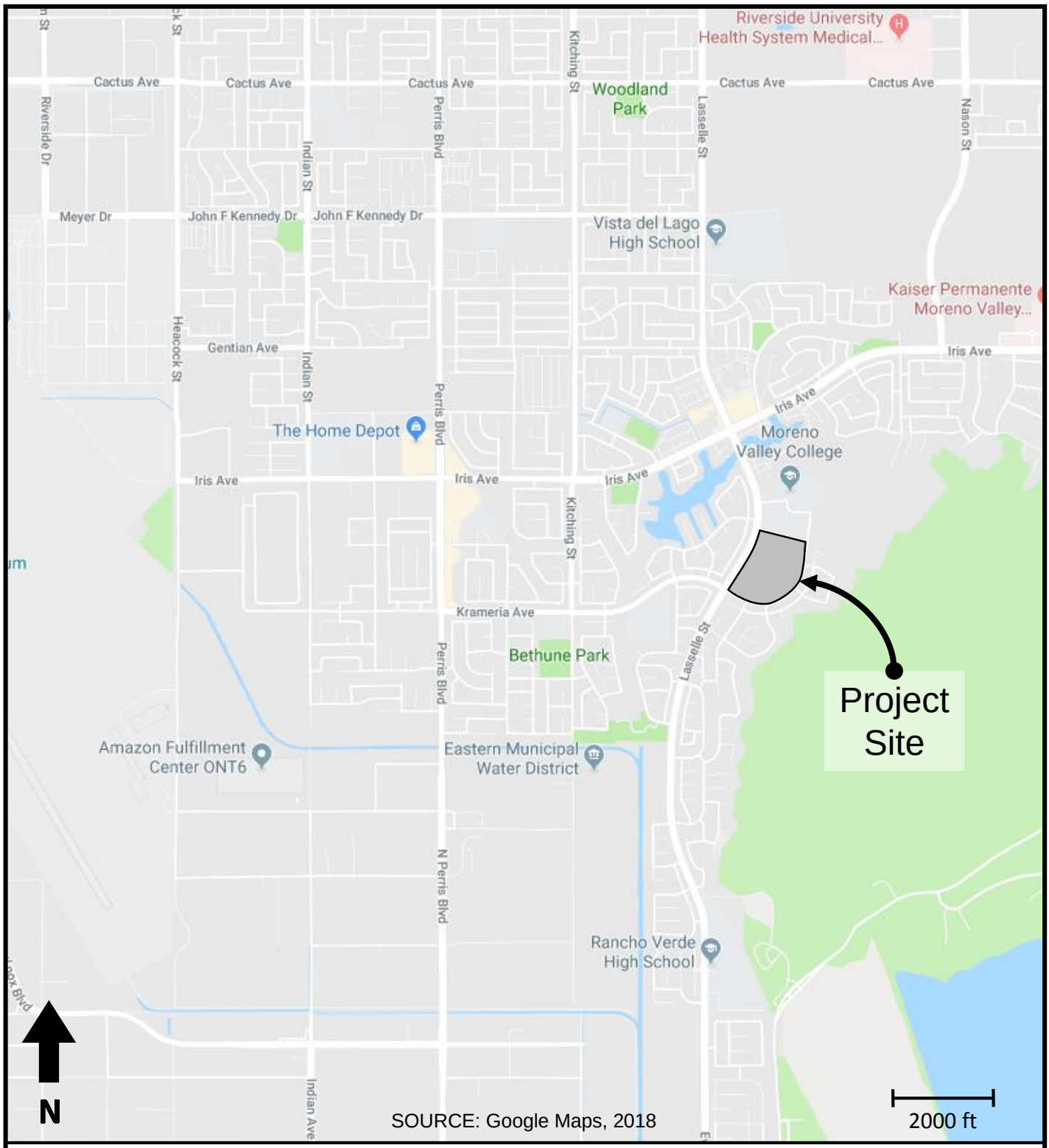
15. Riverside County GIS (RC GIS), 2015, Map My County website, http://mmc.rivcoit.org/MMC_Public/Custom/disclaimer/Default.htm; accessed September 28, 2017

16. Arulmoli, K., J.I. Baez, T.F. Blake, J. Earnest, F. Gharib, J. Goldhammer, D. Hsu, S. Kupferman, J. O'Tousa, C.R. Real, W. Reeder, E. Simantob, and T.L. Youd, 1999, *Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquifaction Hazards in California*, Southern California Earthquake Consortium (SCEC).

17. U.S. Department of Transportation Federal Highway Administration (FHWA), 2011, LRFD Seismic Analysis and Design of Transportation Geotechnical Features and Structural Foundations, Reference Manual, Publication No. FHWA-NHI-11-032, GEC No. 3, Rev 1, dated August.

18. United States Geological Survey (USGS), 2015, U.S. Seismic Design Maps website: http://earthquake.usgs.gov/designmaps/us/application.php; accessed March 20, 2018.

19. United Geological Survey, U.S. Seismic Design Maps web tools, Unified Hazard Tool, accessed March 20, 2018.



VICINITY MAP

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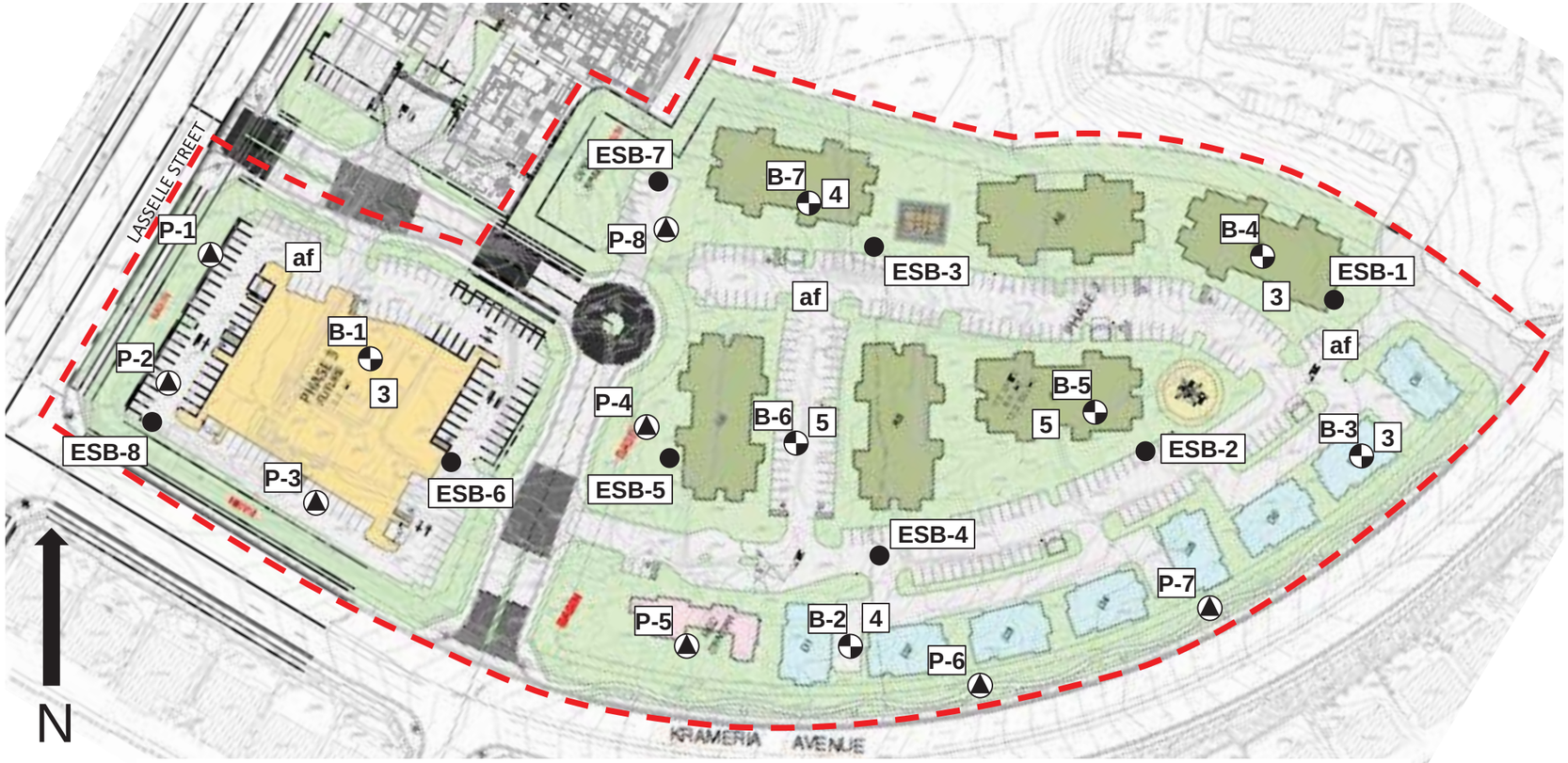
W E S T, I N C.
GEOTECHNICAL ENVIRONMENTAL MATERIALS
41571 CORNING PLACE, SUITE 101, MURRIETA, CA 92562-7065
PHONE 951-304-2300 FAX 951-304-2392

AMO		

CONTINENTAL VILLAGES
SOUTHEAST OF LASSELLE STREET &
KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

MARCH, 2018	PROJECT NO. T2809-22-01	FIG. 1



GEOCON LEGEND

Locations are approximate

- ------ ..... PROJECT BOUNDARY
- B-7 ..... GEOCON BORING LOCATION, THIS STUDY
- P-8 ..... GEOCON PERCOLATION TEST LOCATION, THIS STUDY
- ESB-8 ..... GEOTECHNICAL BORING, EARTH STRATA, 2016
- af ..... PREVIOUSLY PLACED ARTIFICIAL FILL
- 3 ..... EXPECTED REMEDIAL REMOVAL DEPTH IN FEET

0 130 260

SCALE 1" = 130'

Source: Anderson Consulting Engineers, Inc., *Continental Villages, Preliminary Site Layout*; undated.

GEOCON WEST, INC.
GEOTECHNICAL ENVIRONMENTAL MATERIALS
41571 CORNING PLACE, SUITE 101, MURRIETA, CA 92562-7065
PHONE 951-304-2300 FAX 951-304-2392

AMO			MARCH, 2018	PROJECT NO. T2809-22-01	FIG. 2

GEOTECHNICAL MAP
CONTINENTAL VILLAGES
SOUTHEAST OF LASSELLE STREET & KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

ASSUMED CONDITIONS:

SLOPE HEIGHT	H	=	20 feet
SLOPE INCLINATION			2.0 : 1.0 (Horizontal : Vertical)
TOTAL UNIT WEIGHT OF SOIL	γ_t	=	130 pounds per cubic foot
ANGLE OF INTERNAL FRICTION	ϕ	=	35 degrees
APPARENT COHESION	C	=	150 pounds per square foot
NO SEEPAGE FORCES			

ANALYSIS:

λ_{cf}	=	$\frac{\gamma H \tan\phi}{C}$	EQUATION (3-3), REFERENCE 1
FS	=	$\frac{N_{cf} C}{\gamma H}$	EQUATION (3-2), REFERENCE 1
λ_{cf}	=	12.1	CALCULATED USING EQ. (3-3)
Ncf	=	38	DETERMINED USING FIGURE 10, REFERENCE 2
FS	=	2.2	FACTOR OF SAFETY CALCULATED USING EQ. (3-2)

REFERENCES:

1……Janbu, N., Stability Analysis of Slopes with Dimensionless Parameters, Harvard Soil Mechanics Series No. 46,1954

2……Janbu, N., Discussion of J.M. Bell Dimensionless Parameters for Homogeneous Earth Slpes, Journal of Soil Mechanicx and Foundation Design, No. SM6, November 1967

GEOCON WEST, INC.
GEOTECHNICAL CONSULTANTS
41571 CORNING PLACE SUITE 101 MURRIETA, CA 92562-7065
PHONE 951-304-2300 FAX 951-304-2392

CER		

SLOPE STABILITY ANALYSIS
CONTINENTAL VILLAGES
SOUTHEAST OF LASELLE STREET &
KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

MARCH, 2018	PROJECT NO. T2809-22-01	FIG. 3

ASSUMED CONDITIONS:

SLOPE HEIGHT	H	= 20 feet
SLOPE INCLINATION		2.0 : 1.0 (Horizontal : Vertical)
TOTAL UNIT WEIGHT OF SOIL	γ_t	= 130 pounds per cubic foot
ANGLE OF INTERNAL FRICTION	ϕ	= 35 degrees
APPARENT COHESION	C	= 150 pounds per square foot
PSEUDOSTATIC COEFFICIENT	k_h	= 0.15
PSEUDOSTATIC INCLINATION		1.4 : 1.0 (Horizontal : Vertical)
PSEUDOSTATIC UNIT WEIGHT	γ_{ps}	= 131 pounds per cubic foot

NO SEEPAGE FORCES

ANALYSIS:

$\lambda_{cf} = \frac{\gamma H \tan\phi}{C}$ EQUATION (3-3), REFERENCE 1

$FS = \frac{Ncf C}{\gamma H}$ EQUATION (3-2), REFERENCE 1

λ_{cf} = 12.3 CALCULATED USING EQ. (3-3)

Ncf = 30 DETERMINED USING FIGURE 10, REFERENCE 2

FS = 1.7 FACTOR OF SAFETY CALCULATED USING EQ. (3-2)

REFERENCES:

1……Janbu, N., Stability Analysis of Slopes with Dimensionless Parameters, Harvard Soil Mechanics Series No. 46,1954

2……Janbu, N., Discussion of J.M. Bell Dimensionless Parameters for Homogeneous Earth Slpes, Journal of Soil Mechanicx and Foundation Design, No. SM6, November 1967

GEOCON WEST, INC.
GEOTECHNICAL CONSULTANTS
41571 CORNING PLACE SUITE 101 MURRIETA, CA 92562-7065
PHONE 951-304-2300 FAX 951-304-2392

CER		

SLOPE STABILITY ANALYSIS - WITH SEISMIC

CONTINENTAL VILLAGES
SOUTHEAST OF LASELLE STREET &
KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

MARCH, 2018	PROJECT NO. T2809-22-01	FIG. 4

ASSUMED CONDITIONS:

SLOPE HEIGHT	H	=	Infinte
SLOPE INCLINATION	2.0 : 1.0 (Horizontal : Vertical)		
SLOPE ANGLE	i	=	26.6 °
DEPTH OF SATURATION	Z	=	3 feet
UNIT WEIGHT OF WATER	γ_w		62.4 pounds per cubic foot
TOTAL UNIT WEIGHT OF SOIL	γ_t	=	130 pounds per cubic foot
ANGLE OF INTERNAL FRICTION	ϕ	=	35 degrees
APPARENT COHESION	C	=	150 pounds per square foot

SLOPE SATURATED TO VERTICAL DEPTH Z BELOW SLOPE FACE.
SEEPAGE FORCES PARALLEL TO SLOPE FACE.

ANALYSIS:

$$FS = \frac{C + (\gamma_t - \gamma_w) Z \cdot \cos^2 i \cdot \tan \phi}{\gamma_t \cdot Z \cdot \sin i \cdot \cos i} = 1.7$$

REFERENCES:

1……Haefeli, R. *The Stability of Slopes Acted Upon by Parallel Seepage,* Proc. Second International Conference, SMFE, Rotterdam, 1948, 1, 57-62.

2……Skempton, A. W., and F. A. Delory, *Stability of Natural Slopes in London Clay,* Proc. Fourth International Conference, SMFE, London, 1957, 2, 378-81.

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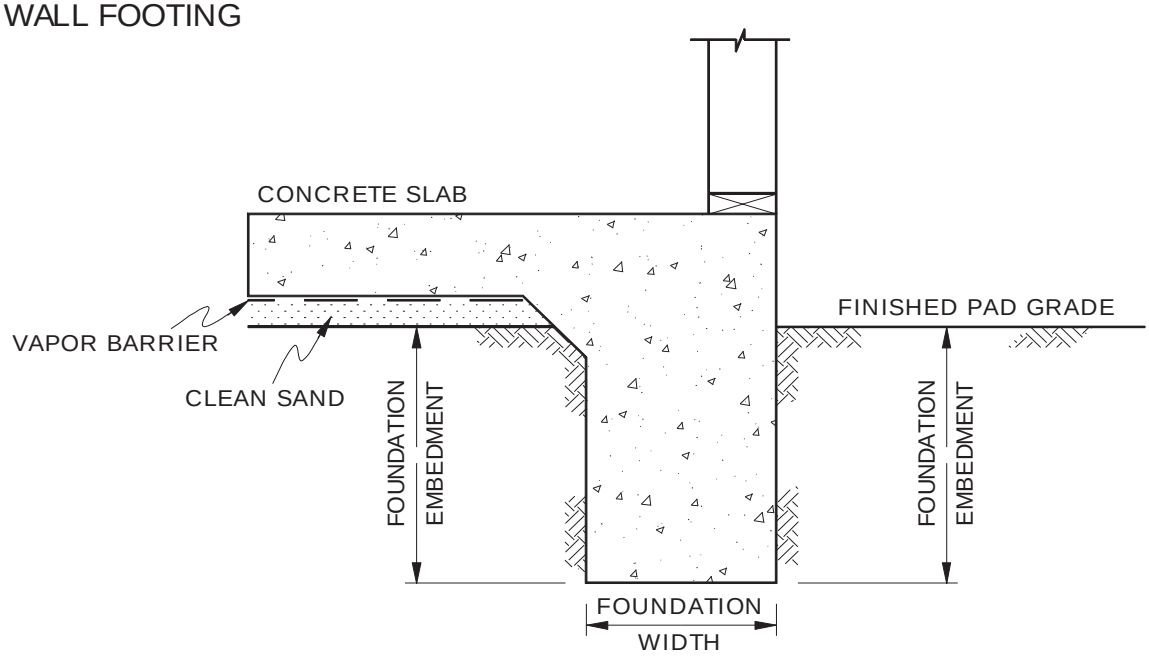
CER		

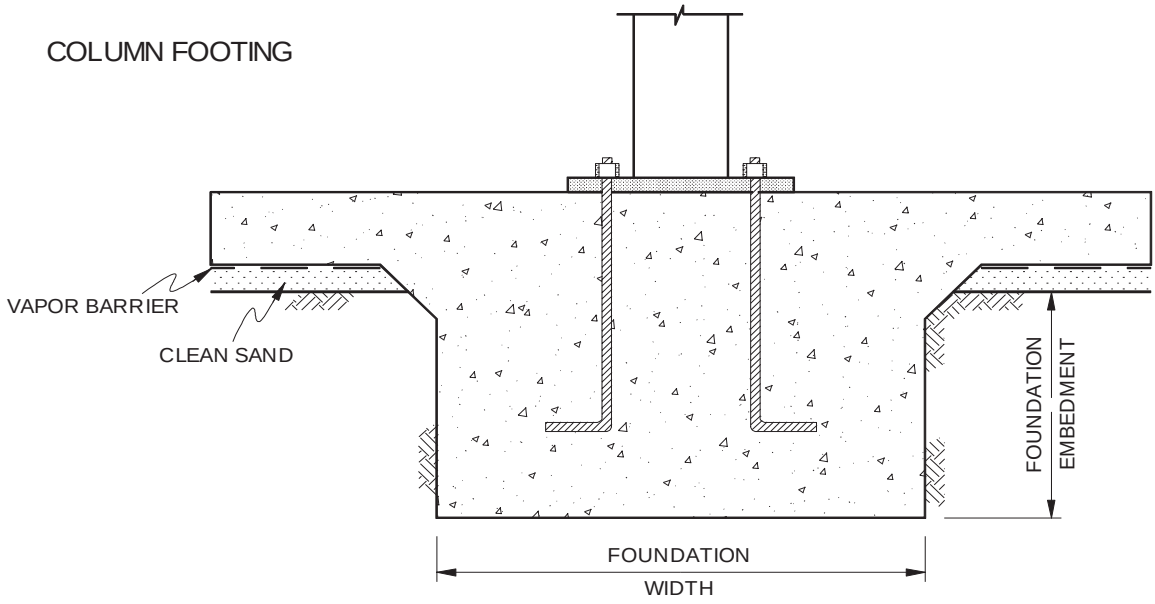
SURFICIAL SLOPE STABILITY
CONTINENTAL VILLAGES
SOUTHEAST OF LASELLE STREET &
KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

MARCH, 2018	PROJECT NO. T2809-22-01	FIG. 5

WALL FOOTING



COLUMN FOOTING



NOTE: SEE REPORT FOR FOUNDATION WIDTH AND DEPTH RECOMMENDATION

NO SCALE

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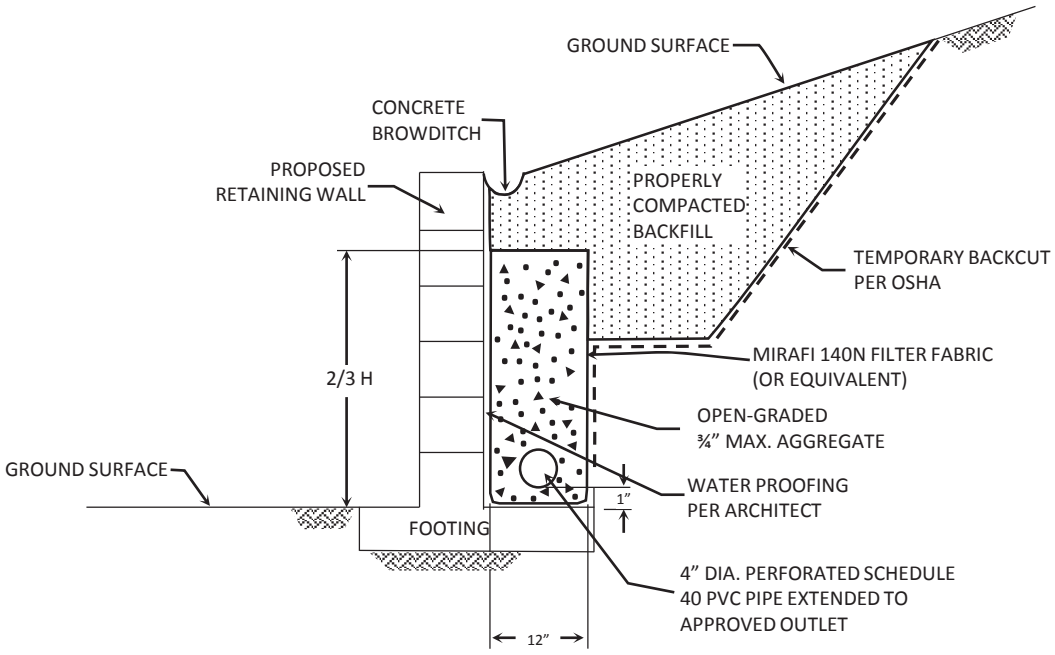
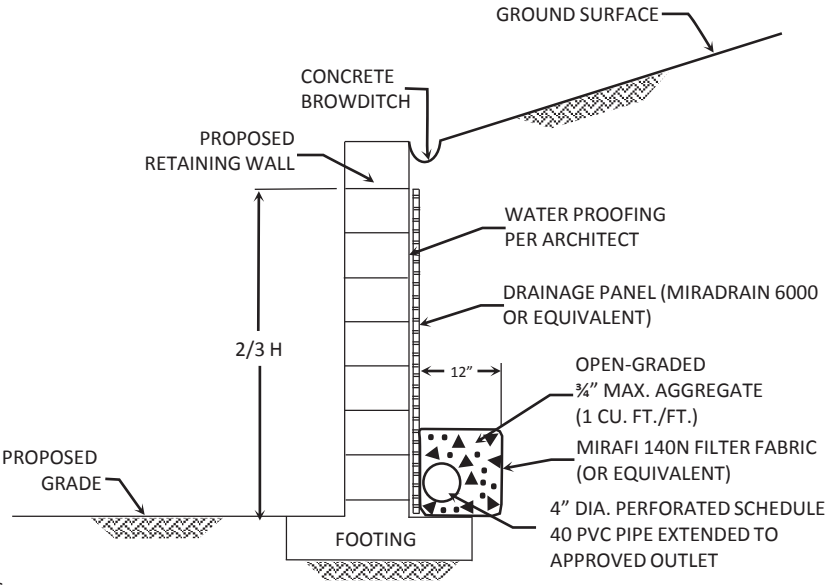
AMO		

WALL / COLUMN FOOTING DETAIL

CONTINENTAL VILLAGES
SOUTHEAST OF LASSELLE STREET &
KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

MARCH, 2018	PROJECT NO. T2809-22-01	FIG. 6





NOTES:

DRAIN SHOULD BE UNFORMLY SLOPED TO GRAVITY OUTLET OR TO A SUMP WHERE WATER CAN BE REMOVED BY PUMPIMG

CONCRETE BROW DITCH RECOMMENDED FOR SLOPE HEIGHTS GREATER THAN 6 FEET

NO SCALE

TYPICAL RETAINING WALL DRAIN DETAIL

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AMO		

CONTINENTAL VILLAGES
SOUTHEAST OF LASSELLE STREET & KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

MARCH, 2018	PROJECT NO. T2809-22-01	FIG. 7

APPENDIX A

APPENDIX A

EXPLORATORY EXCAVATIONS

Geocon performed the field investigation on March 1, 2018 and percolation testing on March 5, 2018. Our subsurface exploration consisted of drilling seven geotechnical borings and eight percolation test borings. The geotechnical borings were drilled through the previously placed fill into the older alluvium to depths of 21.5 to 31.5 feet below the existing ground surface. We collected bulk and relatively undisturbed samples from the borings by driving a 3-inch O. D., California Modified Sampler into the "undisturbed" soil mass with blows from a 140-pound hammer falling 30 inches. The California Modified Sampler was equipped with 1-inch high by 2⅜-inch inside diameter brass sampler rings to facilitate removal and testing. Relatively undisturbed samples and bulk samples of disturbed soils were transported to our laboratory for testing.

The soil conditions encountered in the borings were visually examined, classified and logged in general accordance with the Unified Soil Classification System (USCS). Logs of the borings are presented on Figures A-1 through A-15. The logs depict the soil and geologic conditions encountered and the depth at which samples were obtained. The approximate locations of the excavations are indicated the *Geotechnical Map*, Figure 2.

Geotechnical excavation logs from previous investigations are presented in *Appendix A*. The locations of the excavations are depicted on the *Geotechnical Map*, Figure 2.

The previous boring logs are also included in this appendix.

PROJECT NO. T2809-22-01

BORING B-1

ELEV. (MSL.) **1527** DATE COMPLETED **03/01/2018**

EQUIPMENT **HOLLOW STEM AUGER** BY: **P. THERIAULT**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B-1@0-5'			SC	**PREVIOUSLY PLACED ARTIFICIAL FILL (af)** Clayey SAND, very dense, moist, brown; fine to coarse sand; trace gravel; micaceous			
2	B-1@2.5'				-Becomes reddish brown	50/6"	128.9	6.5
4	B-1@5'				-Becomes dense	62	128.1	7.3
6	B-1@7.5'				-Becomes very dense	50/6"	133.1	6.1
8	B-1@10'			SC	**VERY OLD ALLUVIAL FAN DEPOSITS (Qvof)** Clayey SAND, dense, moist, yellowish brown; fine to coarse sand	68	134.3	7.9
10	B-1@12.5'				-Increase in silt and fine to medium sand	52	126.8	4.9
12	B-1@15'					49	127.3	7.5
14	B-1@17.5'				-Becomes reddish brown	44		
16	B-1@20'				-Becomes medium dense	40	130.2	6.5
18					-Decrease in silt; increase in fine to coarse sand			
20					Total depth 21.5 feet No groundwater encountered No caving Penetration resistance for 140 lb. hammer falling 30" by auto-hammer Backfilled with cuttings on 03/01/2018			

Figure A-1,
Log of Boring B-1, Page 1 of 1

T2809-22-01 CONTINENTAL LOGS.G

SAMPLE SYMBOLS

- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. T2809-22-01

BORING B-2

ELEV. (MSL.) **1540** DATE COMPLETED **03/01/2018**

EQUIPMENT **HOLLOW STEM AUGER** BY: **P. THERIAULT**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
2				SC	**PREVIOUSLY PLACED ARTIFICIAL FILL (af)** Clayey SAND, very dense, moist, reddish brown; fine to coarse sand; trace gravel; micaceous			
4								
6	B-2@5'					80	122.7	7.5
8								
10	B-2@10'			SC	**VERY OLD ALLUVIAL FAN DEPOSITS (Qvof)** Clayey SAND, medium dense, damp, yellowish brown; fine to coarse sand; micaceous	35	120.6	2.2
12								
14								
16	B-2@15'				-Becomes reddish brown; fine to medium sand; some coarse sand; increase in silt	49	127.1	4.3
18								
20	B-2@20'				-Becomes dense	61	128.0	5.5
					Total depth 21.5 feet No groundwater encountered No caving Penetration resistance for 140 lb. hammer falling 30" by auto-hammer Backfilled with cuttings on 03/01/2018			

Figure A-2,
Log of Boring B-2, Page 1 of 1

T2809-22-01 CONTINENTAL LOGS.G

SAMPLE SYMBOLS

- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. T2809-22-01

BORING B-3

ELEV. (MSL.) **1555** DATE COMPLETED **03/01/2018**

EQUIPMENT **HOLLOW STEM AUGER** BY: **P. THERIAULT**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SC	**PREVIOUSLY PLACED ARTIFICIAL FILL (af)** Clayey SAND, dense, moist, reddish brown; fine to coarse sand; trace gravel; micaceous			
2	B-3@2.5'					64	127.5	7.5
4								
6	B-3@5'				-Becomes very dense	85/11"	134.4	5.0
8	B-3@7.5'			SC	**VERY OLD ALLUVIAL FAN DEPOSITS (Qvof)** Clayey SAND, dense, damp, brown; fine to medium sand; some coarse sand; micaceous	47	131.0	8.5
10	B-3@10'				-Becomes moist	43	125.1	5.7
12	B-3@12.5'			SP	Poorly-graded SAND, medium dense, moist, yellowish brown; fine to coarse sand; micaceous	44	111.3	2.3
14								
16	B-3@15' B-3@15-20					33	121.9	6.8
18	B-3@17.5'			SC	Clayey SAND, medium dense, moist, reddish brown; fine to medium sand; micaceous	36		
20	B-3@20'					43		
					Total depth 21.5 feet No groundwater encountered No caving Penetration resistance for 140 lb. hammer falling 30" by auto-hammer Backfilled with cuttings on 03/01/2018			

Figure A-3,
Log of Boring B-3, Page 1 of 1

T2809-22-01 CONTINENTAL LOGS.G

SAMPLE SYMBOLS

- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T2809-22-01

BORING B-4

ELEV. (MSL.) **1553** DATE COMPLETED **03/01/2018**

EQUIPMENT **HOLLOW STEM AUGER** BY: **P. THERIAULT**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B-4@0-5'			SC	**PREVIOUSLY PLACED ARTIFICIAL FILL (af)** Clayey SAND, very dense, moist, reddish brown; fine to coarse sand; trace gravel; micaceous			
2								
4								
6	B-4@5'					50/6"	127.9	7.9
8								
10	B-4@10'			SC	**VERY OLD ALLUVIAL FAN DEPOSITS (Qvof)** Clayey SAND, dense, moist, yellowish brown; fine to coarse sand; micaceous	55	125.8	2.2
12								
14								
16	B-4@15'				-Becomes medium dense	37	126.1	2.7
18								
20	B-4@20'				-Becomes dense	57	120.5	2.3
					Total depth 21.5 feet No groundwater encountered No caving Penetration resistance for 140 lb. hammer falling 30" by auto-hammer Backfilled with cuttings on 03/01/2018			

Figure A-4,
Log of Boring B-4, Page 1 of 1

T2809-22-01 CONTINENTAL LOGS.G

SAMPLE SYMBOLS

- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

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PROJECT NO. T2809-22-01

BORING B-5

ELEV. (MSL.) **1550** DATE COMPLETED **03/01/2018**

EQUIPMENT **HOLLOW STEM AUGER** BY: **P. THERIAULT**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SC	**PREVIOUSLY PLACED ARTIFICIAL FILL (af)** Clayey SAND, dense, moist, brown; fine to coarse sand; trace gravel; micaceous			
2								
4								
6	B-5@5' B-5@5-10'				-Becomes reddish brown	65	127.3	7.3
8								
10	B-5@10'					69	135.9	6.3
12					-Becomes medium dense, dark brown			
14								
16	B-5@15'					36	130.9	7.2
18				SC	**VERY OLD ALLUVIAL FAN DEPOSITS (Qvof)** Clayey SAND, dense, damp, yellowish brown; fine to coarse sand; micaceous			
20	B-5@20'					49	118.1	2.4
					Total depth 21.5 feet No groundwater encountered No caving Penetration resistance for 140 lb. hammer falling 30" by auto-hammer Backfilled with cuttings on 03/01/2018			

Figure A-5,
Log of Boring B-5, Page 1 of 1

T2809-22-01 CONTINENTAL LOGS.G

SAMPLE SYMBOLS

- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T2809-22-01

BORING B-6

ELEV. (MSL.) **1538** DATE COMPLETED **03/01/2018**

EQUIPMENT **HOLLOW STEM AUGER** BY: **P. THERIAULT**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SC	**PREVIOUSLY PLACED ARTIFICIAL FILL (af)** Clayey SAND, dense, moist, reddish brown; fine to coarse sand; trace gravel; micaceous			
2								
4								
6	B-6@5'					75	118.5	9.5
8								
10	B-6@10'				-Becomes medium dense; trace clay	40	127.3	8.9
12								
14								
16	B-6@15'				-Becomes dark brown	55	131.9	9.0
18								
20	B-6@20'					61	129.6	6.1
22				SC	**VERY OLD ALLUVIAL FAN DEPOSITS (Qvof)** Clayey SAND, medium dense, moist, yellowish brown; fine to coarse sand; trace gravel; micaceous			
24								
26	B-6@25'					41	122.8	3.0
28								

Figure A-6,
Log of Boring B-6, Page 1 of 2

T2809-22-01 CONTINENTAL LOGS.G

SAMPLE SYMBOLS

- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T2809-22-01

BORING B-6

ELEV. (MSL.) **1538** DATE COMPLETED **03/01/2018**

EQUIPMENT **HOLLOW STEM AUGER** BY: **P. THERIAULT**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	B-6@30'			SC	Clayey SAND, medium dense, moist, brownish red; fine to coarse sand; trace gravel; micaceous	46	127.7	2.5
					Total depth 31.5 feet No groundwater encountered No caving Penetration resistance for 140 lb. hammer falling 30" by auto-hammer Backfilled with cuttings on 03/01/2018			

Figure A-6,
Log of Boring B-6, Page 2 of 2

T2809-22-01 CONTINENTAL LOGS.G

SAMPLE SYMBOLS

- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

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PROJECT NO. T2809-22-01

BORING B-7

ELEV. (MSL.) **1536** DATE COMPLETED **03/01/2018**

EQUIPMENT **HOLLOW STEM AUGER** BY: **P. THERIAULT**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SC	**PREVIOUSLY PLACED ARTIFICIAL FILL (af)** Clayey SAND, dense, damp, brown; fine to coarse sand; trace gravel; micaceous			
2	B-7@2.5'					73	104.1	7.4
4								
6	B-7@5'				-Becomes very dense	50/6"	131.8	5.5
8	B-7@7.5'					83	128.9	9.7
10	B-7@10'				-Becomes dense	61	133.7	6.9
12								
14								
16	B-7@15'					87	131.9	7.0
				SC	**VERY OLD ALLUVIAL FAN DEPOSITS (Qvof)** Clayey SAND, very dense, damp, yellowish brown; fine to coarse sand; trace gravel; micaceous			
18								
20	B-7@20'				-Becomes medium dense	56	128.1	2.9
22								
24								
26	B-7@25'				-Becomes reddish brown	50	131.6	4.8
					Total depth 26.5 feet No groundwater encountered No caving Penetration resistance for 140 lb. hammer falling 30" by auto-hammer Backfilled with cuttings on 03/01/2018			

Figure A-7,
Log of Boring B-7, Page 1 of 1

T2809-22-01 CONTINENTAL LOGS.G

SAMPLE SYMBOLS

- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T2809-22-01

BORING P-1

ELEV. (MSL.) **1519** DATE COMPLETED **03/01/2018**

EQUIPMENT **HOLLOW STEM AUGER** BY: **P. THERIAULT**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
2				SC	**PREVIOUSLY PLACED ARTIFICIAL FILL (af)** Clayey SAND, dense, moist, dark brown; fine to coarse sand; trace gravel; micaceous			
4	P-1@4'					75		
					Total depth 5.5 feet No groundwater encountered No caving Penetration resistance for 140 lb. hammer falling 30" by auto-hammer Set for percolation testing; backfilled following percolation testing on 03/05/2018			

Figure A-8,
Log of Boring P-1, Page 1 of 1

T2809-22-01 CONTINENTAL LOGS.G

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. T2809-22-01

BORING P-2

ELEV. (MSL.) **1517** DATE COMPLETED **03/01/2018**

EQUIPMENT **HOLLOW STEM AUGER** BY: **P. THERIAULT**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
2	P-2@3'			SC	**PREVIOUSLY PLACED ARTIFICIAL FILL (af)** Clayey SAND, dense, moist, dark brown; fine to coarse sand; trace gravel; micaceous	61		
4								
					Total depth 4.5 feet No groundwater encountered No caving Penetration resistance for 140 lb. hammer falling 30" by auto-hammer Set for percolation testing; backfilled following percolation testing on 03/05/2018			

Figure A-9,
Log of Boring P-2, Page 1 of 1

T2809-22-01 CONTINENTAL LOGS.G

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. T2809-22-01

BORING P-3

ELEV. (MSL.) **1527** DATE COMPLETED **03/01/2018**

EQUIPMENT **HOLLOW STEM AUGER** BY: **P. THERIAULT**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
				SC	**PREVIOUSLY PLACED ARTIFICIAL FILL (af)** Clayey SAND, very dense, moist, dark brown; fine to coarse sand; trace gravel; micaceous			
2								
4								
6								
	P-3@7'					50/5"		
					Total depth 7.9 feet No groundwater encountered No caving Penetration resistance for 140 lb. hammer falling 30" by auto-hammer Set for percolation testing; backfilled following percolation testing on 03/05/2018			

Figure A-10,
Log of Boring P-3, Page 1 of 1

T2809-22-01 CONTINENTAL LOGS.G

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. T2809-22-01

BORING P-4

ELEV. (MSL.) **1531** DATE COMPLETED **03/01/2018**

EQUIPMENT **HOLLOW STEM AUGER** BY: **P. THERIAULT**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
2				SC	**PREVIOUSLY PLACED ARTIFICIAL FILL (af)** Clayey SAND, medium dense, moist, dark brown; fine to coarse sand; trace gravel; micaceous			
4								
6	P-4@5'					32		
					Total depth 6.5 feet No groundwater encountered No caving Penetration resistance for 140 lb. hammer falling 30" by auto-hammer Set for percolation testing; backfilled following percolation testing on 03/05/2018			

Figure A-11,
Log of Boring P-4, Page 1 of 1

T2809-22-01 CONTINENTAL LOGS.G

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. T2809-22-01

BORING P-5

ELEV. (MSL.) **1535** DATE COMPLETED **03/01/2018**

EQUIPMENT **HOLLOW STEM AUGER** BY: **P. THERIAULT**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
2				SC	**PREVIOUSLY PLACED ARTIFICIAL FILL (af)** Clayey SAND, dense, moist, dark brown; fine to coarse sand; trace gravel; micaceous			
4	P-5@4'					65		
					Total depth 5.5 feet No groundwater encountered No caving Penetration resistance for 140 lb. hammer falling 30" by auto-hammer Set for percolation testing; backfilled following percolation testing on 03/05/2018			

Figure A-12,
Log of Boring P-5, Page 1 of 1

T2809-22-01 CONTINENTAL LOGS.G

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. T2809-22-01

BORING P-6

ELEV. (MSL.) **1545** DATE COMPLETED **03/01/2018**

EQUIPMENT **HOLLOW STEM AUGER** BY: **P. THERIAULT**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SC	**PREVIOUSLY PLACED ARTIFICIAL FILL (af)** Clayey SAND, medium dense, moist, reddish brown; fine to coarse sand; trace gravel; micaceous			
2								
4				SC	**VERY OLD ALLUVIAL FAN DEPOSITS (Qvof)** Clayey SAND, medium dense, damp, reddish brown; fine to medium sand; some coarse sand; micaceous			
6	P-6@5'					44		
					Total depth 6.5 feet No groundwater encountered No caving Penetration resistance for 140 lb. hammer falling 30" by auto-hammer Set for percolation testing; backfilled following percolation testing on 03/05/2018			

Figure A-13,
Log of Boring P-6, Page 1 of 1

T2809-22-01 CONTINENTAL LOGS.G

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. T2809-22-01

BORING P-7

ELEV. (MSL.) **1554** DATE COMPLETED **03/01/2018**

EQUIPMENT **HOLLOW STEM AUGER** BY: **P. THERIAULT**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
				SC	**PREVIOUSLY PLACED ARTIFICIAL FILL (af)** Clayey SAND, very dense, moist, dark reddish brown; fine to coarse sand; few gravel; micaceous			
2								
	P-7@3'					79		
4								
					Total depth 4.5 feet No groundwater encountered No caving Penetration resistance for 140 lb. hammer falling 30" by auto-hammer Set for percolation testing; backfilled following percolation testing on 03/05/2018			

Figure A-14,
Log of Boring P-7, Page 1 of 1

T2809-22-01 CONTINENTAL LOGS.G

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. T2809-22-01

BORING P-8

ELEV. (MSL.) **1536** DATE COMPLETED **03/01/2018**

EQUIPMENT **HOLLOW STEM AUGER** BY: **P. THERIAULT**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
2				SC	**PREVIOUSLY PLACED ARTIFICIAL FILL (af)** Clayey SAND, very dense, damp, reddish brown; fine to coarse sand; trace gravel; micaceous			
4	P-8@4'					91/11"		
					Total depth 5.4 feet No groundwater encountered No caving Penetration resistance for 140 lb. hammer falling 30" by auto-hammer Set for percolation testing; backfilled following percolation testing on 03/05/2018			

Figure A-15,
Log of Boring P-8, Page 1 of 1

T2809-22-01 CONTINENTAL LOGS.G

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PERCOLATION TEST REPORT

Project Name:		Moreno Valley Multi-Use Development			**Project No.:**		T2809-22-01
Test Hole No.:		P-1	Area 6		**Date Excavated:**		3/1/2018
Length of Test Pipe:			57.7	inches	**Soil Classification:**		SC
Height of Pipe above Ground:			17.4	inches	**Presoak Date:**		3/1/2018
Depth of Test Hole:			40.3	inches	**Perc Test Date:**		3/5/2018
Check for Sandy Soil Criteria Tested by:			N/A		**Percolation Tested by:**		SP
Water level measured from bottom of hole							
			Soil Criteria: Normal				
			Percolation Test				
Reading No.	**Time**	**Time Interval (min)**	**Total Elapsed Time (min)**	**Initial Water Head (in)**	**Final Water Head (in)**	**Δ in Water Level (inches)**	**Percolation Rate (min/inch)**
1	8:46 AM 9:26 AM	40	40	31.3	30.6	0.7	55.6
2	9:56 AM 10:26 AM	30	70	30.6	30.4	0.2	125.0
3	10:26 AM 10:56 AM	30	100	30.4	30.1	0.2	125.0
4	10:56 AM 11:26 AM	30	130	30.1	30.0	0.1	250.0
5	11:26 AM 11:56 AM	30	160	30.0	30.0	0.0	0.0
6	11:56 AM 12:26 PM	30	190	30.0	29.9	0.1	250.0
7	12:26 PM 12:56 PM	30	220	29.9	29.9	0.0	0.0
8	12:56 PM 1:26 PM	30	250	29.9	29.8	0.1	250.0
9	1:26 PM 1:56 PM	30	280	29.8	29.8	0.0	0.0
10	1:56 PM 2:26 PM	30	310	29.8	29.6	0.1	250.0
11	2:26 PM 2:56 PM	30	340	29.6	29.6	0.0	0.0
12	2:56 PM 3:26 PM	30	370	29.6	29.5	0.1	250.0
Infiltration Rate (in/hr):			0.01				
Radius of test hole (in):			4				**Figure A-16**
Average Head (in):			29.6				

PERCOLATION TEST REPORT

Project Name:		Moreno Valley Multi-Use Development			**Project No.:**		T2809-22-01
Test Hole No.:		P-2	Area 7		**Date Excavated:**		3/1/2018
Length of Test Pipe:			54.4	inches	**Soil Classification:**		SC
Height of Pipe above Ground:			22.1	inches	**Presoak Date:**		3/1/2018
Depth of Test Hole:			32.3	inches	**Perc Test Date:**		3/5/2018
Check for Sandy Soil Criteria Tested by:				N/A	**Percolation Tested by:**		SP
Water level measured from bottom of hole							
			Soil Criteria: Normal				
			Percolation Test				
Reading No.	**Time**	**Time Interval (min)**	**Total Elapsed Time (min)**	**Initial Water Head (in)**	**Final Water Head (in)**	**Δ in Water Level (inches)**	**Percolation Rate (min/inch)**
1	8:51 AM 9:28 AM	37	37	26.2	25.7	0.5	77.1
2	9:28 AM 9:58 AM	30	67	25.7	25.6	0.1	250.0
3	9:58 AM 10:28 AM	30	97	25.6	25.4	0.1	250.0
4	10:28 AM 10:58 AM	30	127	25.4	25.4	0.0	0.0
5	10:58 AM 11:28 AM	30	157	25.4	25.3	0.1	250.0
6	11:28 AM 11:58 AM	30	187	25.3	25.2	0.1	250.0
7	11:58 AM 12:28 PM	30	217	25.2	25.2	0.0	0.0
8	12:28 PM 12:58 PM	30	247	25.2	25.1	0.1	250.0
9	12:58 PM 1:28 PM	30	277	25.1	25.1	0.0	0.0
10	1:28 PM 1:58 PM	30	307	25.1	25.0	0.1	250.0
11	1:58 PM 2:28 PM	30	337	25.0	25.0	0.0	0.0
12	2:28 PM 2:58 PM	30	367	25.0	24.8	0.1	250.0
Infiltration Rate (in/hr):			0.02				
Radius of test hole (in):			4				**Figure A-17**
Average Head (in):			24.9				

PERCOLATION TEST REPORT

Project Name:		Moreno Valley Multi-Use Development			**Project No.:**		T2809-22-01
Test Hole No.:		P-3	Area 8		**Date Excavated:**		3/1/2018
Length of Test Pipe:			101.4	inches	**Soil Classification:**		SC
Height of Pipe above Ground:			21.2	inches	**Presoak Date:**		3/1/2018
Depth of Test Hole:			80.2	inches	**Perc Test Date:**		3/5/2018
Check for Sandy Soil Criteria Tested by:				N/A	**Percolation Tested by:**		SP
Water level measured from bottom of hole							
			Soil Criteria: Normal				
			Percolation Test				

Reading No.	**Time**	**Time Interval (min)**	**Total Elapsed Time (min)**	**Initial Water Head (in)**	**Final Water Head (in)**	**Δ in Water Level (inches)**	**Percolation Rate (min/inch)**
1	9:01 AM 9:32 AM	31	31	28.1	27.8	0.2	129.2
2	9:32 AM 10:02 AM	30	61	27.8	27.7	0.1	250.0
3	10:02 AM 10:32 AM	30	91	27.7	27.5	0.2	125.0
4	10:32 AM 11:02 AM	30	121	27.5	27.2	0.2	125.0
5	11:02 AM 11:32 AM	30	151	27.2	27.0	0.2	125.0
6	11:32 AM 12:02 PM	30	181	26.3	24.4	1.9	15.6
7	12:02 PM 12:32 PM	30	211	24.4	22.2	2.2	13.9
8	12:32 PM 1:02 PM	30	241	22.2	20.0	2.2	13.9
9	1:02 PM 1:32 PM	30	271	20.0	18.5	1.6	19.2
10	1:32 PM 2:02 PM	30	301	18.5	16.8	1.7	17.9
11	2:02 PM 2:32 PM	30	331	16.8	15.2	1.6	19.2
12	2:32 PM 3:02 PM	30	361	15.2	13.7	1.6	19.2

Infiltration Rate (in/hr):	0.4		
Radius of test hole (in):	4		**Figure A-18**
Average Head (in):	14.5		

PERCOLATION TEST REPORT

Project Name:		Moreno Valley Multi-Use Development			**Project No.:**		T2809-22-01
Test Hole No.:		P-4	Area 2		**Date Excavated:**		3/1/2018
Length of Test Pipe:			58.4	inches	**Soil Classification:**		SC
Height of Pipe above Ground:			4.8	inches	**Presoak Date:**		3/1/2018
Depth of Test Hole:			53.6	inches	**Perc Test Date:**		3/5/2018
Check for Sandy Soil Criteria Tested by:				N/A	**Percolation Tested by:**		SP
Water level measured from bottom of hole							
			Soil Criteria: Normal				
			Percolation Test				
Reading No.	**Time**	**Time Interval (min)**	**Total Elapsed Time (min)**	**Initial Water Head (in)**	**Final Water Head (in)**	**Δ in Water Level (inches)**	**Percolation Rate (min/inch)**
1	9:05 AM 9:35 AM	30	30	16.0	15.7	0.2	125.0
2	9:35 AM 10:05 AM	30	60	15.7	15.6	0.1	250.0
3	10:05 AM 10:35 AM	30	90	15.6	15.5	0.1	250.0
4	10:35 AM 11:05 AM	30	120	15.5	15.5	0.0	0.0
5	11:05 AM 11:35 AM	30	150	15.5	15.4	0.1	250.0
6	11:35 AM 12:05 PM	30	180	15.4	15.2	0.1	250.0
7	12:05 PM 12:35 PM	30	210	15.2	15.2	0.0	0.0
8	12:35 PM 1:05 PM	30	240	15.2	15.1	0.1	250.0
9	1:05 PM 1:35 PM	30	270	15.1	15.0	0.1	250.0
10	1:35 PM 2:05 PM	30	300	15.0	14.9	0.1	250.0
11	2:05 PM 2:35 PM	30	330	14.9	14.8	0.1	250.0
12	2:35 PM 3:05 PM	30	360	14.8	14.6	0.1	250.0
Infiltration Rate (in/hr):			0.03				
Radius of test hole (in):			4				**Figure A-19**
Average Head (in):			14.7				

PERCOLATION TEST REPORT

Project Name:		Moreno Valley Multi-Use Development			**Project No.:**		T2809-22-01
Test Hole No.:		P-5	Area 3		**Date Excavated:**		3/1/2018
Length of Test Pipe:			43.4	inches	**Soil Classification:**		SC
Height of Pipe above Ground:			0.0	inches	**Presoak Date:**		3/1/2018
Depth of Test Hole:			43.4	inches	**Perc Test Date:**		3/5/2018
Check for Sandy Soil Criteria Tested by:			N/A		**Percolation Tested by:**		SP
Water level measured from bottom of hole							
			Soil Criteria: Normal				
			Percolation Test				

Reading No.	**Time**	**Time Interval (min)**	**Total Elapsed Time (min)**	**Initial Water Head (in)**	**Final Water Head (in)**	**Δ in Water Level (inches)**	**Percolation Rate (min/inch)**
1	9:14 AM 9:44 AM	30	30	13.4	13.1	0.4	83.3
2	9:44 AM 10:14 AM	30	60	13.1	12.8	0.2	125.0
3	10:14 AM 10:44 AM	30	90	12.8	12.7	0.1	250.0
4	10:44 AM 11:14 AM	30	120	12.7	12.6	0.1	250.0
5	11:14 AM 11:44 AM	30	150	12.6	12.6	0.0	0.0
6	11:44 AM 12:14 PM	30	180	12.6	12.5	0.1	250.0
7	12:14 PM 12:44 PM	30	210	12.5	12.4	0.1	250.0
8	12:44 PM 1:14 PM	30	240	12.4	12.2	0.1	250.0
9	1:14 PM 1:44 PM	30	270	12.2	12.1	0.1	250.0
10	1:44 PM 2:14 PM	30	300	12.1	12.0	0.1	250.0
11	2:14 PM 2:44 PM	30	330	12.0	11.9	0.1	250.0
12	2:44 PM 3:14 PM	30	360	11.9	11.8	0.1	250.0

Infiltration Rate (in/hr):			0.03				
Radius of test hole (in):			4				**Figure A-20**
Average Head (in):			11.8				

PERCOLATION TEST REPORT

Project Name:		Moreno Valley Multi-Use Development			**Project No.:**		T2809-22-01
Test Hole No.:		P-6	Area 4		**Date Excavated:**		3/1/2018
Length of Test Pipe:			58.8	inches	**Soil Classification:**		SC
Height of Pipe above Ground:			7.8	inches	**Presoak Date:**		3/1/2018
Depth of Test Hole:			51.0	inches	**Perc Test Date:**		3/5/2018
Check for Sandy Soil Criteria Tested by:				N/A	**Percolation Tested by:**		SP
Water level measured from bottom of hole							
			Soil Criteria: Normal				
			Percolation Test				

Reading No.	Time	Time Interval (min)	Total Elapsed Time (min)	Initial Water Head (in)	Final Water Head (in)	Δ in Water Level (inches)	Percolation Rate (min/inch)
1	9:18 AM 9:48 AM	30	30	11.0	9.4	1.7	17.9
2	9:48 AM 10:18 AM	30	60	12.2	11.5	0.7	41.7
3	10:18 AM 10:48 AM	30	90	12.4	11.6	0.7	41.7
4	10:48 AM 11:18 AM	30	120	11.6	10.9	0.7	41.7
5	11:18 AM 11:48 AM	30	150	12.8	12.2	0.6	50.0
6	11:48 AM 12:18 PM	30	180	12.2	11.9	0.4	83.3
7	12:18 PM 12:48 PM	30	210	11.9	11.4	0.5	62.5
8	12:48 PM 1:18 PM	30	240	13.1	12.6	0.5	62.5
9	1:18 PM 1:48 PM	30	270	12.6	12.1	0.5	62.5
10	1:48 PM 2:18 PM	30	300	12.1	11.5	0.6	50.0
11	2:18 PM 2:48 PM	30	330	13.1	12.6	0.5	62.5
12	2:48 PM 3:18 PM	30	360	12.6	12.1	0.5	62.5

Infiltration Rate (in/hr):	0.1		
Radius of test hole (in):	4		**Figure A-21**
Average Head (in):	12.4		

PERCOLATION TEST REPORT

Project Name:		Moreno Valley Multi-Use Development			**Project No.:**		T2809-22-01
Test Hole No.:		P-7	Area 5		**Date Excavated:**		3/1/2018
Length of Test Pipe:			49.7	inches	**Soil Classification:**		SC
Height of Pipe above Ground:			15.2	inches	**Presoak Date:**		3/1/2018
Depth of Test Hole:			34.4	inches	**Perc Test Date:**		3/5/2018
Check for Sandy Soil Criteria Tested by:				N/A	**Percolation Tested by:**		SP
Water level measured from bottom of hole							
			Soil Criteria: Normal				
			Percolation Test				

Reading No.	**Time**	**Time Interval (min)**	**Total Elapsed Time (min)**	**Initial Water Head (in)**	**Final Water Head (in)**	**Δ in Water Level (inches)**	**Percolation Rate (min/inch)**
1	9:21 AM 9:51 AM	30	30	13.1	12.1	1.0	31.2
2	9:51 AM 10:21 AM	30	60	12.1	11.5	0.6	50.0
3	10:21 AM 10:51 AM	30	90	14.3	13.7	0.6	50.0
4	10:51 AM 11:21 AM	30	120	13.7	13.1	0.6	50.0
5	11:21 AM 11:51 AM	30	150	13.1	12.2	0.8	35.7
6	11:51 AM 12:21 PM	30	180	12.2	11.5	0.7	41.7
7	12:21 PM 12:51 PM	30	210	14.3	13.7	0.6	50.0
8	12:51 PM 1:21 PM	30	240	13.7	13.1	0.6	50.0
9	1:21 PM 1:51 PM	30	270	13.1	12.5	0.6	50.0
10	1:51 PM 2:21 PM	30	300	12.5	11.9	0.6	50.0
11	2:21 PM 2:51 PM	30	330	13.9	13.3	0.6	50.0
12	2:51 PM 3:21 PM	30	360	13.3	12.7	0.6	50.0

Infiltration Rate (in/hr):		0.2		
Radius of test hole (in):		4		**Figure A-21**
Average Head (in):		13.0		

PERCOLATION TEST REPORT

Project Name:		Moreno Valley Multi-Use Development			**Project No.:**		T2809-22-01
Test Hole No.:		P-8	Area 1		**Date Excavated:**		3/1/2018
Length of Test Pipe:			49.2	inches	**Soil Classification:**		SC
Height of Pipe above Ground:			4.6	inches	**Presoak Date:**		3/1/2018
Depth of Test Hole:			44.6	inches	**Perc Test Date:**		3/5/2018
Check for Sandy Soil Criteria Tested by:				N/A	**Percolation Tested by:**		SP
Water level measured from bottom of hole							

Percolation Test

Reading No.	Time	Time Interval (min)	Total Elapsed Time (min)	Initial Water Head (in)	Final Water Head (in)	Δ in Water Level (inches)	Percolation Rate (min/inch)
1	9:10 AM 9:40 AM	30	30	13.6	12.7	0.8	35.7
2	9:40 AM 10:10 AM	30	60	12.7	12.4	0.4	83.3
3	10:10 AM 10:40 AM	30	90	12.4	12.0	0.4	83.3
4	10:40 AM 11:10 AM	30	120	13.8	13.4	0.4	83.3
5	11:10 AM 11:40 AM	30	150	13.4	13.2	0.2	125.0
6	11:40 AM 12:10 PM	30	180	13.2	13.0	0.2	125.0
7	12:10 PM 12:40 PM	30	210	13.0	12.7	0.2	125.0
8	12:40 PM 1:10 PM	30	240	12.7	12.6	0.1	250.0
9	1:10 PM 1:40 PM	30	270	12.6	12.2	0.4	83.3
10	1:40 PM 2:10 PM	30	300	12.2	11.9	0.4	83.3
11	2:10 PM 2:40 PM	30	330	11.9	11.5	0.4	83.3
12	2:40 PM 3:10 PM	30	360	12.7	12.4	0.4	83.3

Infiltration Rate (in/hr):			0.1				
Radius of test hole (in):			4				**Figure A-23**
Average Head (in):			12.5				

Geotechnical Boring Log B-1

Date: June 7, 2011	Project Name: Residential Development Page: 1 of 1
Project Number: 161309-11A	Logged By: CW
Drilling Company: Cal Pac	Type of Rig: Mobile B51
Drive Weight (lbs): 140	Drop (in): 30 Hole Diameter (in): 8
Top of Hole Elevation (ft):	Hole Location: See Geotechnical Map

Depth (ft)	Blow Count Per Foot	Sample Number	Dry Density (pcf)	Moisture (%)	ASTM Symbol	MATERIAL DESCRIPTION
0						**Artificial Fill, Undocumented (Afu):**
					SC-SM	Silty Clayey SAND; medium brown, moist, medium dense
	44	R-1	138.5	7.3		dense, abundant mica
5	40	R-2	144.3	7.3		
	39	R-3	133.4	6.5		
10	53	R-4	131.4	6.5		very dense
						Quaternary Very Old Fan Deposits (Qvof):
					SM	Silty SAND; light brown, slightly moist to moist, medium dense
15	25	R-5	119.2	3.1		
20	26	R-6	113.9	3.7		
25	28	R-7	120.3	4.3		
						Total Depth @ 26.5 feet
						No Groundwater
30						

26047 JEFFERSON AVENUE, SUITE C, MURRIETA, CA 92562

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Geotechnical Boring Log B-2

Date: June 7, 2011	Project Name: Residential Development — Page: 1 of 1
Project Number: 161309-11A	Logged By: CW
Drilling Company: Cal Pac	Type of Rig: Mobile B51
Drive Weight (lbs): 140	Drop (in): 30 — Hole Diameter (in): 8
Top of Hole Elevation (ft):	Hole Location: See Geotechnical Map

Depth (ft)	Blow Count Per Foot	Sample Number	Dry Density (pcf)	Moisture (%)	ASTM Symbol	MATERIAL DESCRIPTION
0		Bag 1 @ 0-5'				**Artificial Fill, Undocumented (Afu):**
					SC	Clayey SAND; light to medium brown, medium dense, slightly moist to moist
	47	R-1	127.7	6.2		
5	30	R-2	124.0	7.1		
	38	R-3	134.0	5.4		dark brown, moist, dense
10	35	R-4	134.5	6.5		
15	40	R-5	126.4	8.0		
20						***Quaternary Very Old Fan Deposits (Qvof):***
	55	R-6	133.4	4.6	SC	Clayey SAND; light brown, slightly moist to moist, very dense
						Total Depth @ 21.5 feet
						No Groundwater
25						
30						

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Geotechnical Boring Log B-3

Date: June 7, 2011	Project Name: Residential Development Page: 1 of 1
Project Number: 161309-11A	Logged By: CW
Drilling Company: Cal Pac	Type of Rig: Mobile B51
Drive Weight (lbs): 140	Drop (in): 30 Hole Diameter (in): 8
Top of Hole Elevation (ft):	Hole Location: See Geotechnical Map

Depth (ft)	Blow Count Per Foot	Sample Number	Dry Density (pcf)	Moisture (%)	ASTM Symbol	MATERIAL DESCRIPTION
0						**Artificial Fill, Undocumented (Afu):**
					SC	Clayey SAND; dark brown, moist, medium dense
	23	R-1	130.2	7.2		
5	26	R-2	128.7	7.4		
	33	R-3	135.1	7.4		dense, some gravel
10	37	R-4	132.2	8.4		
						Quaternary Very Old Fan Deposits (Qvof):
15	47	R-5	127.8	10.9	SC	Clayey SAND, light orange brown, moist, dense
20	46	R-6	128.8	6.2		
						Total Depth @ 21.5 feet
						No Groundwater
25						
30						

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Geotechnical Boring Log B-4

Date: June 7, 2011	Project Name: Residential Development — Page: 1 of 1
Project Number: 161309-11A	Logged By: CW
Drilling Company: Cal Pac	Type of Rig: Mobile B51
Drive Weight (lbs): 140	Drop (in): 30 — Hole Diameter (in): 8
Top of Hole Elevation (ft):	Hole Location: See Geotechnical Map

Depth (ft)	Blow Count Per Foot	Sample Number	Dry Density (pcf)	Moisture (%)	ASTM Symbol	MATERIAL DESCRIPTION
0						**Artificial Fill, Undocumented (Afu):**
					SC	Clayey SAND; dark brown, moist, medium dense
	25	R-1	125.0	5.5		
5	22	R-2	129.4	5.1		
	49	R-3	132.8	6.9		dense to very dense
10	35	R-4	129.8	5.8		medium dense
15	54	R-5	132.0	8.6		dense
						Quaternary Very Old Fan Deposits (Qvof):
					SC	Clayey SAND; light brown, slightly moist to moist, medium dense
20	31	R-6	117.3	3.5		
						Total Depth @ 21.5 feet
						No Groundwater
25						
30						

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Geotechnical Boring Log B-5

Date: June 7, 2011	Project Name: Residential Development Page: 1 of 2
Project Number: 161309-11A	Logged By: CW
Drilling Company: Cal Pac	Type of Rig: Mobile B51
Drive Weight (lbs): 140	Drop (in): 30 Hole Diameter (in): 8
Top of Hole Elevation (ft):	Hole Location: See Geotechnical Map

Depth (ft)	Blow Count Per Foot	Sample Number	Dry Density (pcf)	Moisture (%)	ASTM Symbol	MATERIAL DESCRIPTION
0		Bag 1 @ 0-5'				**Artificial Fill, Undocumented (Afu):**
					SC	Clayey SAND; dark brown and light grayish brown, moist, medium dense
	38	R-1	127.9	6.2		dense
5	34	R-2	128.8	9.0		
	24	R-3	113.8	7.4		dark brown, very moist, medium dense
10	22	R-4	123.6	6.6		
						Quaternary Very Old Fan Deposits (Qvof):
15	27	R-5	117.4	5.5	SC	Clayey SAND; orange brown, slightly moist, medium dense
20	49	R-6	132.7	5.8		dense
25	31	R-7	117.0	3.9		moderate yellow brown, medium dense
30						

Geotechnical Boring Log B-5

Date: June 7, 2011	Project Name: Residential Development Page: 2 of 2
Project Number: 161309-11A	Logged By: CW
Drilling Company: Cal Pac	Type of Rig: Mobile B51
Drive Weight (lbs): 140	Drop (in): 30 Hole Diameter (in): 8
Top of Hole Elevation (ft):	Hole Location: See Geotechnical Map

Depth (ft)	Blow Count Per Foot	Sample Number	Dry Density (pcf)	Moisture (%)	ASTM Symbol	MATERIAL DESCRIPTION
30	21	N-1	-	7.4		dense
35	25	R-8	118.2	5.4		medium dense
40	47	N-2	-	9.6		very dense
45					SM	Silty SAND; light brown, slightly moist, dense
50	24	N-3	-	2.9		
						Total Depth @ 51.5 feet
						No Groundwater
55						
60						

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Geotechnical Boring Log B-6

Date: June 7, 2011	Project Name: Residential Development — Page: 1 of 1
Project Number: 161309-11A	Logged By: CW
Drilling Company: Cal Pac	Type of Rig: Mobile B51
Drive Weight (lbs): 140	Drop (in): 30 — Hole Diameter (in): 8
Top of Hole Elevation (ft):	Hole Location: See Geotechnical Map

Depth (ft)	Blow Count Per Foot	Sample Number	Dry Density (pcf)	Moisture (%)	ASTM Symbol	MATERIAL DESCRIPTION
0						**Artificial Fill, Undocumented (Afu):**
					SC-SM	Silty Clayey SAND; dark brown, moist, medium dense
	34	R-1	128.9	5.6		dense
5	31	R-2	133.8	6.8		
	31	R-3	132.5	4.0		
10	22	R-4	110.3	8.1		very moist, medium dense
15	45	R-5	133.4	7.4		dense
20						***Quaternary Very Old Fan Deposits (Qvof):***
	26	R-6	107.4	3.2	SM	Silty SAND; moderate yellow brown, slightly moist, medium dense
						Total Depth @ 21.5 feet
						No Groundwater
25						
30						

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Geotechnical Boring Log B-7

Date: June 7, 2011	Project Name: Residential Development Page: 1 of 1
Project Number: 161309-11A	Logged By: CW
Drilling Company: Cal Pac	Type of Rig: Mobile B51
Drive Weight (lbs): 140	Drop (in): 30 Hole Diameter (in): 8
Top of Hole Elevation (ft):	Hole Location: See Geotechnical Map

Depth (ft)	Blow Count Per Foot	Sample Number	Dry Density (pcf)	Moisture (%)	ASTM Symbol	MATERIAL DESCRIPTION
0						**Artificial Fill, Undocumented (Afu):**
					SC	Clayey SAND; dark brown, slightly moist, medium dense
	51	R-1	125.0	4.8		very dense, medium brown
5	44	R-2	127.7	5.5		dense
	59	R-3	138.6	5.4		very dense
10	32	R-4	126.2	9.4		dense
15	44	R-5	135.8	8.0		dark brown, very moist
						Quaternary Very Old Fan Deposits (Qvof):
					SM	Silty SAND; light yellow brown, slightly moist to moist, dense
20	32	R-6	114.1	5.4		
						Total Depth @ 21.5 feet
						No Groundwater
25						
30						

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Geotechnical Boring Log B-8

Date: June 7, 2011	Project Name: Residential Development — Page: 1 of 1
Project Number: 161309-11A	Logged By: CW
Drilling Company: Cal Pac	Type of Rig: Mobile B51
Drive Weight (lbs): 140	Drop (in): 30 — Hole Diameter (in): 8
Top of Hole Elevation (ft):	Hole Location: See Geotechnical Map

Depth (ft)	Blow Count Per Foot	Sample Number	Dry Density (pcf)	Moisture (%)	ASTM Symbol	MATERIAL DESCRIPTION
0						**Artificial Fill, Undocumented (Afu):**
					SC	Clayey Sand; dark brown, slightly moist to moist, loose
	35	R-1	133.0	7.7		dense
5	40	R-2	134.8	7.5		
						Quaternary Very Old Fan Deposits (Qvof):
	24	R-3	120.9	7.0	SC	Clayey SAND; orange brown, moist, medium dense
10	25	R-4	117.2	3.7	SM	Silty SAND; whitish brown, slightly moist, medium dense
					SC	Clayey SAND; medium brown, very moist, dense
15	35	R-5	125.6	9.4		
						Total Depth @ 16.5 feet
						No Groundwater
20						
25						
30						

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APPENDIX

APPENDIX B

LABORATORY TESTING

Laboratory tests were performed in general accordance with test methods of ASTM International (ASTM), California test (CT) methods or other suggested procedures. The results of the laboratory tests are summarized in Figures B-1 through B-5. The in-place dry density and moisture content of the samples tested are presented in the excavation logs in *Appendix A.*

The results of previous laboratory testing are also included in this appendix.

SUMMARY OF LABORATORY MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT TEST RESULTS ASTM D1557

Sample No.	Description	Maximum Dry Density (pcf)	Optimum Moisture Content (% of dry wt.)
B-1 @ 0-5’	Clayey SAND (SC) brown	137.9	6.3
B-4 @ 0-5’	Clayey SAND (SC) with trace gravel, reddish brown	137.1	6.0
B-5 @ 5-10’	Clayey SAND (SC) with trace gravel, reddish brown	137.1	6.7

SUMMARY OF LABORATORY EXPANSION INDEX TEST RESULTS ASTM D4829

Sample No.	Moisture Content		After Test Dry Density (pcf)	Expansion Index
	Before Test (%)	After Test (%)		
B-1 @ 0-5’	7.5	11.8	120.4	2
B-4 @ 0-5’	7.0	12.5	121.7	4

SUMMARY OF ATTERBERG LIMIT TEST RESULTS ASTM D4318

Sample No.	Liquid Limit	Plastic Limit	Plasticity Index	USCS
B-1 @ 0-5’	25	16	9	SC
B-4 @ 0-5’	24	17	7	SC

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KBP		

LABORATORY TEST RESULTS

CONTINENTAL VILLAGES
SOUTHEAST OF LASSELLE STREET
& KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

MARCH, 2018	PROJECT NO. T2809-22-01	FIG B-1

SUMMARY OF ONE-DIMENSIONAL CONSOLIDATION (COLLAPSE) TESTS
ASTM D2435

Sample No.	In-situ Dry Density (pcf)	Moisture Content Before Test (%)	Final Moisture Content (%)	Axial Load with Water Added (psf)	Percent Collapse
B-1 @ 5’	128.1	7.3	10.2	2000	0.2
B-3 @ 2.5’	127.5	7.5	9.9	2000	0.7
B-5 @ 5’	127.3	7.3	10.7	2000	0.3
B-6 @ 10’	127.3	8.9	10.7	2000	0.2

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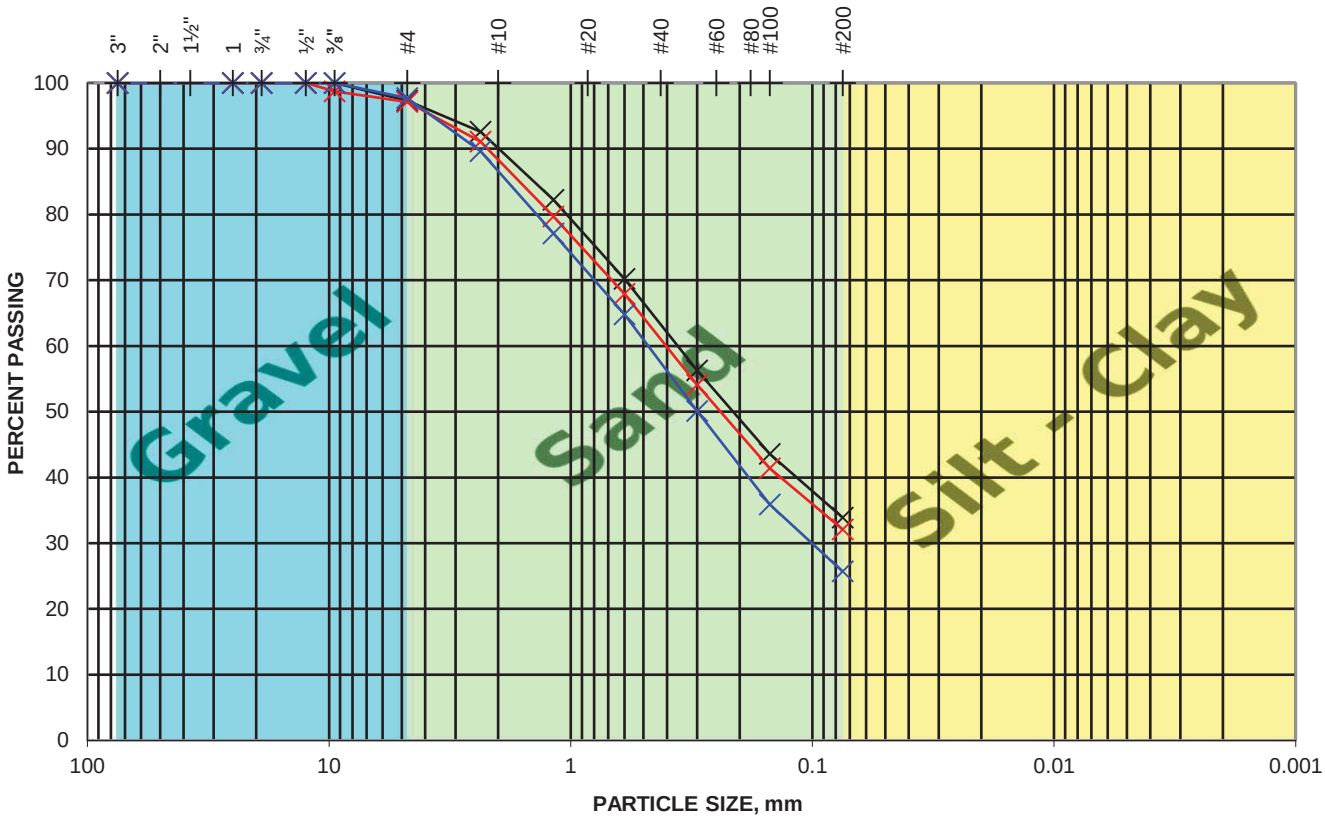
LABORATORY TEST RESULTS

CONTINENTAL VILLAGES
SOUTHEAST OF LASSELLE STREET
& KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

MARCH, 2018	PROJECT NO. T2809-22-01	FIG B-2



SAMPLE ID	SAMPLE DESCRIPTION
P-1@4'	Clayey SAND (SC) with trace gravel
P-3@7'	Clayey SAND (SC) with trace gravel
P-5@4'	Clayey SAND (SC) with trace gravel

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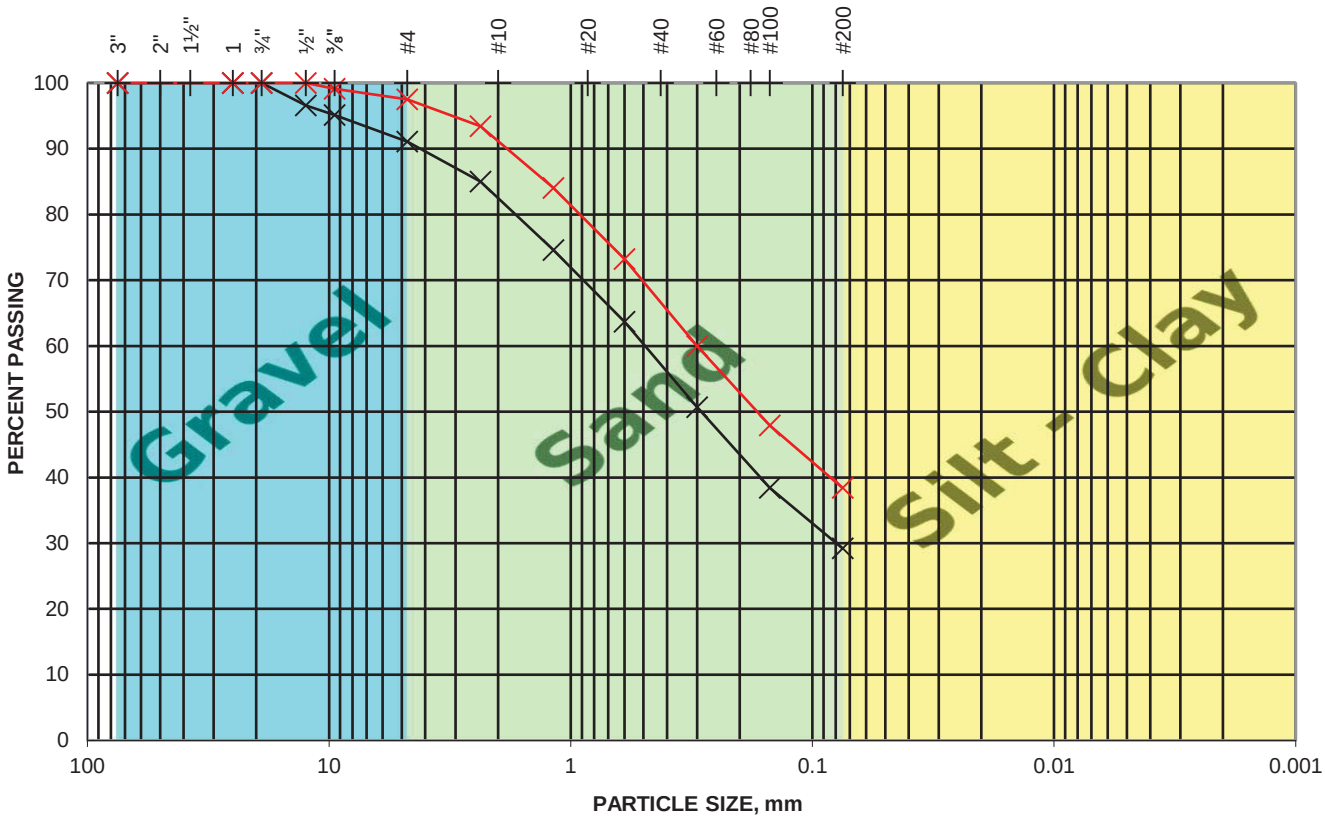
GRAIN SIZE DISTRIBUTION

CONTINENTAL VILLAGES
SOUTHEAST OF LASSELLE STREET
& KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

MARCH, 2018	PROJECT NO. T2809-22-01	FIG B-3



SAMPLE ID	SAMPLE DESCRIPTION
P-7 @ 3'	Clayey SAND (SC) with few gravel
P-8 @ 4'	Clayey SAND (SC) with trace gravel

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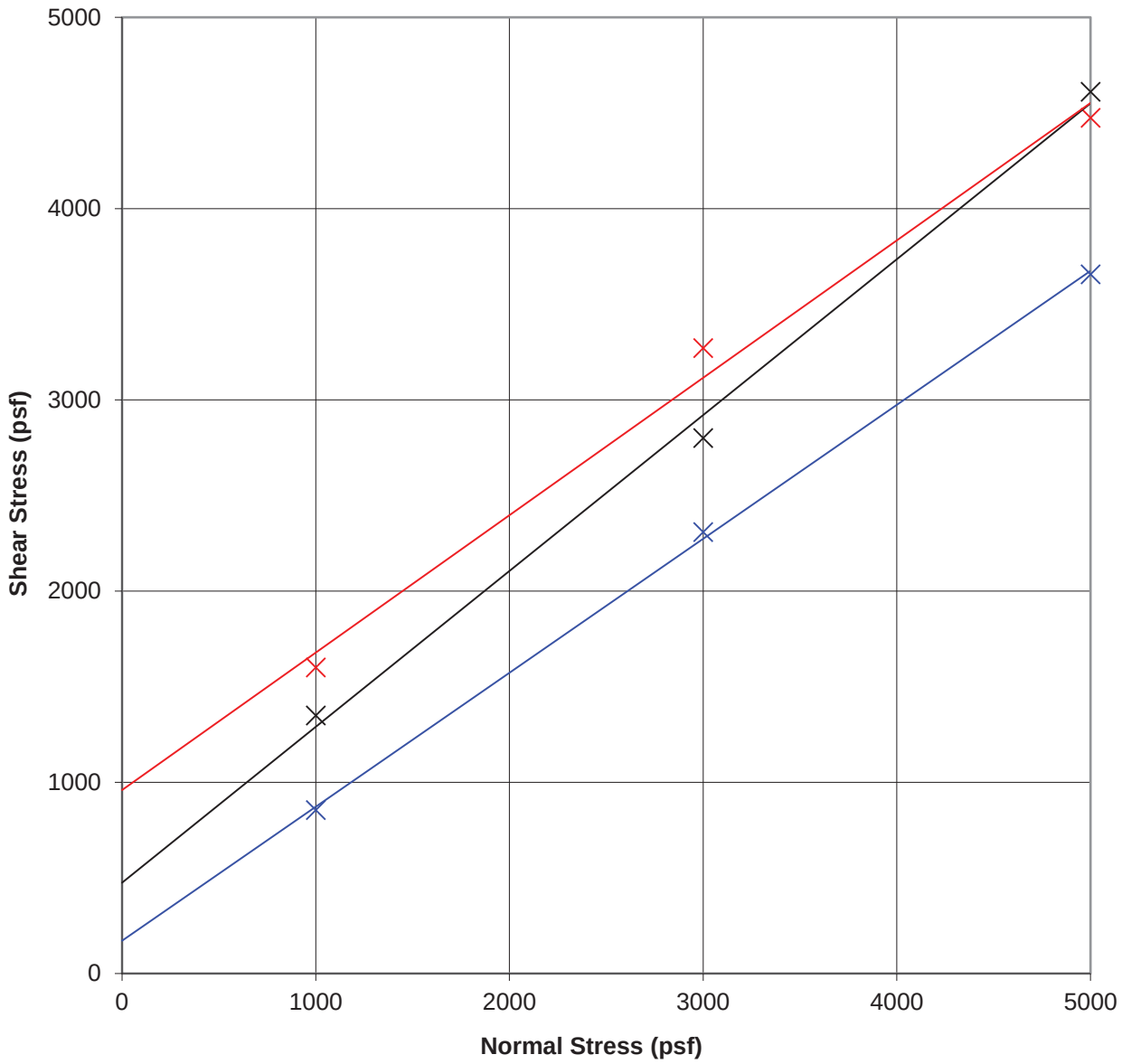
GRAIN SIZE DISTRIBUTION

CONTINENTAL VILLAGES
SOUTHEAST OF LASSELLE STREET
& KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

MARCH, 2018	PROJECT NO. T2809-22-01	FIG B-4



SAMPLE ID	SOIL TYPE	INITIAL DRY DENSITY (pcf)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)	C (psf)	ϕ (deg)
B-2 @ 5'	SC	122.7	7.5	12.4	480	39
B-6 @ 5'	SC	118.5	9.5	15.2	960	36
B-7 @ 2.5'	SC	104.1	7.4	15.8	170	35

*Sample remolded to approximately 90% of the test maximum dry density at optimum moisture content.

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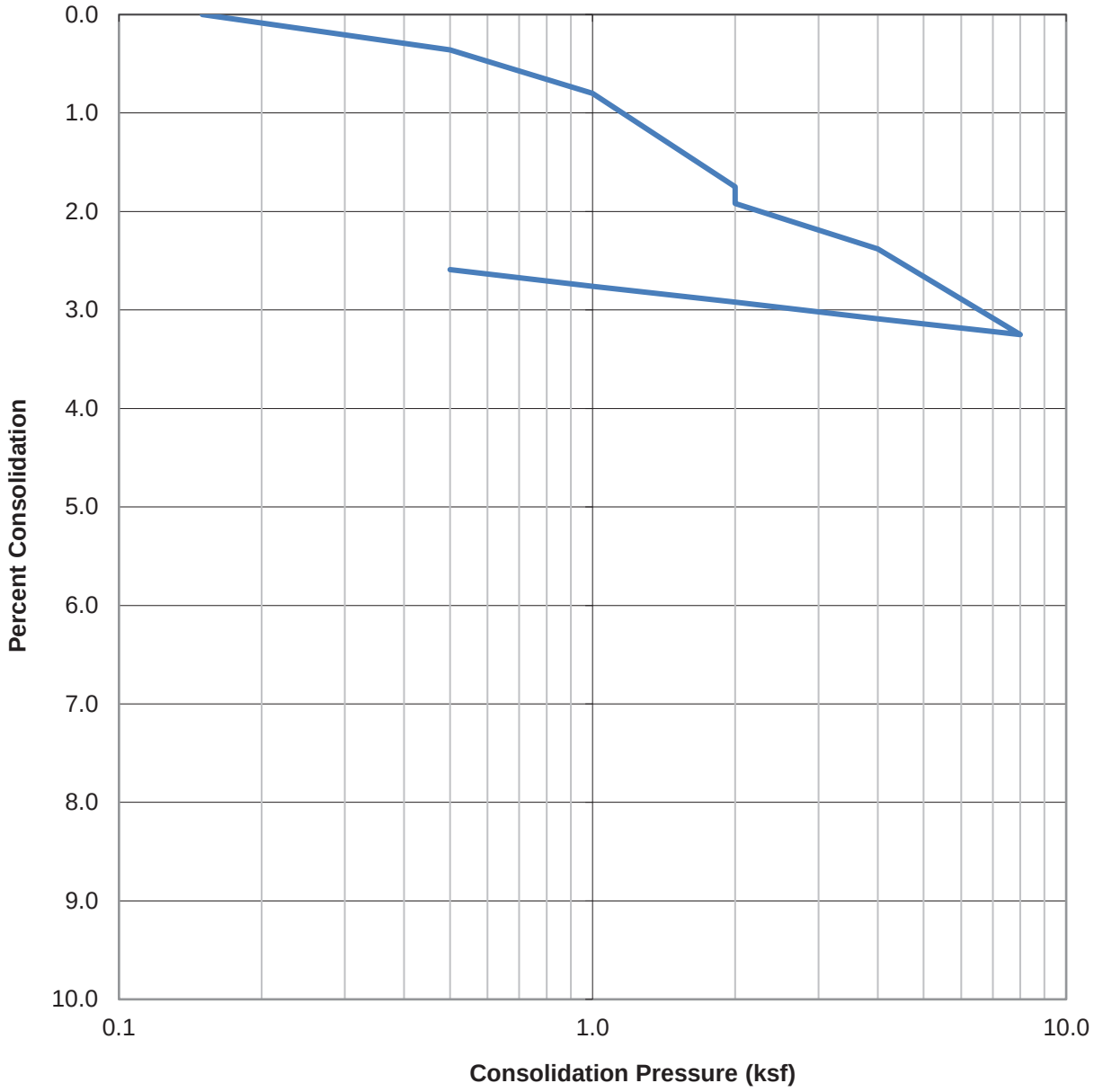
DIRECT SHEAR TEST RESULTS

CONTINENTAL VILLAGES
SOUTHEAST OF LASSELLE STREET
& KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

March, 2018 | PROJECT NO. T2809-22-01 | FIG B-5

WATER ADDED AT 2 KSF



SAMPLE ID	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B-1 @ 5'	SC	128.1	7.3	10.2

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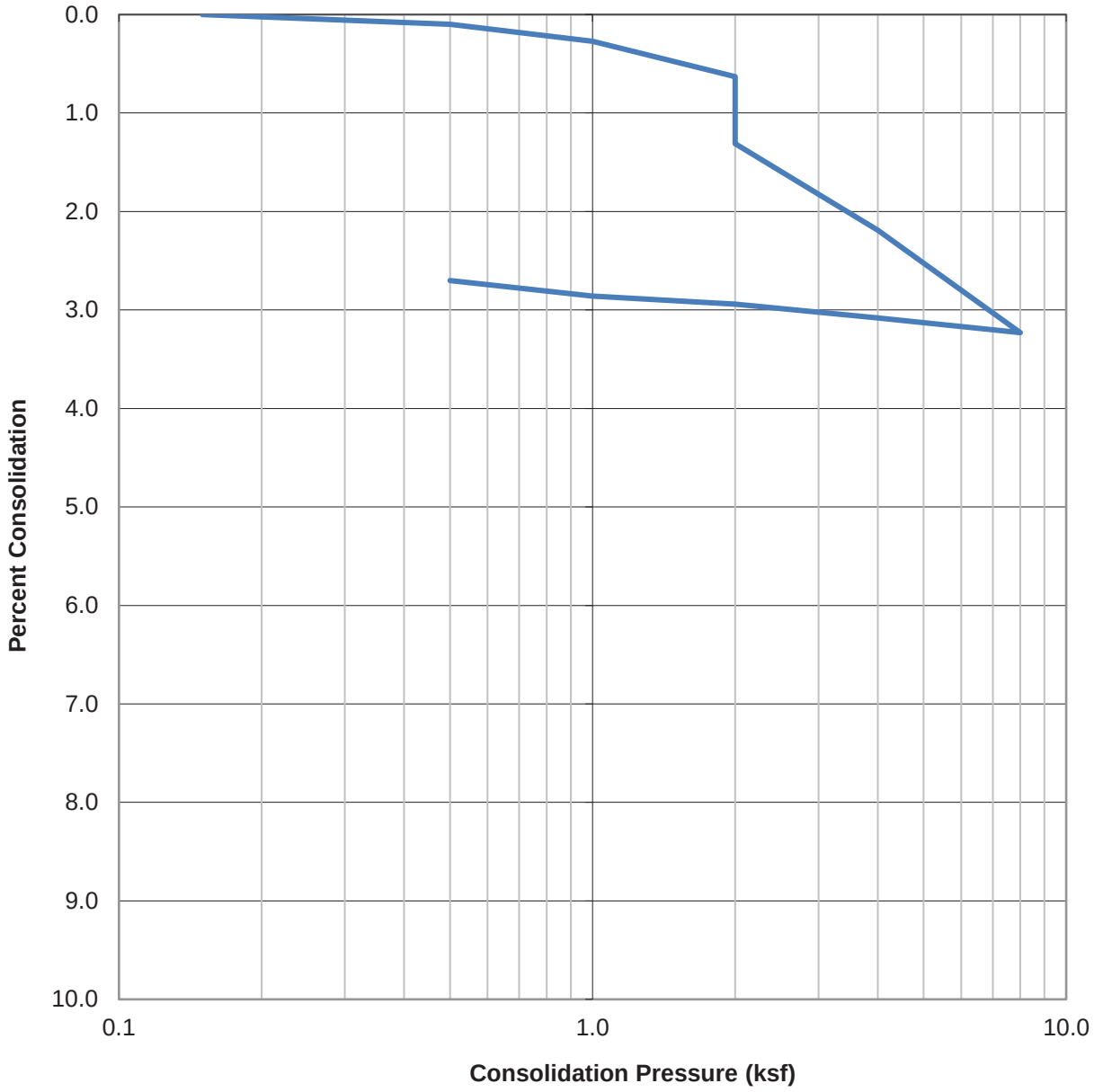
CONSOLIDATION TEST RESULTS

CONTINENTAL VILLAGES
SOUTHEAST OF LASELLE STREET &
KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

MARCH, 2018 | PROJECT NO. T2809-22-01 | FIG B-6

WATER ADDED AT 2 KSF



SAMPLE ID	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B-3 @ 2.5'	SC	127.5	7.5	9.9

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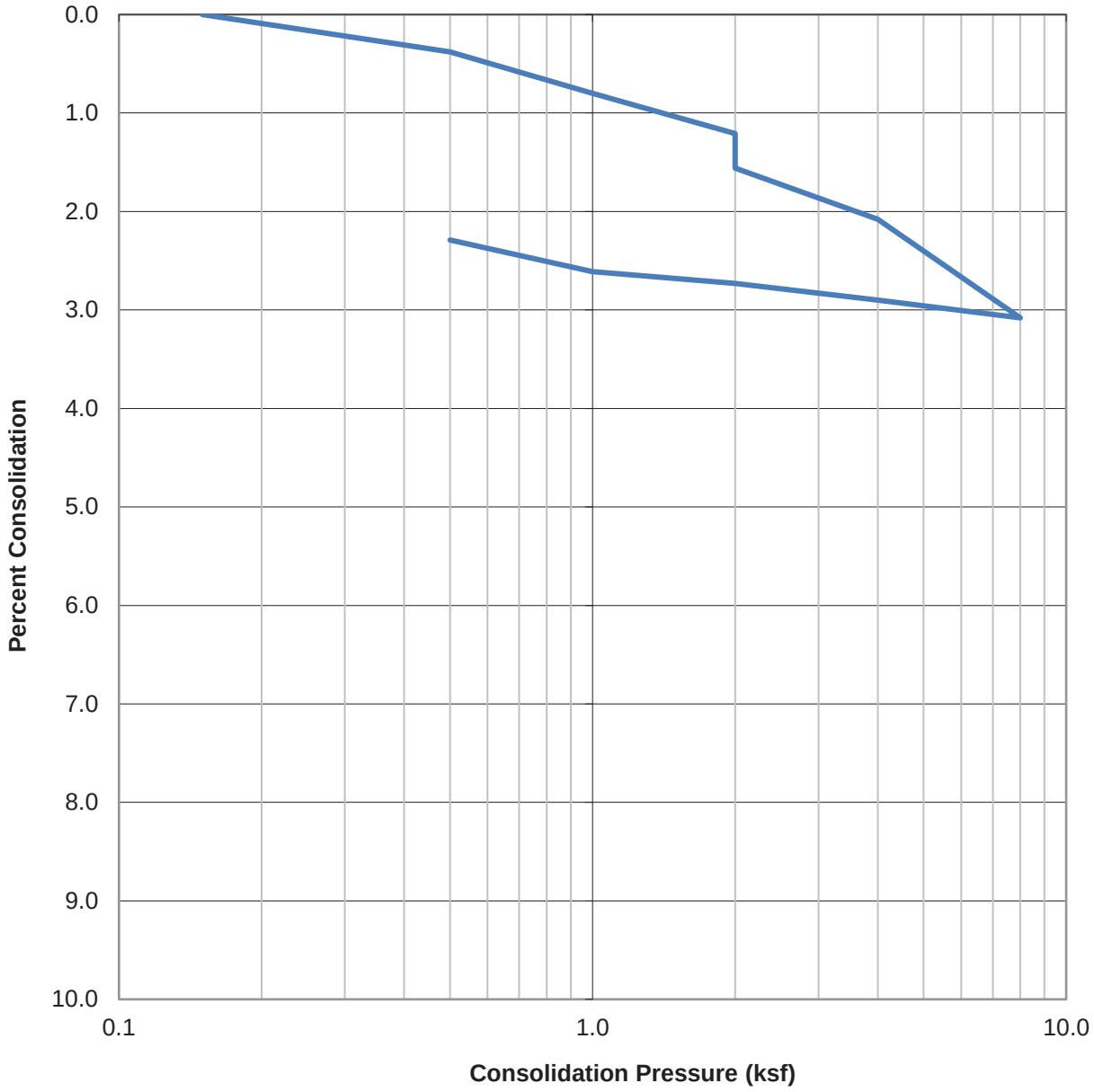
CONSOLIDATION TEST RESULTS

CONTINENTAL VILLAGES
SOUTHEAST OF LASSELLE STREET
& KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

MARCH, 2018	PROJECT NO. T2809-22-01	FIG B-7

WATER ADDED AT 2 KSF



SAMPLE ID	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B-5 @ 5'	SC	127.3	7.3	10.7

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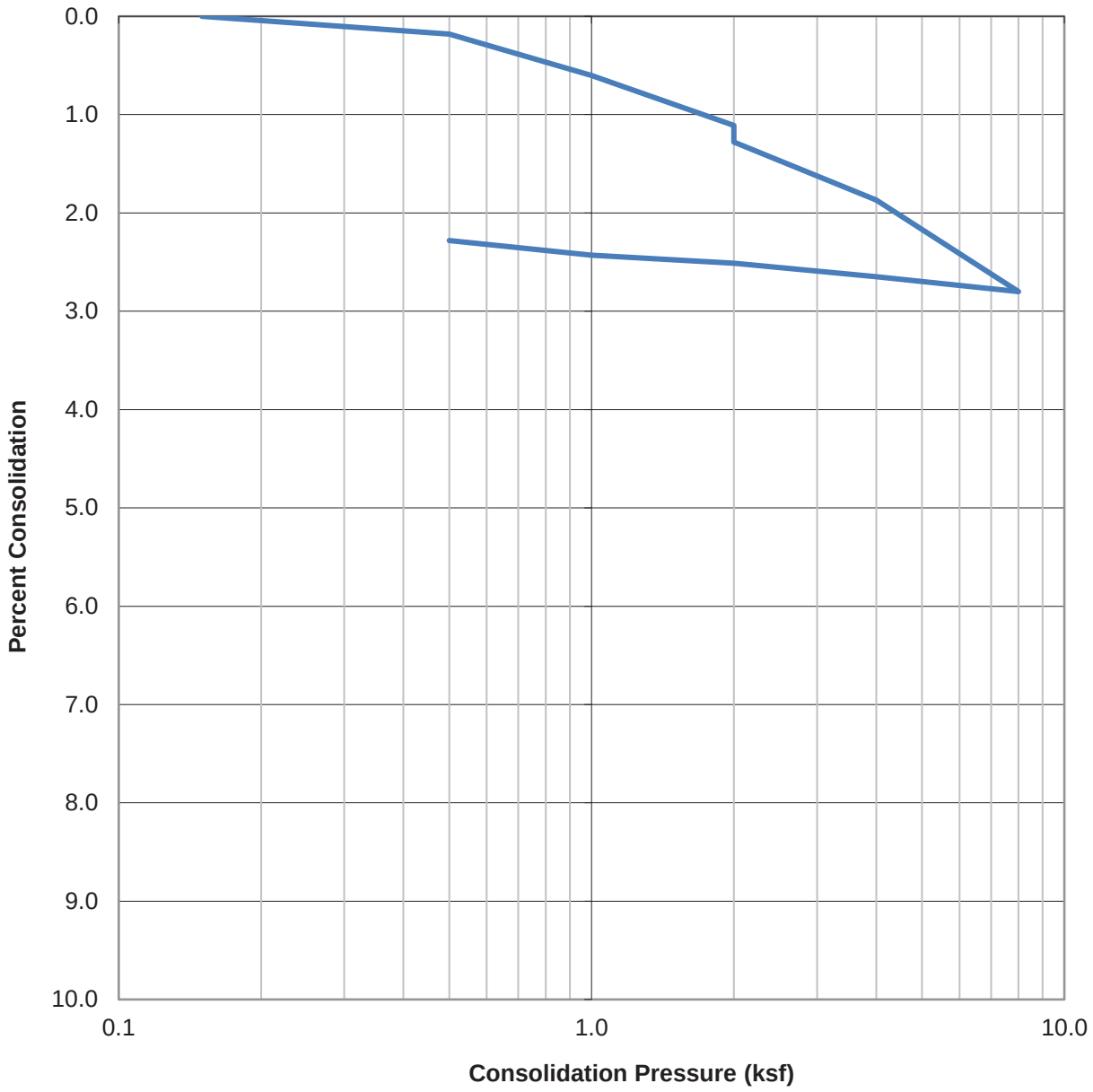
CONSOLIDATION TEST RESULTS

CONTINENTAL VILLAGES
SOUTHEAST OF LASSELLE STREET
& KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

MARCH, 2018	PROJECT NO. T2809-22-01	FIG B-8

WATER ADDED AT 2 KSF



SAMPLE ID	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B-6 @ 10'	SC	127.3	8.9	10.7

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CONSOLIDATION TEST RESULTS

CONTINENTAL VILLAGES
SOUTHEAST OF LASSELLE STREET
& KRAMERIA AVENUE
MORNO VALLEY, CALIFORNIA

MARCH, 2018	PROJECT NO. T2809-22-01	FIG B-9

APPENDIX C

Laboratory Procedures and Test Results

Laboratory testing provided quantitative and qualitative data involving the relevant engineering properties of the representative earth materials selected for testing. The representative samples were tested in general accordance with American Society for Testing and Materials (ASTM) procedures and/or California Test Methods (CTM).

Soil Classification: Earth materials encountered during exploration were classified and logged in general accordance with the Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) of ASTM D 2488. Upon completion of laboratory testing, exploratory logs and sample descriptions were reconciled to reflect laboratory test results with regard to ASTM D 2487.

Moisture and Density Tests: For select samples moisture content was determined using the guidelines of ASTM D 2216 and dry density determinations were made using the guidelines of ASTM D 2937. These tests were performed on relatively undisturbed samples and the test results are presented on the exploratory logs.

Maximum Density Tests: The maximum dry density and optimum moisture content of representative samples were determined using the guidelines of ASTM D 1557. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (%)
B-2 @ 0-5 feet	Clayey Sand	135.5	9.0
B-9 @ 0-5 feet	Clayey Sand	138.0	7.0

Expansion Index: The expansion potential of representative samples was evaluated using the guidelines of ASTM D 4829. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	EXPANSION INDEX	EXPANSION POTENTIAL
B-2 @ 0-5 feet	Clayey Sand	14	Very Low
B-9 @ 0-5 feet	Clayey Sand	8	Very Low

Consolidation: Consolidation tests were performed on select, relatively undisturbed samples with the guidelines of ASTM D 2435 (California Modified).

Collapse Potential: Collapse potential tests were performed on select, relatively undisturbed samples using the guidelines of ASTM D 5333. The test results are presented in the table below.

SAMPLE LOCATION	APPLIED OVERBURDEN (kg)	COLLAPSE (%)	DEGREE OF COLLAPSE
B-5 @ 10 feet	1	0.13	Very Low
B-6 @ 10 feet	1	0.25	Very Low

Note: Positive values of collapse index represent a reduction in soil volume, while negative values represent an increase in soil volume (swelling).

Minimum Resistivity and pH Tests: Minimum resistivity and pH Tests of select samples were performed using the guidelines of CTM 643. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	pH	MINIMUM RESISTIVITY (ohm-cm)
B-2 @ 0-5 feet	Clayey Sand	8.4	2,200

Soluble Sulfate: The soluble sulfate content of select samples was determined using the guidelines of CTM 417. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	SULFATE CONTENT (% by weight)	SULFATE EXPOSURE
B-2 @ 0-5 feet	Clayey Sand	0.038	Negigible

Chloride Content: Chloride content of select samples was determined using the guidelines of CTM 422. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	CHLORIDE CONTENT (ppm)
B-2 @ 0-5 feet	Clayey Sand	ND

APPENDIX C

APPENDIX C

RECOMMENDED GRADING SPECIFICATIONS

FOR

CONTINENTAL VILLAGES
SOUTHEAST OF LASSELLE STREET & KRAMERIA AVENUE
MORENO VALLEY, CALIFORNIA

PROJECT NO. T2809-22-01

RECOMMENDED GRADING SPECIFICATIONS

1. GENERAL

1.1 These Recommended Grading Specifications shall be used in conjunction with the Geotechnical Report for the project prepared by Geocon. The recommendations contained in the text of the Geotechnical Report are a part of the earthwork and grading specifications and shall supersede the provisions contained hereinafter in the case of conflict.

1.2 Prior to the commencement of grading, a geotechnical consultant (Consultant) shall be employed for the purpose of observing earthwork procedures and testing the fills for substantial conformance with the recommendations of the Geotechnical Report and these specifications. The Consultant should provide adequate testing and observation services so that they may assess whether, in their opinion, the work was performed in substantial conformance with these specifications. It shall be the responsibility of the Contractor to assist the Consultant and keep them apprised of work schedules and changes so that personnel may be scheduled accordingly.

1.3 It shall be the sole responsibility of the Contractor to provide adequate equipment and methods to accomplish the work in accordance with applicable grading codes or agency ordinances, these specifications and the approved grading plans. If, in the opinion of the Consultant, unsatisfactory conditions such as questionable soil materials, poor moisture condition, inadequate compaction, and/or adverse weather result in a quality of work not in conformance with these specifications, the Consultant will be empowered to reject the work and recommend to the Owner that grading be stopped until the unacceptable conditions are corrected.

2. DEFINITIONS

2.1 **Owner** shall refer to the owner of the property or the entity on whose behalf the grading work is being performed and who has contracted with the Contractor to have grading performed.

2.2 **Contractor** shall refer to the Contractor performing the site grading work.

2.3 **Civil Engineer** or **Engineer of Work** shall refer to the California licensed Civil Engineer or consulting firm responsible for preparation of the grading plans, surveying and verifying as-graded topography.

2.4 **Consultant** shall refer to the soil engineering and engineering geology consulting firm retained to provide geotechnical services for the project.

2.5 **Soil Engineer** shall refer to a California licensed Civil Engineer retained by the Owner, who is experienced in the practice of geotechnical engineering. The Soil Engineer shall be responsible for having qualified representatives on-site to observe and test the Contractor's work for conformance with these specifications.

2.6 **Engineering Geologist** shall refer to a California licensed Engineering Geologist retained by the Owner to provide geologic observations and recommendations during the site grading.

2.7 **Geotechnical Report** shall refer to a soil report (including all addenda) which may include a geologic reconnaissance or geologic investigation that was prepared specifically for the development of the project for which these Recommended Grading Specifications are intended to apply.

3. MATERIALS

3.1 Materials for compacted fill shall consist of any soil excavated from the cut areas or imported to the site that, in the opinion of the Consultant, is suitable for use in construction of fills. In general, fill materials can be classified as *soil* fills, *soil-rock* fills or *rock* fills, as defined below.

3.1.1 **Soil fills** are defined as fills containing no rocks or hard lumps greater than 12 inches in maximum dimension and containing at least 40 percent by weight of material smaller than ¾ inch in size.

3.1.2 **Soil-rock fills** are defined as fills containing no rocks or hard lumps larger than 4 feet in maximum dimension and containing a sufficient matrix of soil fill to allow for proper compaction of soil fill around the rock fragments or hard lumps as specified in Paragraph 6.2. **Oversize rock** is defined as material greater than 12 inches.

3.1.3 **Rock fills** are defined as fills containing no rocks or hard lumps larger than 3 feet in maximum dimension and containing little or no fines. Fines are defined as material smaller than ¾ inch in maximum dimension. The quantity of fines shall be less than approximately 20 percent of the rock fill quantity.

3.2 Material of a perishable, spongy, or otherwise unsuitable nature as determined by the Consultant shall not be used in fills.

3.3 Materials used for fill, either imported or on-site, shall not contain hazardous materials as defined by the California Code of Regulations, Title 22, Division 4, Chapter 30, Articles 9

and 10; 40CFR; and any other applicable local, state or federal laws. The Consultant shall not be responsible for the identification or analysis of the potential presence of hazardous materials. However, if observations, odors or soil discoloration cause Consultant to suspect the presence of hazardous materials, the Consultant may request from the Owner the termination of grading operations within the affected area. Prior to resuming grading operations, the Owner shall provide a written report to the Consultant indicating that the suspected materials are not hazardous as defined by applicable laws and regulations.

3.4 The outer 15 feet of *soil-rock* fill slopes, measured horizontally, should be composed of properly compacted *soil* fill materials approved by the Consultant. *Rock* fill may extend to the slope face, provided that the slope is not steeper than 2:1 (horizontal:vertical) and a soil layer no thicker than 12 inches is track-walked onto the face for landscaping purposes. This procedure may be utilized provided it is acceptable to the governing agency, Owner and Consultant.

3.5 Samples of soil materials to be used for fill should be tested in the laboratory by the Consultant to determine the maximum density, optimum moisture content, and, where appropriate, shear strength, expansion, and gradation characteristics of the soil.

3.6 During grading, soil or groundwater conditions other than those identified in the Geotechnical Report may be encountered by the Contractor. The Consultant shall be notified immediately to evaluate the significance of the unanticipated condition

4. CLEARING AND PREPARING AREAS TO BE FILLED

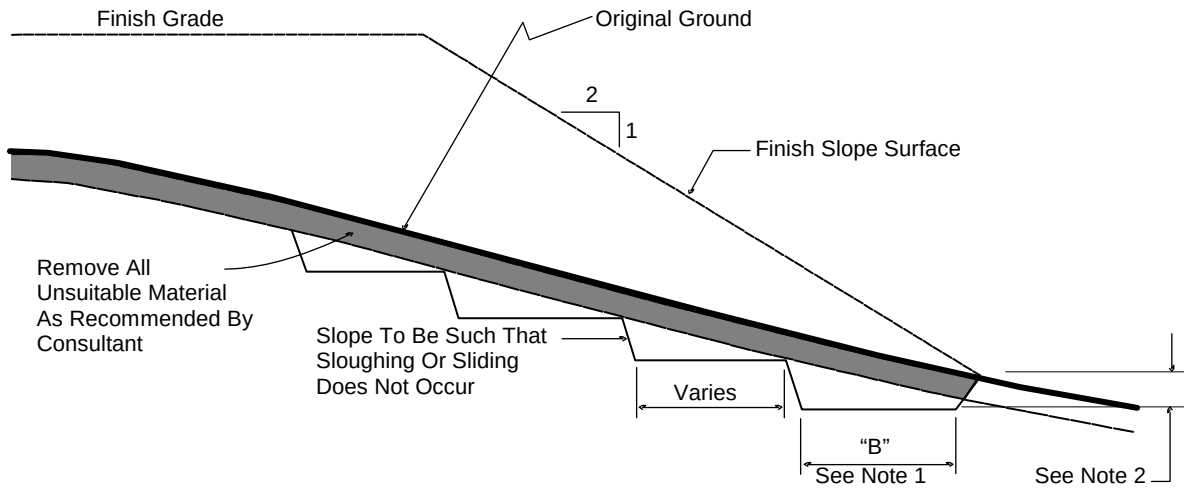
4.1 Areas to be excavated and filled shall be cleared and grubbed. Clearing shall consist of complete removal above the ground surface of trees, stumps, brush, vegetation, man-made structures, and similar debris. Grubbing shall consist of removal of stumps, roots, buried logs and other unsuitable material and shall be performed in areas to be graded. Roots and other projections exceeding 1½ inches in diameter shall be removed to a depth of 3 feet below the surface of the ground. Borrow areas shall be grubbed to the extent necessary to provide suitable fill materials.

4.2 Asphalt pavement material removed during clearing operations should be properly disposed at an approved off-site facility or in an acceptable area of the project evaluated by Geocon and the property owner. Concrete fragments that are free of reinforcing steel may be placed in fills, provided they are placed in accordance with Section 6.2 or 6.3 of this document.

4.3 After clearing and grubbing of organic matter and other unsuitable material, loose or porous soils shall be removed to the depth recommended in the Geotechnical Report. The depth of removal and compaction should be observed and approved by a representative of the Consultant. The exposed surface shall then be plowed or scarified to a minimum depth of 6 inches and until the surface is free from uneven features that would tend to prevent uniform compaction by the equipment to be used.

4.4 Where the slope ratio of the original ground is steeper than 5:1 (horizontal:vertical), or where recommended by the Consultant, the original ground should be benched in accordance with the following illustration.

TYPICAL BENCHING DETAIL



No Scale

DETAIL NOTES: (1) Key width "B" should be a minimum of 10 feet, or sufficiently wide to permit complete coverage with the compaction equipment used. The base of the key should be graded horizontal, or inclined slightly into the natural slope.

(2) The outside of the key should be below the topsoil or unsuitable surficial material and at least 2 feet into dense formational material. Where hard rock is exposed in the bottom of the key, the depth and configuration of the key may be modified as approved by the Consultant.

4.5 After areas to receive fill have been cleared and scarified, the surface should be moisture conditioned to achieve the proper moisture content, and compacted as recommended in Section 6 of these specifications.

5. COMPACTION EQUIPMENT

5.1 Compaction of *soil* or *soil-rock* fill shall be accomplished by sheepsfoot or segmented-steel wheeled rollers, vibratory rollers, multiple-wheel pneumatic-tired rollers, or other types of acceptable compaction equipment. Equipment shall be of such a design that it will be capable of compacting the *soil* or *soil-rock* fill to the specified relative compaction at the specified moisture content.

5.2 Compaction of *rock* fills shall be performed in accordance with Section 6.3.

6. PLACING, SPREADING AND COMPACTION OF FILL MATERIAL

6.1 *Soil* fill, as defined in Paragraph 3.1.1, shall be placed by the Contractor in accordance with the following recommendations:

6.1.1 *Soil* fill shall be placed by the Contractor in layers that, when compacted, should generally not exceed 8 inches. Each layer shall be spread evenly and shall be thoroughly mixed during spreading to obtain uniformity of material and moisture in each layer. The entire fill shall be constructed as a unit in nearly level lifts. Rock materials greater than 12 inches in maximum dimension shall be placed in accordance with Section 6.2 or 6.3 of these specifications.

6.1.2 In general, the *soil* fill shall be compacted at a moisture content at or above the optimum moisture content as determined by ASTM D 1557.

6.1.3 When the moisture content of *soil* fill is below that specified by the Consultant, water shall be added by the Contractor until the moisture content is in the range specified.

6.1.4 When the moisture content of the *soil* fill is above the range specified by the Consultant or too wet to achieve proper compaction, the *soil* fill shall be aerated by the Contractor by blading/mixing, or other satisfactory methods until the moisture content is within the range specified.

6.1.5 After each layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted by the Contractor to a relative compaction of at least 90 percent. Relative compaction is defined as the ratio (expressed in percent) of the in-place dry density of the compacted fill to the maximum laboratory dry density as determined in accordance with ASTM D 1557. Compaction shall be continuous over the entire area, and compaction equipment shall make sufficient passes so that the specified minimum relative compaction has been achieved throughout the entire fill.

6.1.6 Where practical, soils having an Expansion Index greater than 50 should be placed at least 3 feet below finish pad grade and should be compacted at a moisture content generally 2 to 4 percent greater than the optimum moisture content for the material.

6.1.7 Properly compacted *soil* fill shall extend to the design surface of fill slopes. To achieve proper compaction, it is recommended that fill slopes be over-built by at least 3 feet and then cut to the design grade. This procedure is considered preferable to track-walking of slopes, as described in the following paragraph.

6.1.8 As an alternative to over-building of slopes, slope faces may be back-rolled with a heavy-duty loaded sheepsfoot or vibratory roller at maximum 4-foot fill height intervals. Upon completion, slopes should then be track-walked with a D-8 dozer or similar equipment, such that a dozer track covers all slope surfaces at least twice.

6.2 *Soil-rock* fill, as defined in Paragraph 3.1.2, shall be placed by the Contractor in accordance with the following recommendations:

6.2.1 Rocks larger than 12 inches but less than 4 feet in maximum dimension may be incorporated into the compacted *soil* fill, but shall be limited to the area measured 15 feet minimum horizontally from the slope face and 5 feet below finish grade or 3 feet below the deepest utility, whichever is deeper.

6.2.2 Rocks or rock fragments up to 4 feet in maximum dimension may either be individually placed or placed in windrows. Under certain conditions, rocks or rock fragments up to 10 feet in maximum dimension may be placed using similar methods. The acceptability of placing rock materials greater than 4 feet in maximum dimension shall be evaluated during grading as specific cases arise and shall be approved by the Consultant prior to placement.

6.2.3 For individual placement, sufficient space shall be provided between rocks to allow for passage of compaction equipment.

6.2.4 For windrow placement, the rocks should be placed in trenches excavated in properly compacted *soil* fill. Trenches should be approximately 5 feet wide and 4 feet deep in maximum dimension. The voids around and beneath rocks should be filled with approved granular soil having a Sand Equivalent of 30 or greater and should be compacted by flooding. Windrows may also be placed utilizing an "open-face" method in lieu of the trench procedure, however, this method should first be approved by the Consultant.

6.2.5 Windrows should generally be parallel to each other and may be placed either parallel to or perpendicular to the face of the slope depending on the site geometry. The minimum horizontal spacing for windrows shall be 12 feet center-to-center with a 5-foot stagger or offset from lower courses to next overlying course. The minimum vertical spacing between windrow courses shall be 2 feet from the top of a lower windrow to the bottom of the next higher windrow.

6.2.6 Rock placement, fill placement and flooding of approved granular soil in the windrows should be continuously observed by the Consultant.

6.3 *Rock* fills, as defined in Section 3.1.3, shall be placed by the Contractor in accordance with the following recommendations:

6.3.1 The base of the *rock* fill shall be placed on a sloping surface (minimum slope of 2 percent). The surface shall slope toward suitable subdrainage outlet facilities. The *rock* fills shall be provided with subdrains during construction so that a hydrostatic pressure buildup does not develop. The subdrains shall be permanently connected to controlled drainage facilities to control post-construction infiltration of water.

6.3.2 *Rock* fills shall be placed in lifts not exceeding 3 feet. Placement shall be by rock trucks traversing previously placed lifts and dumping at the edge of the currently placed lift. Spreading of the *rock* fill shall be by dozer to facilitate *seating* of the rock. The *rock* fill shall be watered heavily during placement. Watering shall consist of water trucks traversing in front of the current rock lift face and spraying water continuously during rock placement. Compaction equipment with compactive energy comparable to or greater than that of a 20-ton steel vibratory roller or other compaction equipment providing suitable energy to achieve the required compaction or deflection as recommended in Paragraph 6.3.3 shall be utilized. The number of passes to be made should be determined as described in Paragraph 6.3.3. Once a *rock* fill lift has been covered with *soil* fill, no additional *rock* fill lifts will be permitted over the *soil* fill.

6.3.3 Plate bearing tests, in accordance with ASTM D 1196, may be performed in both the compacted *soil* fill and in the *rock* fill to aid in determining the required minimum number of passes of the compaction equipment. If performed, a minimum of three plate bearing tests should be performed in the properly compacted *soil* fill (minimum relative compaction of 90 percent). Plate bearing tests shall then be performed on areas of *rock* fill having two passes, four passes and six passes of the compaction equipment, respectively. The number of passes required for the *rock* fill shall be determined by comparing the results of the plate bearing tests for the *soil* fill and the *rock* fill and by evaluating the deflection

variation with number of passes. The required number of passes of the compaction equipment will be performed as necessary until the plate bearing deflections are equal to or less than that determined for the properly compacted *soil* fill. In no case will the required number of passes be less than two.

6.3.4 A representative of the Consultant should be present during *rock* fill operations to observe that the minimum number of "passes" have been obtained, that water is being properly applied and that specified procedures are being followed. The actual number of plate bearing tests will be determined by the Consultant during grading.

6.3.5 Test pits shall be excavated by the Contractor so that the Consultant can state that, in their opinion, sufficient water is present and that voids between large rocks are properly filled with smaller rock material. In-place density testing will not be required in the *rock* fills.

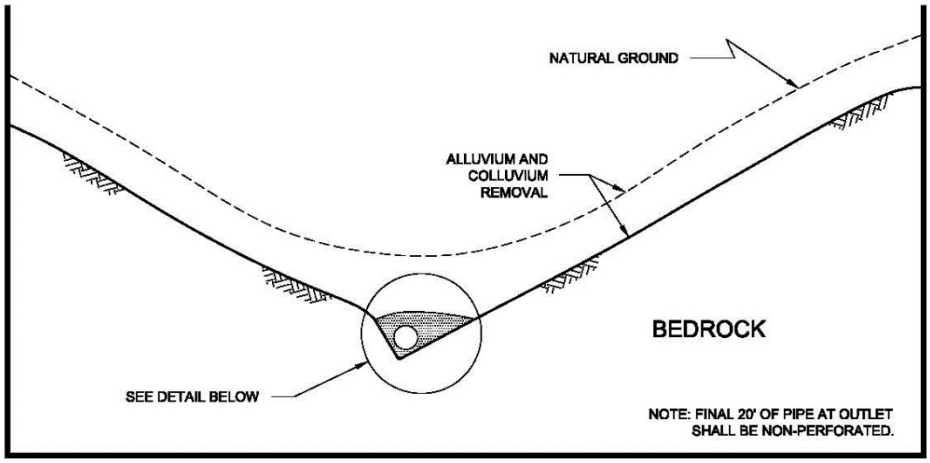
6.3.6 To reduce the potential for "piping" of fines into the *rock* fill from overlying *soil* fill material, a 2-foot layer of graded filter material shall be placed above the uppermost lift of *rock* fill. The need to place graded filter material below the *rock* should be determined by the Consultant prior to commencing grading. The gradation of the graded filter material will be determined at the time the *rock* fill is being excavated. Materials typical of the *rock* fill should be submitted to the Consultant in a timely manner, to allow design of the graded filter prior to the commencement of *rock* fill placement.

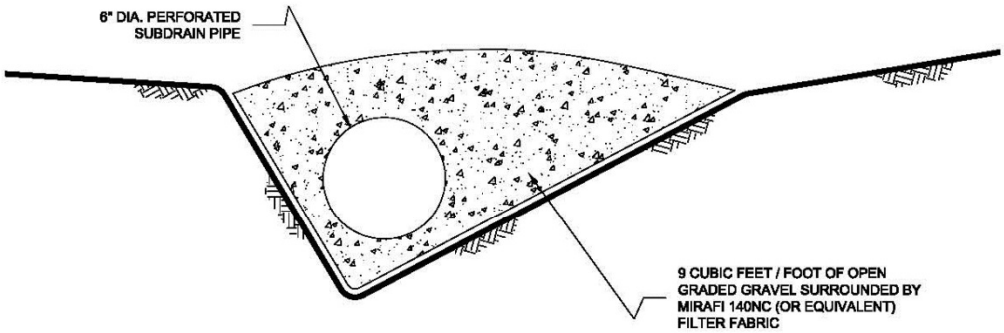
6.3.7 *Rock* fill placement should be continuously observed during placement by the Consultant.

7. SUBDRAINS

7.1 The geologic units on the site may have permeability characteristics and/or fracture systems that could be susceptible under certain conditions to seepage. The use of canyon subdrains may be necessary to mitigate the potential for adverse impacts associated with seepage conditions. Canyon subdrains with lengths in excess of 500 feet or extensions of existing offsite subdrains should use 8-inch-diameter pipes. Canyon subdrains less than 500 feet in length should use 6-inch-diameter pipes.

TYPICAL CANYON DRAIN DETAIL





NOTES:

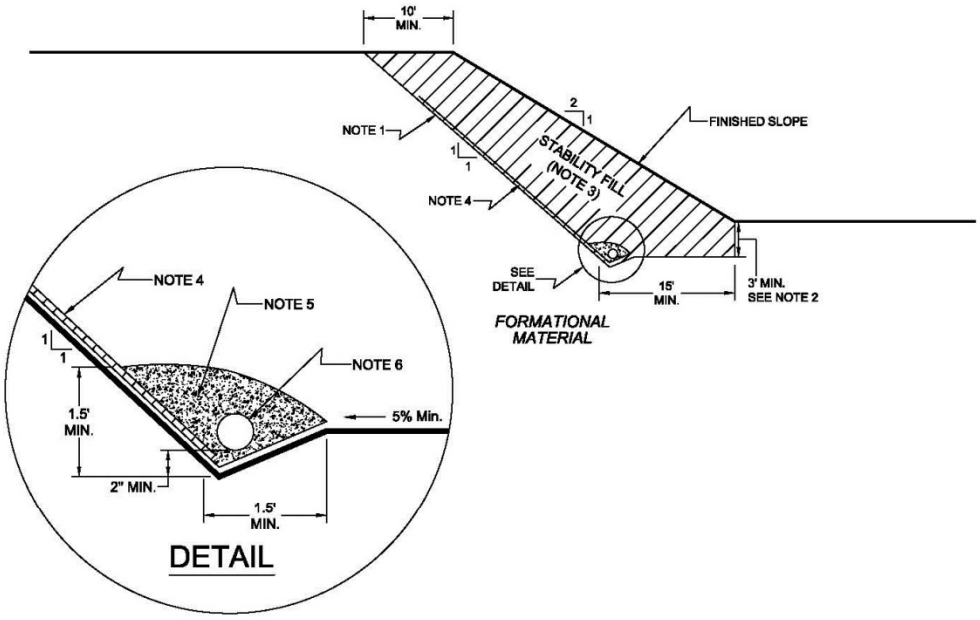
1.....6-INCH DIAMETER, SCHEDULE 80 PVC PERFORATED PIPE FOR FILLS IN EXCESS OF 100-FEET IN DEPTH OR A PIPE LENGTH OF LONGER THAN 500 FEET.

2.....6-INCH DIAMETER, SCHEDULE 40 PVC PERFORATED PIPE FOR FILLS LESS THAN 100-FEET IN DEPTH OR A PIPE LENGTH SHORTER THAN 500 FEET.

NO SCALE

7.2 Slope drains within stability fill keyways should use 4-inch-diameter (or lager) pipes.

TYPICAL STABILITY FILL DETAIL



NOTES:

1.....EXCAVATE BACKCUT AT 1:1 INCLINATION (UNLESS OTHERWISE NOTED).

2.....BASE OF STABILITY FILL TO BE 3 FEET INTO FORMATIONAL MATERIAL, SLOPING A MINIMUM 5% INTO SLOPE.

3.....STABILITY FILL TO BE COMPOSED OF PROPERLY COMPACTED GRANULAR SOIL.

4.....CHIMNEY DRAINS TO BE APPROVED PREFABRICATED CHIMNEY DRAIN PANELS (MIRADRAIN G200N OR EQUIVALENT) SPACED APPROXIMATELY 20 FEET CENTER TO CENTER AND 4 FEET WIDE. CLOSER SPACING MAY BE REQUIRED IF SEEPAGE IS ENCOUNTERED.

5.....FILTER MATERIAL TO BE 3/4-INCH, OPEN-GRADED CRUSHED ROCK ENCLOSED IN APPROVED FILTER FABRIC (MIRAFI 140NC).

6.....COLLECTOR PIPE TO BE 4-INCH MINIMUM DIAMETER, PERFORATED, THICK-WALLED PVC SCHEDULE 40 OR EQUIVALENT, AND SLOPED TO DRAIN AT 1 PERCENT MINIMUM TO APPROVED OUTLET.

NO SCALE

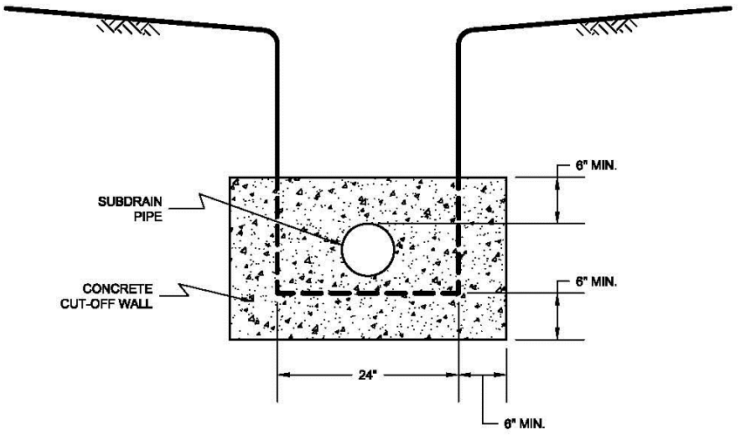
7.3 The actual subdrain locations will be evaluated in the field during the remedial grading operations. Additional drains may be necessary depending on the conditions observed and the requirements of the local regulatory agencies. Appropriate subdrain outlets should be evaluated prior to finalizing 40-scale grading plans.

7.4 *Rock* fill or *soil-rock* fill areas may require subdrains along their down-slope perimeters to mitigate the potential for buildup of water from construction or landscape irrigation. The subdrains should be at least 6-inch-diameter pipes encapsulated in gravel and filter fabric. *Rock* fill drains should be constructed using the same requirements as canyon subdrains.

7.5 Prior to outletting, the final 20-foot segment of a subdrain that will not be extended during future development should consist of non-perforated drainpipe. At the non-perforated/ perforated interface, a seepage cutoff wall should be constructed on the downslope side of the pipe.

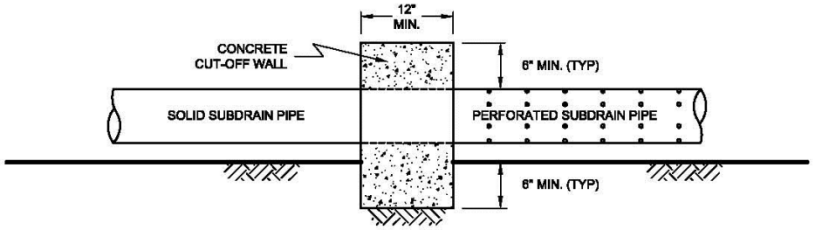
TYPICAL CUT OFF WALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW

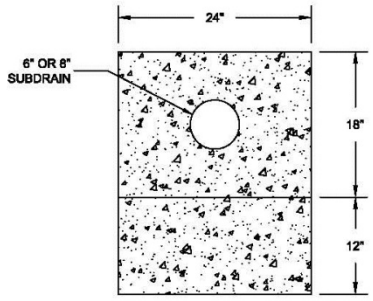


NO SCALE

7.6 Subdrains that discharge into a natural drainage course or open space area should be provided with a permanent headwall structure.

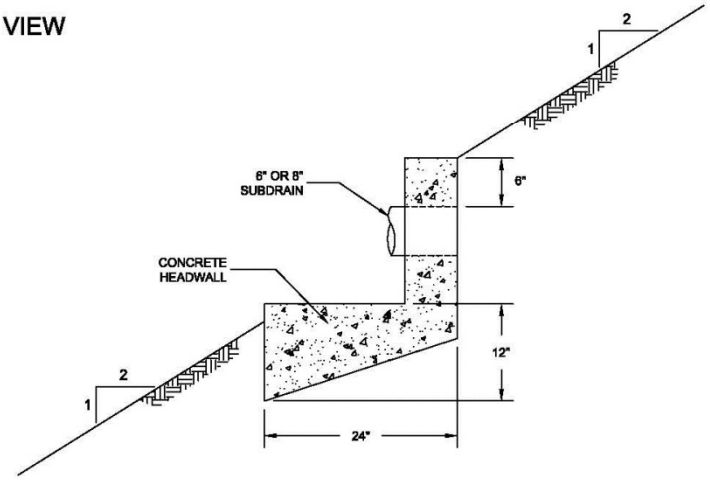
TYPICAL HEADWALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW



NOTE: HEADWALL SHOULD OUTLET AT TOE OF FILL SLOPE
OR INTO CONTROLLED SURFACE DRAINAGE

NO SCALE

7.7 The final grading plans should show the location of the proposed subdrains. After completion of remedial excavations and subdrain installation, the project civil engineer should survey the drain locations and prepare an “as-built” map showing the drain locations. The final outlet and connection locations should be determined during grading operations. Subdrains that will be extended on adjacent projects after grading can be placed on formational material and a vertical riser should be placed at the end of the subdrain. The grading contractor should consider videoing the subdrains shortly after burial to check proper installation and functionality. The contractor is responsible for the performance of the drains.

8. OBSERVATION AND TESTING

8.1 The Consultant shall be the Owner's representative to observe and perform tests during clearing, grubbing, filling, and compaction operations. In general, no more than 2 feet in vertical elevation of *soil* or *soil-rock* fill should be placed without at least one field density test being performed within that interval. In addition, a minimum of one field density test should be performed for every 2,000 cubic yards of *soil* or *soil-rock* fill placed and compacted.

8.2 The Consultant should perform a sufficient distribution of field density tests of the compacted *soil* or *soil-rock* fill to provide a basis for expressing an opinion whether the fill material is compacted as specified. Density tests shall be performed in the compacted materials below any disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof is below that specified, the particular layer or areas represented by the test shall be reworked until the specified density has been achieved.

8.3 During placement of *rock* fill, the Consultant should observe that the minimum number of passes have been obtained per the criteria discussed in Section 6.3.3. The Consultant should request the excavation of observation pits and may perform plate bearing tests on the placed *rock* fills. The observation pits will be excavated to provide a basis for expressing an opinion as to whether the *rock* fill is properly seated and sufficient moisture has been applied to the material. When observations indicate that a layer of *rock* fill or any portion thereof is below that specified, the affected layer or area shall be reworked until the *rock* fill has been adequately seated and sufficient moisture applied.

8.4 A settlement monitoring program designed by the Consultant may be conducted in areas of *rock* fill placement. The specific design of the monitoring program shall be as recommended in the Conclusions and Recommendations section of the project Geotechnical Report or in the final report of testing and observation services performed during grading.

8.5 We should observe the placement of subdrains, to check that the drainage devices have been placed and constructed in substantial conformance with project specifications.

8.6 Testing procedures shall conform to the following Standards as appropriate:

8.6.1 Soil and Soil-Rock Fills:

8.6.1.1 Field Density Test, ASTM D 1556, *Density of Soil In-Place By the Sand-Cone Method.*

8.6.1.2 Field Density Test, Nuclear Method, ASTM D 6938, *Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth).*

8.6.1.3 Laboratory Compaction Test, ASTM D 1557, *Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-Pound Hammer and 18-Inch Drop*.

8.6.1.4. Expansion Index Test, ASTM D 4829, *Expansion Index Test*.

9. PROTECTION OF WORK

9.1 During construction, the Contractor shall properly grade all excavated surfaces to provide positive drainage and prevent ponding of water. Drainage of surface water shall be controlled to avoid damage to adjoining properties or to finished work on the site. The Contractor shall take remedial measures to prevent erosion of freshly graded areas until such time as permanent drainage and erosion control features have been installed. Areas subjected to erosion or sedimentation shall be properly prepared in accordance with the Specifications prior to placing additional fill or structures.

9.2 After completion of grading as observed and tested by the Consultant, no further excavation or filling shall be conducted except in conjunction with the services of the Consultant.

10. CERTIFICATIONS AND FINAL REPORTS

10.1 Upon completion of the work, Contractor shall furnish Owner a certification by the Civil Engineer stating that the lots and/or building pads are graded to within 0.1 foot vertically of elevations shown on the grading plan and that all tops and toes of slopes are within 0.5 foot horizontally of the positions shown on the grading plans. After installation of a section of subdrain, the project Civil Engineer should survey its location and prepare an *as-built* plan of the subdrain location. The project Civil Engineer should verify the proper outlet for the subdrains and the Contractor should ensure that the drain system is free of obstructions.

10.2 The Owner is responsible for furnishing a final as-graded soil and geologic report satisfactory to the appropriate governing or accepting agencies. The as-graded report should be prepared and signed by a California licensed Civil Engineer experienced in geotechnical engineering and by a California Certified Engineering Geologist, indicating that the geotechnical aspects of the grading were performed in substantial conformance with the Specifications or approved changes to the Specifications.

URBAN CROSSROADS

Continental Villages

GREENHOUSE GAS ANALYSIS

CITY OF MORENO VALLEY

PREPARED BY:

Haseeb Qureshi, MES
hqureshi@urbanxroads.com
(949) 336-5987

Alyssa Tamase
atamase@urbanxroads.com
(949) 336-5988

NOVEMBER 16, 2018

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APPENDICES

LIST OF EXHIBITS

LIST OF TABLES

LIST OF ABBREVIATED TERMS

(1)	Reference
ARB	California Air Resources Board
AQIA	Air Quality Impact Analysis
CAA	Federal Clean Air Act
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resource Board
CAT	Climate Action Team
CBSC	California Building Standards Commission
CEC	California Energy Commission
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFC	Chlorofluorocarbons
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CPUC	California Public Utilities Commission
EPA	Environmental Protection Agency
EPS	Emission Performance Standard
GCC	Global Climate Change
GHGA	Greenhouse Gas Analysis
GWP	Global Warming Potential
HFC	Hydrofluorocarbons
LCA	Life-Cycle Analysis
MMs	Mitigation Measures
$MMTCO_2e$	Million Metric Ton of Carbon Dioxide Equivalent
$MTCO_2e$	Metric Ton of Carbon Dioxide Equivalent
N_20	Nitrogen Dioxide
NIOSH	National Institute for Occupational Safety and Health
NOx	Oxides of Nitrogen
PFC	Perfluorocarbons
PM_{10}	Particulate Matter 10 microns in diameter or less
$PM_{2.5}$	Particulate Matter 2.5 microns in diameter or less

PPM	Parts Per Million
Project	Continental Villages
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile Organic Compounds

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EXECUTIVE SUMMARY

The results of this *Continental Villages Greenhouse Gas Analysis* are summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1). Table ES-1 shows the findings of significance for each potential greenhouse gas impact under CEQA for the Project.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS (PROJECT)

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
GHG Impact #1: The Project would not generate direct or indirect greenhouse gas emission that would result in a significant impact on the environment.	3.7	*Less Than Significant*	*n/a*
GHG Impact #2: The Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.	3.7	*Less Than Significant*	*n/a*

1 INTRODUCTION

This report presents the results of the greenhouse gas analysis (GHGA) prepared by Urban Crossroads, Inc., for the proposed Brodiaea Commerce Center ("Project"). The purpose of this GHGA is to evaluate Project-related construction and operational emissions and determine the level of greenhouse gas (GHG) impacts as a result of constructing and operating the proposed Project.

1.1 SITE LOCATION

The proposed Continental Villages site is located on the northeast corner of Lasselle Street and Krameria Avenue in the City of Moreno Valley, as shown on Exhibit 1-A. Existing uses in the Project study area include existing residential homes northwest, south, and east of the Project site, the Lasselle Elementary School north of the Project site, and future residential uses, currently under construction, north of the Project site.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of up to 112 apartments/duplexes and 21,000 square feet of commercial retail use, as shown on Exhibit 1-B. The Project is anticipated to have an Opening Year of 2020[1].

1.3 REGULATORY REQUIREMENTS

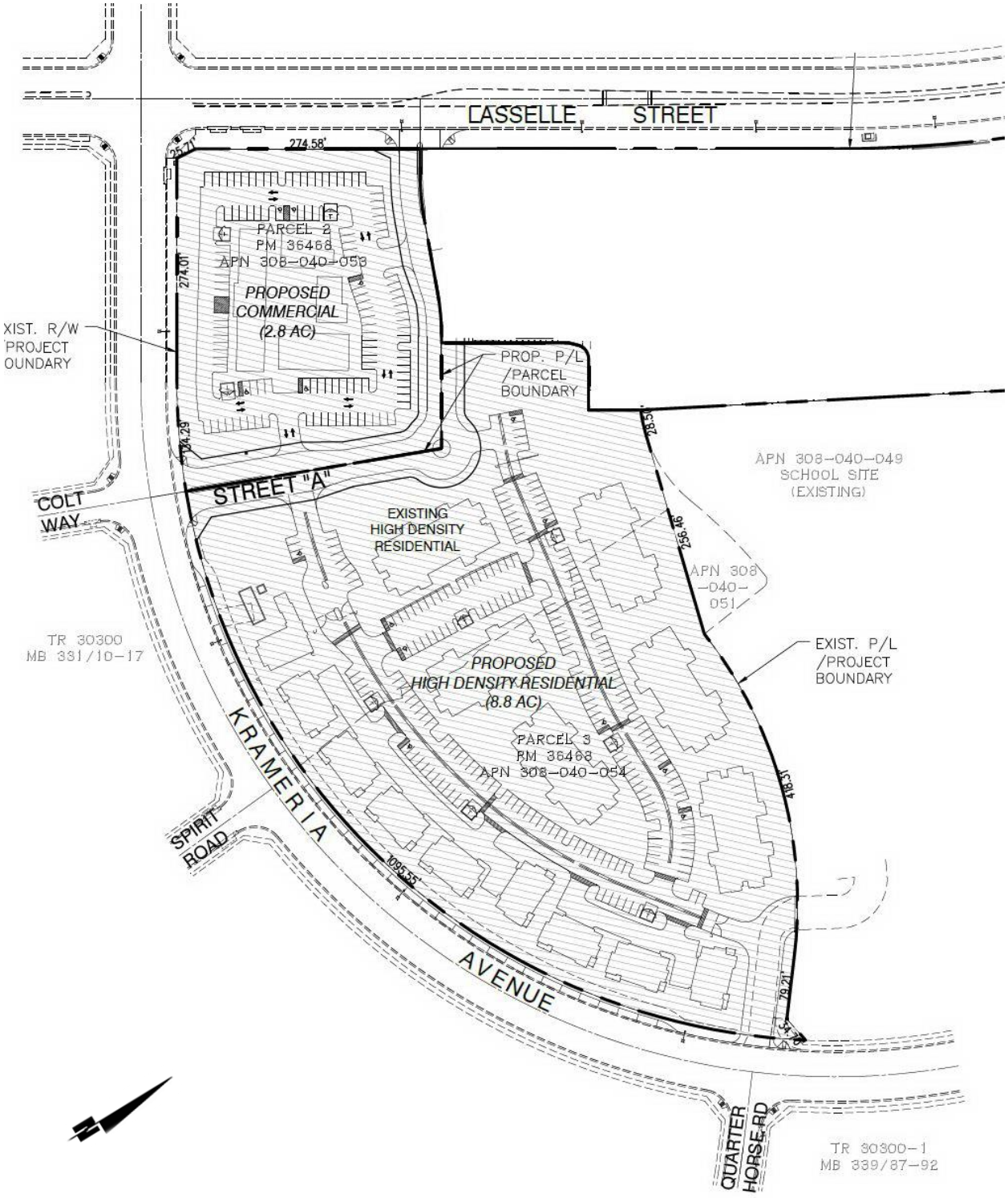
The Project would be required to comply with all mandates imposed by the State of California and the South Coast Air Quality Management District aimed at the reduction of air quality emissions. Those that are applicable to the Project and that would assist in the reduction of greenhouse gas emissions are:

- Global Warming Solutions Act of 2006 (AB32) (2)
- Regional GHG Emissions Reduction Targets/Sustainable Communities Strategies (SB 375) (3)
- Pavely Fuel Efficiency Standards (AB1493). Establishes fuel efficiency ratings for new vehicles (4).
- Title 24 California Code of Regulations (California Building Code). Establishes energy efficiency requirements for new construction (5).
- Title 20 California Code of Regulations (Appliance Energy Efficiency Standards). Establishes energy efficiency requirements for appliances (6).

[1] The Traffic Impact Analysis (TIA) prepared for the Project evaluates an Opening Year of 2023 since the City of Moreno Valley traffic study guidelines require the Opening Year to be a minimum of 5 years from baseline (2018) conditions. Utilizing a 2020 Opening Year for purposes of this AQIA would generate more emissions than if the Project utilized a 2023 Opening Year consistent with the traffic study because as the analysis year increases, vehicle emission factors would decrease as a result of emissions regulations becoming more stringent. Utilizing a 2020 Opening Year for purposes of the AQIA herein represents a conservative estimate of emissions compared to if a 2023 Opening Year, consistent with the traffic study, were utilized.

EXHIBIT 1-A: LOCATION MAP

EXHIBIT 1-B: SITE PLAN



- Title 17 California Code of Regulations (Low Carbon Fuel Standard). Requires carbon content of fuel sold in California to be 10% less by 2020 (7).
- California Water Conservation in Landscaping Act of 2006 (AB1881). Requires local agencies to adopt the Department of Water Resources updated Water Efficient Landscape Ordinance or equivalent by January 1, 2010 to ensure efficient landscapes in new development and reduced water waste in existing landscapes (8).
- Statewide Retail Provider Emissions Performance Standards (SB 1368). Requires energy generators to achieve performance standards for GHG emissions (9).
- Renewable Portfolio Standards (SB 1078). Requires electric corporations to increase the amount of energy obtained from eligible renewable energy resources to 20 percent by 2010 and 33 percent by 2020 (10).

Promulgated regulations that will affect the Project's emissions are accounted for in the Project's GHG calculations provided in this report. In particular, the Pavley Standards, Low Carbon Fuel Standards, and Renewable Portfolio Standards (RPS) will be in effect for the AB 32 target year of 2020, and therefore are accounted for in the Project's emission calculations.

1.4 Construction and Operational-Source Air Pollutant Emissions Mitigation Measures

The Project would not result in any significant impacts during construction and operational activity. Therefore, no mitigation measures are required.

2 CLIMATE CHANGE SETTING

2.1 INTRODUCTION TO GLOBAL CLIMATE CHANGE

Global Climate Change (GCC) is defined as the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. GCC is currently one of the most controversial environmental issues in the United States, and much debate exists within the scientific community about whether or not GCC is occurring naturally or as a result of human activity. Some data suggests that GCC has occurred in the past over the course of thousands or millions of years. These historical changes to the earth's climate have occurred naturally without human influence, as in the case of an ice age. However, many scientists believe that the climate shift taking place since the industrial revolution (1900) is occurring at a quicker rate and magnitude than in the past. Scientific evidence suggests that GCC is the result of increased concentrations of greenhouse gases in the earth's atmosphere, including carbon dioxide, methane, nitrous oxide, and fluorinated gases. Many scientists believe that this increased rate of climate change is the result of greenhouse gases resulting from human activity and industrialization over the past 200 years.

An individual project like the proposed Project evaluated in this GHGA cannot generate enough greenhouse gas emissions to affect a discernible change in global climate. However, the proposed Project may participate in the potential for GCC by its incremental contribution of greenhouse gases combined with the cumulative increase of all other sources of greenhouse gases, which when taken together constitute potential influences on GCC. Because these changes may have serious environmental consequences, Section 3.0 will evaluate the potential for the proposed Project to have a significant effect upon the environment as a result of its potential contribution to the greenhouse effect.

2.2 GREENHOUSE GAS EMISSIONS INVENTORIES

Global

Worldwide anthropogenic (human) GHG emissions are tracked by the Intergovernmental Panel on Climate Change for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Human GHG emissions data for Annex I nations are available through 2016. For the Year 2016, the sum of these emissions totaled approximately 28,747,554 Gg CO_2e[2] (11) (12). The GHG emissions in more recent years may differ from the inventories presented in Table 2-1; however, the data is representative of currently available inventory data.

2 The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2016 data, the UNFCCC data for the most recent year were used. United Nations Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF," The most recent GHG emissions for China were taken in 2012, while the most recent GHG emissions for India were taken in 2010.

TABLE 2-1: TOP GHG PRODUCER COUNTRIES AND THE EUROPEAN UNION [3]

Emitting Countries	GHG Emissions (Gg CO_2e)
China	11,895,765
United States	6,511,302
European Union (28 member countries)	4,291,252
India	2,643,817
Russian Federation	2,100,850
Japan	1,304,568
Total	**28,747,554**

United States

As noted in Table 2-1, the United States, as a single country, was the number two producer of GHG emissions in 2016. The primary greenhouse gas emitted by human activities in the United States was CO_2, representing approximately 81.6 percent of total greenhouse gas emissions in the US. Carbon dioxide from fossil fuel combustion, the largest source of US greenhouse gas emissions, accounted for approximately 93.5 percent of the CO_2 emissions (13).

State of California

CARB compiles GHG inventories for the State of California. Based upon the 2018 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2016 greenhouse gas emissions inventory, California emitted 429.4 $MMTCO_2e$ including emissions resulting from imported electrical power in 2015 (14).

2.3 GLOBAL CLIMATE CHANGE DEFINED

GCC refers to the change in average meteorological conditions on the earth with respect to temperature, wind patterns, precipitation and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water vapor, CO_2 (carbon dioxide), N_2O (nitrous oxide), CH_4 (methane), hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. These particular gases are important due to their residence time (duration they stay) in the atmosphere, which ranges from 10 years to more than 100 years. These gases allow solar radiation into the earth's atmosphere, but prevent radioactive heat from escaping, thus warming the earth's atmosphere. GCC can occur naturally as it has in the past with the previous ice ages.

Gases that trap heat in the atmosphere are often referred to as greenhouse gases. Greenhouse gases are released into the atmosphere by both natural and anthropogenic (human) activity. Without the natural greenhouse gas effect, the earth's average temperature would be approximately 61° Fahrenheit (F) cooler than it is currently. The cumulative accumulation of these gases in the earth's atmosphere is considered to be the cause for the observed increase in the earth's temperature.

Although California's rate of growth of greenhouse gas emissions is slowing, the state is still a substantial contributor to the U.S. emissions inventory total. In 2004, California is estimated to

[3] Used http://unfccc.int data for Annex I countries. Consulted the CAIT Climate Data Explorer in http://www.wri.org site to reference Non-Annex I countries such as China and India.

have produced 492 million gross metric tons of CO_2e greenhouse gas emissions. Despite a population increase of 16 percent between 1990 and 2004, California has significantly slowed the rate of growth of greenhouse gas emissions due to the implementation of energy efficiency programs as well as adoption of strict emission controls (15).

2.4 GREENHOUSE GASES

For the purposes of this analysis, emissions of carbon dioxide, methane, and nitrous oxide were evaluated (see Table 3-1 later in this report) because these gasses are the primary contributors to GCC from development projects. Although there are other substances such as fluorinated gases that also contribute to GCC, these fluorinated gases were not evaluated as their sources are not well-defined and do not contain accepted emissions factors or methodology to accurately calculate these gases.

Water Vapor: Water vapor (H_20) is the most abundant, important, and variable greenhouse gas in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. A climate feedback is an indirect, or secondary, change, either positive or negative, that occurs within the climate system in response to a forcing mechanism. The feedback loop in which water is involved is critically important to projecting future climate change.

As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to 'hold' more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there are also dynamics that hold the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the earth's surface and heat it up).

There are no human health effects from water vapor itself; however, when some pollutants come in contact with water vapor, they can dissolve and the water vapor can then act as a pollutant-carrying agent. The main source of water vapor is evaporation from the oceans (approximately 85 percent). Other sources include: evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.

Carbon Dioxide: Carbon dioxide (CO_2) is an odorless and colorless GHG. Outdoor levels of carbon dioxide are not high enough to result in negative health effects. Carbon dioxide is emitted from natural and manmade sources. Natural sources include: the decomposition of dead organic matter; respiration of bacteria, plants, animals and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources include: the burning of coal, oil, natural gas, and

wood. Carbon dioxide is naturally removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks (16).

Since the industrial revolution began in the mid-1700s, the sort of human activity that increases GHG emissions has increased dramatically in scale and distribution. Data from the past 50 years suggests a corollary increase in levels and concentrations. As an example, prior to the industrial revolution, CO_2 concentrations were fairly stable at 280 parts per million (ppm). Today, they are around 370 ppm, an increase of more than 30 percent. Left unchecked, the concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources (17).

Methane: Methane (CH_4) is an extremely effective absorber of radiation, although its atmospheric concentration is less than carbon dioxide and its lifetime in the atmosphere is brief (10-12 years), compared to other GHGs. Exposure to high levels of methane can cause asphyxiation, loss of consciousness, headache and dizziness, nausea and vomiting, weakness, loss of coordination, and an increased breathing rate

Methane has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide: Nitrous oxide (N_2O), also known as laughing gas, is a colorless greenhouse gas. Nitrous oxide can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses, it is considered harmless. However, in some cases, heavy and extended use can cause Olney's Lesions (brain damage) (18).

Concentrations of nitrous oxide also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb). Nitrous oxide is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, i.e., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. Nitrous oxide can be transported into the stratosphere, be deposited on the earth's surface, and be converted to other compounds by chemical reaction.

Chlorofluorocarbons: Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs are no longer being used; therefore, it is not likely that health effects would be experienced. Nonetheless, in confined indoor locations, working with CFC-113 or other CFCs is thought to result in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.

CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons: Hydrofluorocarbons (HFCs) are synthetic, man-made chemicals that are used as a substitute for CFCs. Out of all the greenhouse gases, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a (CF_3CH_2F), and HFC-152a (CH_3CHF_2). Prior to 1990, the only significant emissions were of HFC-23. HFC-134a emissions are increasing due to its use as a refrigerant. The U.S. EPA estimates that concentrations of HFC-23 and HFC-134a are now about 10 parts per trillion (ppt) each; and that concentrations of HFC-152a are about 1 ppt (19). No health effects are known to result from exposure to HFCs, which are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons: Perfluorocarbons (PFCs) have stable molecular structures and do not break down through chemical processes in the lower atmosphere. High-energy ultraviolet rays, which occur about 60 kilometers above earth's surface, are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6). The U.S. EPA estimates that concentrations of CF_4 in the atmosphere are over 70 ppt.

No health effects are known to result from exposure to PFCs. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

Sulfur Hexafluoride: Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest global warming potential (GWP) of any gas evaluated (23,900). The U.S. EPA indicates that concentrations in the 1990s were about 4 ppt. In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.

Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Nitrogen Trifluoride: Nitrogen trifluoride (NF_3) is a colorless gas with a distinctly moldy odor. NF_3 is used in industrial processes and is produced in the manufacture of semiconductors and LCD (Liquid Crystal Display) panels, and types of solar panels and chemical lasers. The World Resources Institute (WRI) indicates that NF_3 has a 100-year GWP of 17,200 (20).

Long-term or repeated exposure may effect the liver and kidneys and may cause fluorosis (21).

Greenhouse gases have varying GWP values; GWP values represent the potential of a gas to trap heat in the atmosphere. Carbon dioxide is utilized as the reference gas for GWP, and thus has a GWP of 1.

The atmospheric lifetime and GWP of selected greenhouse gases are summarized at Table 2-2. As shown in the table below, GWP for the Second Assessment Report (SAR), the Intergovernmental Panel on Climate Change (IPCC)'s scientific and socio-economic assessment on climate change, range from 1 for carbon dioxide to 23,900 for sulfur hexafluoride and GWP for the IPCC's 4th Assessment Report (AR4) range from 1 for carbon dioxide to 22,800 for sulfur hexafluoride.

TABLE 2-2: GLOBAL WARMING POTENTIAL AND ATMOSPHERIC LIFETIME OF SELECT GHGS

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100 year time horizon)	
		Second Assessment Report (SAR)	4th Assessment Report (AR4)
Carbon Dioxide	50-200	1	1
Methane	12 ± 3	21	25
Nitrous Oxide	114	310	298
HFC-23	270	11,700	14,800
HFC-134a	14	1,300	1,430
HFC-152a	1.4	140	124
Sulfur Hexafluoride (SF_6)	3,200	23,900	22,800

Source: Table 2.14 of the IPCC Fourth Assessment Report, 2007

2.5 EFFECTS OF CLIMATE CHANGE IN CALIFORNIA

Public Health

Higher temperatures may increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation could increase from 25 to 35 percent under the lower warming range (3-5.5°F) to 75 to 85 percent under the medium warming range (5.5-8°F). In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances, depending on wind conditions. The Climate Scenarios report indicates that large wildfires could become up to 55 percent more frequent if GHG emissions are not significantly reduced.

In addition, under the higher warming range scenario (8-10.5°F), there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures could increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

Water Resources

A vast network of man-made reservoirs and aqueducts captures and transports water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

If temperatures continue to increase, more precipitation could fall as rain instead of snow, and the snow that does fall could melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. Under the lower warming range scenario, snowpack losses could be only half as large as those possible if temperatures were to rise to the higher warming range. How much snowpack could be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snowpack could pose challenges to water managers and hamper hydropower generation. It could also adversely affect winter tourism. Under the lower warming range, the ski season at lower elevations could be reduced by as much as a month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

The State's water supplies are also at risk from rising sea levels. An influx of saltwater could degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta – a major fresh water supply.

Agriculture

Increased temperatures could cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. First, California farmers could possibly lose as much as 25 percent of the water supply they need. Although higher CO_2 levels can stimulate plant production and increase plant water-use efficiency, California's farmers could face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development could change, as could the intensity and frequency of pest and disease outbreaks. Rising temperatures could aggravate ozone (O_3) pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures could worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts.

In addition, continued global climate change could shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion could occur in many species while range contractions may be less likely in rapidly evolving species with significant populations already established. Should range contractions occur, new or different weed species could fill the emerging gaps. Continued global climate change could alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

Forests and Landscapes

Global climate change has the potential to intensify the current threat to forests and landscapes by increasing the risk of wildfire and altering the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state. In contrast, wildfires in northern California could increase by up to 90 percent due to decreased precipitation.

Moreover, continued global climate change has the potential to alter natural ecosystems and biological diversity within the state. For example, alpine and subalpine ecosystems could decline by as much as 60 to 80 percent by the end of the century as a result of increasing temperatures. The productivity of the state's forests has the potential to decrease as a result of global climate change.

Rising Sea Levels

Rising sea levels, more intense coastal storms, and warmer water temperatures could increasingly threaten the state's coastal regions. Under the higher warming range scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate low-lying coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. Under the lower warming range scenario, sea level could rise 12-14 inches.

2.6 HUMAN HEALTH EFFECTS

The potential health effects related directly to the emissions of carbon dioxide, methane, and nitrous oxide as they relate to development projects, such as the proposed Project, are still being debated in the scientific community. Their cumulative effects to global climate change have the potential to cause adverse effects to human health. Increases in Earth's ambient temperatures would result in more intense heat waves, causing more heat-related deaths. Scientists also purport that higher ambient temperatures would increase disease survival rates and result in more widespread disease. Climate change will likely cause shifts in weather patterns, potentially resulting in devastating droughts and food shortages in some areas (22). Exhibit 2-A presents the potential impacts of global warming.

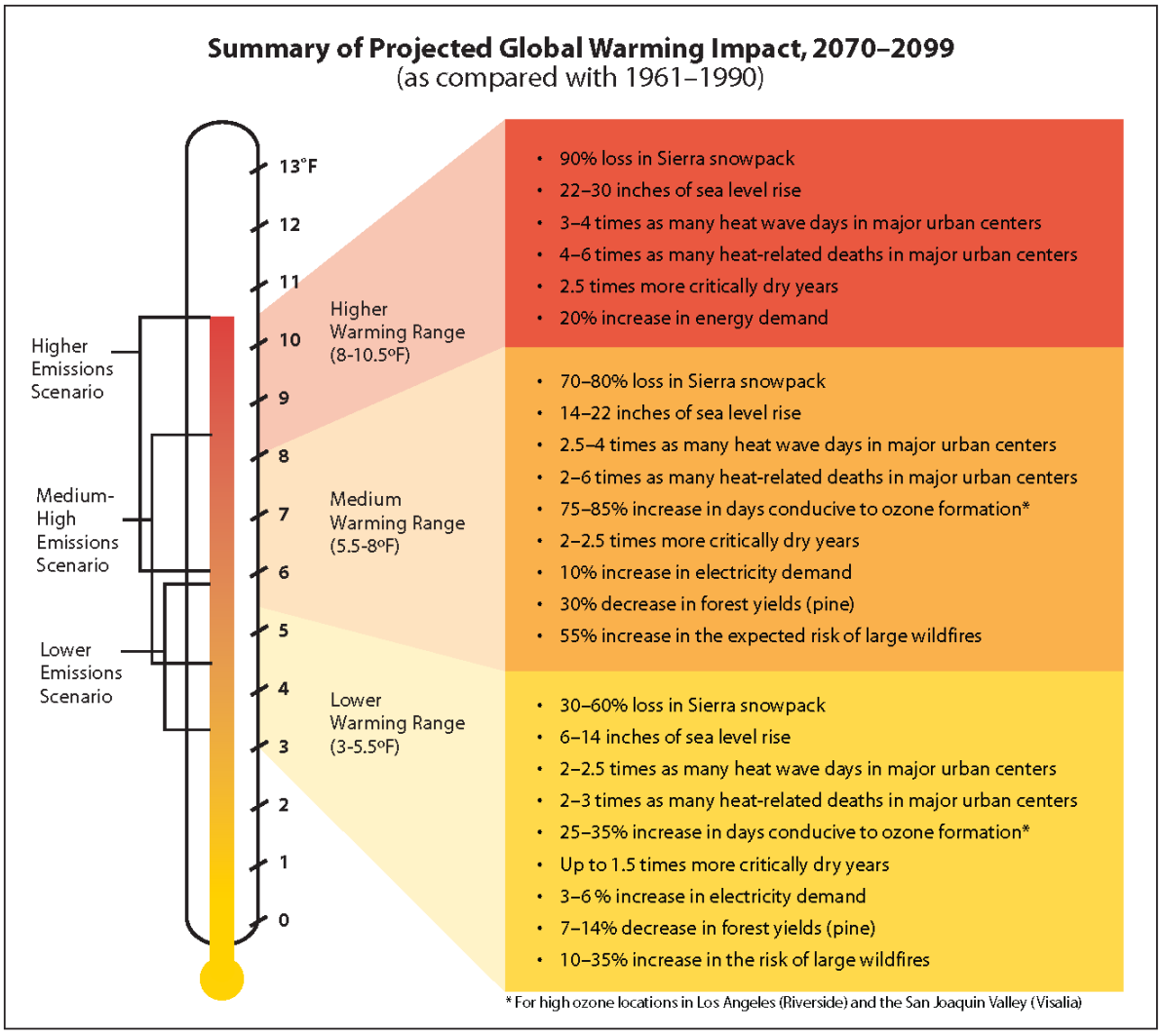
Specific health effects associated with directly emitted GHG emissions are as follows:

Water Vapor: There are no known direct health effects related to water vapor at this time. It should be noted however that when some pollutants react with water vapor, the reaction forms a transport mechanism for some of these pollutants to enter the human body through water vapor.

Carbon Dioxide: According to the National Institute for Occupational Safety and Health (NIOSH) high concentrations of carbon dioxide can result in health effects such as: headaches, dizziness,

restlessness, difficulty breathing, sweating, increased heart rate, increased cardiac output, increased blood pressure, coma, asphyxia, and/or convulsions. It should be noted that current concentrations of carbon dioxide in the earth's atmosphere are estimated to be approximately 370 parts per million (ppm), the actual reference exposure level (level at which adverse health effects typically occur) is at exposure levels of 5,000 ppm averaged over 10 hours in a 40-hour workweek and short-term reference exposure levels of 30,000 ppm averaged over a 15 minute period (23).

EXHIBIT 2-A: SUMMARY OF PROJECTED GLOBAL WARMING IMPACT



Methane: Methane is extremely reactive with oxidizers, halogens, and other halogen-containing compounds. Exposure to high levels of methane can cause asphyxiation, loss of consciousness, headache and dizziness, nausea and vomiting, weakness, loss of coordination, and an increased breathing rate (24).

Nitrous Oxide: Nitrous Oxide is often referred to as laughing gas; it is a colorless greenhouse gas. The health effects associated with exposure to elevated concentrations of nitrous oxide include

dizziness, euphoria, slight hallucinations, and in extreme cases of elevated concentrations nitrous oxide can also cause brain damage (25).

Fluorinated Gases: High concentrations of fluorinated gases can also result in adverse health effects such as asphyxiation, dizziness, headache, cardiovascular disease, cardiac disorders, and in extreme cases, increased mortality (23).

Aerosols: The health effects of aerosols are similar to that of other fine particulate matter. Thus, aerosols can cause elevated respiratory and cardiovascular diseases, as well as increased mortality (26).

Nitrogen Trifluoride: Long-term or repeated exposure may effect the liver and kidneys and may cause fluorosis (21).

2.7 REGULATORY SETTING

INTERNATIONAL

Climate change is a global issue involving GHG emissions from all around the world; therefore, countries such as the ones discussed below have made an effort to reduce GHGs.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations Framework Convention on Climate Change (Convention). On March 21, 1994, the U.S. joined a number of countries around the world in signing the Convention. Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

International Climate Change Treaties. The Kyoto Protocol is an international agreement linked to the Convention. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at an average of five percent against 1990 levels over the five-year period 2008–2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the Committee identified the long-term goal of limiting the maximum global average

temperature increase to no more than 2°C above pre-industrial levels, subject to a review in 2015. The UN Climate Change Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings are gradually gaining consensus among participants on individual climate change issues.

On September 23, 2014 more than 100 Heads of State and Government and leaders from the private sector and civil society met at the Climate Summit in New York hosted by the United Nations. At the Summit, heads of government, business and civil society announced actions in areas that would have the greatest impact on reducing emissions, including climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

Parties to the U.N. Framework Convention on Climate Change (UNFCCC) reached a landmark agreement on December 12, 2015 in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a four-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. This includes, for the first time, requirements that all parties report regularly on their emissions and implementation efforts and undergo international review.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21st session of the UNFCCC Conference of the Parties, or COP 21. Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2 degrees Celsius, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make "nationally determined contributions" (NDCs), and to pursue domestic measures aimed at achieving them;
- Commit all countries to report regularly on their emissions and "progress made in implementing and achieving" their NDCs, and to undergo international review;
- Commit all countries to submit new NDCs every five years, with the clear expectation that they will "represent a progression" beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;
- Extend the current goal of mobilizing $100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extend a mechanism to address "loss and damage" resulting from climate change, which explicitly will not "involve or provide a basis for any liability or compensation;"
- Require parties engaging in international emissions trading to avoid "double counting;" and
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country's NDC (C2ES 2015a) (27).

On June 2, 2017 President Donald Trump announced his intention to withdraw from the Paris Agreement. It should be noted that under the terms of the agreement, the United Sates cannot formally announce its resignation until November 4, 2019. Subsequently, withdrawal would be effective one year after notification in 2020.

NATIONAL

Prior to the last decade, there have been no concrete federal regulations of GHGs or major planning for climate change adaptation. The following are actions regarding the federal government, GHGs, and fuel efficiency.

GHG Endangerment. In *Massachusetts v. Environmental Protection Agency* 549 U.S. 497 (2007), decided on April 2, 2007, the Supreme Court found that four GHGs, including carbon dioxide, are air pollutants subject to regulation under Section 202(a)(1) of the Clean Air Act. The Court held that the EPA Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed in the section "Clean Vehicles" below. After a lengthy legal challenge, the U.S. Supreme Court declined to review an Appeals Court ruling that upheld the EPA Administrator's findings (28).

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the U.S. On April 1, 2010, the EPA and the Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the U.S.

The first phase of the national program applies to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon

dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). The EPA and the National Highway Safety Administration issued final rules on a second-phase joint rulemaking establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012 (EPA 2012c). The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and medium duty passenger vehicles. The final standards are projected to result in an average industry fleetwide level of 163 grams/mile of carbon dioxide (CO_2) in model year 2025, which is equivalent to 54.5 miles per gallon (mpg) if achieved exclusively through fuel economy improvements.

The EPA and the U.S. Department of Transportation issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks and buses on September 15, 2011, effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10-percent reduction for gasoline vehicles and a 15 percent reduction for diesel vehicles by the 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions from the 2014 to 2018 model years.

As of September 2018, the EPA has proposed amendments to the 2012 light-duty vehicle GHG regulations. This amendment would revise two technical errors related to compliance credit calculations. The first revision addresses how auto manufacturers calculate credits for optional advanced technology incentives while the second corrects the equation for calculating certain types of off-cycle credits. The proposed amendments would clarify the calculation methodology in the regulations and would take effect once the final rule becomes effective.

Mandatory Reporting of GHGs. The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of GHGs Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the U.S. and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to the EPA.

New Source Review. The EPA issued a final rule on May 13, 2010, that establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule "tailors" the requirements of these Clean Air Act permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the Federal Code of Regulations, the EPA states:

> This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the Clean Air Act, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to GHG sources, starting with the largest GHG emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for GHG emissions until at least April 30, 2016.

The EPA estimates that facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters—power plants, refineries, and cement production facilities.

Standards of Performance for GHG Emissions for New Stationary Sources: Electric Utility Generating Units. As required by a settlement agreement, the EPA proposed new performance standards for emissions of carbon dioxide for new, affected, fossil fuel-fired electric utility generating units on March 27, 2012. New sources greater than 25 megawatts would be required to meet an output-based standard of 1,000 pounds of carbon dioxide per megawatt-hour, based on the performance of widely used natural gas combined cycle technology. It should be noted that on February 9, 2016, the U.S. Supreme Court issued a stay of this regulation pending litigation. Additionally, the current EPA Administrator has also signed a measure to repeal the Clean Power Plan, including the CO2 standards.

Cap and Trade. Cap and trade refers to a policy tool where emissions are limited to a certain amount and can be traded, or provides flexibility on how the emitter can comply. Successful examples in the U.S. include the Acid Rain Program and the NO_x Budget Trading Program and Clean Air Interstate Rule in the northeast. There is no federal GHG cap and trade program currently; however, some states have joined to create initiatives to provide a mechanism for cap and trade.

The Regional GHG Initiative is an effort to reduce GHGs among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Each state caps carbon dioxide emissions from power plants, auctions carbon dioxide emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Initiative began in 2008.

The Western Climate Initiative partner jurisdictions have developed a comprehensive initiative to reduce regional GHG emissions to 15 percent below 2005 levels by 2020. The partners were originally California, British Columbia, Manitoba, Ontario, and Quebec. However, Manitoba and Ontario are not currently participating. California linked with Quebec's cap and trade system January 1, 2014, and joint offset auctions took place in 2015 (C2ES 2015). California's Cap and Trade Program is discussed below.

SmartWay Program. The SmartWay Program is a public-private initiative between the EPA, large and small trucking companies, rail carriers, logistics companies, commercial manufacturers, retailers, and other federal and state agencies. Its purpose is to improve fuel efficiency and the environmental performance (reduction of both GHG emissions and air pollution) of the goods movement supply chains. SmartWay is comprised of four components (EPA 2014):

1. SmartWay Transport Partnership: A partnership in which freight carriers and shippers commit to benchmark operations, track fuel consumption, and improve performance annually.
2. SmartWay Technology Program: A testing, verification, and designation program to help freight companies identify equipment, technologies, and strategies that save fuel and lower emissions.
3. SmartWay Vehicles: A program that ranks light-duty cars and small trucks and identifies superior environmental performers with the SmartWay logo.
4. SmartWay International Interests: Guidance and resources for countries seeking to develop freight sustainability programs modeled after SmartWay.

SmartWay effectively refers to requirements geared towards reducing fuel consumption. Most large trucking fleets driving newer vehicles are compliant with SmartWay design requirements. Moreover, over time, all heavy-duty trucks will have to comply with the ARB GHG Regulation that is designed with the SmartWay Program in mind, to reduce GHG emissions by making them more fuel-efficient. For instance, in 2015, 53 foot or longer dry vans or refrigerated trailers equipped with a combination of SmartWay-verified low-rolling resistance tires and SmartWay-verified aerodynamic devices would obtain a total of 10 percent or more fuel savings over traditional trailers.

Through the SmartWay Technology Program, the EPA has evaluated the fuel saving benefits of various devices through grants, cooperative agreements, emissions and fuel economy testing, demonstration projects and technical literature review. As a result, the EPA has determined the following types of technologies provide fuel saving and/or emission reducing benefits when used properly in their designed applications, and has verified certain products:

- Idle reduction technologies – less idling of the engine when it is not needed would reduce fuel consumption.
- Aerodynamic technologies minimize drag and improve airflow over the entire tractor-trailer vehicle. Aerodynamic technologies include gap fairings that reduce turbulence between the tractor and trailer, side skirts that minimize wind under the trailer, and rear fairings that reduce turbulence and pressure drop at the rear of the trailer.
- Low rolling resistance tires can roll longer without slowing down, thereby reducing the amount of fuel used. Rolling resistance (or rolling friction or rolling drag) is the force resisting the motion when a tire rolls on a surface. The wheel will eventually slow down because of this resistance.
- Retrofit technologies include things such as diesel particulate filters, emissions upgrades (to a higher tier), etc., which would reduce emissions.
- Federal excise tax exemptions.

CALIFORNIA

Legislative Actions to Reduce GHGs

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation such as the landmark Assembly Bill (AB 32) California Global Warming Solutions Act of 2006 was specifically enacted to address GHG emissions. Other legislation such as Title 24 and Title 20 energy standards were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major provisions of the legislation.

AB 32. The California State Legislature enacted AB 32, which requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. "GHGs" as defined under AB 32 include carbon dioxide, methane, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. The California Air Resources Board (ARB) is the state agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

> Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

ARB approved the 1990 GHG emissions level of 427 $MMTCO_2e$ on December 6, 2007 (ARB 2007). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 $MMTCO_2e$. Emissions in 2020 in a "business as usual" (BAU) scenario were estimated to be 596 $MMTCO_2e$, which do not account for reductions from AB 32 regulations (ARB 2008). At that level, a 28.4 percent reduction was required to achieve the 427 million $MTCO_2e$ 1990 inventory. In October 2010, ARB prepared an updated 2020 forecast to account for the recession and slower forecasted growth. The forecasted inventory without the benefits of adopted regulation is now estimated at 545 million $MTCO_2e$. Therefore, under the updated forecast, a 21.7 percent reduction from BAU is required to achieve 1990 levels (ARB 2010).

PROGRESS IN ACHIEVING AB 32 TARGETS AND REMAINING REDUCTIONS REQUIRED

The State has made steady progress in implementing AB 32 and achieving targets included in Executive Order S-3-05. The progress is shown in updated emission inventories prepared by ARB for 2000 through 2012 (ARB 2014a). The State has achieved the Executive Order S-3-05 target for 2010 of reducing GHG emissions to 2000 levels. As shown below, the 2010 emission inventory achieved this target.

- 1990: 427 million $MTCO_2e$ (AB 32 2020 target)
- 2000: 463 million $MTCO_2e$ (an average 8 percent reduction needed to achieve 1990 base)
- 2010: 450 million $MTCO_2e$ (an average 5 percent reduction needed to achieve 1990 base)

ARB has also made substantial progress in achieving its goal of achieving 1990 emissions levels by 2020. As described earlier in this section, ARB revised the 2020 BAU inventory forecast to account for new lower growth projections, which resulted in a new lower reduction from BAU to achieve the 1990 base. The previous reduction from 2020 BAU needed to achieve 1990 levels was 28.4 percent and the latest reduction from 2020 BAU is 21.7 percent.

- 2020: 545 million $MTCO_2e$ BAU (an average 21.7 percent reduction from BAU needed to achieve 1990 base)

ARB Scoping Plan. ARB's Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 to comply with AB 32 (ARB 2008). The Scoping Plan identifies recommended measures for multiple GHG emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 GHG target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

The ARB approved the First Update to the Scoping Plan (Update) on May 22, 2014. The Update identifies the next steps for California's climate change strategy. The Update shows how California continues on its path to meet the near-term 2020 GHG limit, but also sets a path toward long-term, deep GHG emission reductions. The report establishes a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050. The Update identifies progress made to meet the near-term objectives of AB 32 and defines California's climate change priorities and activities for the next several years. The Update does not set new targets for the State but describes a path that would achieve the long term 2050 goal of Executive Order S-05-03 for emissions to decline to 80 percent below 1990 levels by 2050 (ARB 2014).

Forecasting the amount of emissions that would occur in 2020 if no actions are taken was necessary to assess the amount of reductions California must achieve to return to the 1990 emissions level by 2020 as required by AB 32. The no-action scenario is known as "business-as-

usual" or BAU. The ARB originally defined the BAU scenario as emissions in the absence of any GHG emission reduction measures discussed in the Scoping Plan.

As part of CEQA compliance for the Scoping Plan, ARB prepared a Supplemental Functional Equivalent Document (FED) in 2011. The FED included an updated 2020 BAU emissions inventory projection based on current economic forecasts (i.e., as influenced by the economic downturn) and emission reduction measures already in place, replacing its prior 2020 BAU emissions inventory. ARB staff derived the updated emissions estimates by projecting emissions growth, by sector, from the state's average emissions from 2006–2008. The new BAU estimate includes emission reductions for the million-solar-roofs program, the AB 1493 (Pavley I) motor vehicle GHG emission standards, and the Low Carbon Fuels Standard. In addition, ARB factored into the 2020 BAU inventory emissions reductions associated with 33 percent Renewable Energy Portfolio Standard (RPS) for electricity generation. The updated BAU estimate of 507 $MMTCO_2e$ by 2020 requires a reduction of 80 $MMTCO_2e$, or a 16 percent reduction below the estimated BAU levels to return to 1990 levels (i.e., 427 $MMTCO_2e$) by 2020.

In order to provide a BAU reduction that is consistent with the original definition in the Scoping Plan and with threshold definitions used in thresholds adopted by lead agencies for CEQA purposes and many climate action plans, the updated inventory without regulations was also included in the Supplemental FED. The ARB 2020 BAU projection for GHG emissions in California was originally estimated to be 596 $MMTCO_2e$. The updated ARB 2020 BAU projection in the Supplemental FED is 545 $MMTCO_2e$. Considering the updated BAU estimate of 545 $MMTCO_2e$ by 2020, ARB estimates a 21.7 percent reduction below the estimated statewide BAU levels is necessary to return to 1990 emission levels (i.e., 427 $MMTCO_2e$) by 2020, instead of the approximate 28.4 percent BAU reduction previously reported under the original Climate Change Scoping Plan (2008).

2017 Climate Change Scoping Plan Update

In November 2017, ARB released the final 2017 Scoping Plan Update, which identifies the State's post-2020 reduction strategy. The 2017 Scoping Plan Update reflects the 2030 target of a 40 percent reduction below 1990 levels, set by Executive Order B-30-15 and codified by Senate Bill 32 (SB 32). Key programs that the proposed Second Update builds upon include the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and much cleaner cars, trucks and freight movement, utilizing cleaner, renewable energy, and strategies to reduce methane emissions from agricultural and other wastes.

The 2017 Scoping Plan establishes a new emissions limit of 260 $MMTCO_2e$ for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030.

California's climate strategy will require contributions from all sectors of the economy, including the land base, and will include enhanced focus on zero- and near-zero-emission (ZE/NZE) vehicle technologies; continued investment in renewables, including solar roofs, wind, and other distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (methane, black carbon, and fluorinated gases); and an increased focus on integrated land use planning to support livable, transit-connected communities and conservation of agricultural and

other lands. Requirements for direct GHG reductions at refineries will further support air quality co-benefits in neighborhoods, including in disadvantaged communities historically located adjacent to these large stationary sources, as well as efforts with California's local air pollution control and air quality management districts (air districts) to tighten emission limits on a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks.
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030).
- Implementing SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing methane and hydroflurocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.
- Continued implementation of SB 375.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- 20 percent reduction in GHG emissions from refineries by 2030.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

In addition to the statewide strategies listed above, the 2017 Scoping Plan also identifies local governments as essential partners in achieving the State's long-term GHG reduction goals and identifies local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends that local governments achieve a community-wide goal to achieve emissions of no more than 6 $MTCO_2e$ or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. For CEQA projects, CARB states that lead agencies may develop evidenced-based bright-line numeric thresholds—consistent with the Scoping Plan and the State's long-term GHG goals—and projects with emissions over that amount may be required to incorporate on-site design features and mitigation measures that avoid or minimize project emissions to the degree feasible; or, a performance-based metric using a climate action plan or other plan to reduce GHG emissions is appropriate.

According to research conducted by the Lawrence Berkeley National Laboratory and supported by ARB, California, under its existing and proposed GHG reduction policies, is on track to meet the 2020 reduction targets under AB 32 and could achieve the 2030 goals under SB 32. The research utilized a new, validated model known as the California LBNL GHG Analysis of Policies Spreadsheet (CALGAPS), which simulates GHG and criteria pollutant emissions in California from 2010 to 2050 in accordance to existing and future GHG-reducing policies. The CALGAPS model showed that GHG emissions through 2020 could range from 317 to 415 $MTCO_2e$ per year, "indicating that existing state policies will likely allow California to meet its target [of 2020 levels under AB 32]." CALGAPS also showed that by 2030, emissions could range from 211 to 428 $MTCO_2e$ per year, indicating that "even if all modeled policies are not implemented, reductions

could be sufficient to reduce emissions 40 percent below the 1990 level [of SB 32]." CALGAPS analyzed emissions through 2050 even though it did not generally account for policies that might be put in place after 2030. Although the research indicated that the emissions would not meet the State's 80 percent reduction goal by 2050, various combinations of policies could allow California's cumulative emissions to remain very low through 2050 (29) (30).

Senate Bill 32. On September 8, 2016, Governor Jerry Brown signed the Senate Bill (SB) 32 and its companion bill, Assembly Bill (AB) 197. SB 32 requires the state to reduce statewide GHG emissions to 40 percent below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15. The new legislation builds upon the AB 32 goal of 1990 levels by 2020 and provides an intermediate goal to achieving S-3-05, which sets a statewide GHG reduction target of 80 percent below 1990 levels by 2050. AB 197 creates a legislative committee to oversee regulators to ensure that ARB not only responds to the Governor, but also the Legislature (31) (32).

Cap and Trade Program. The Scoping Plan identifies a Cap-and-Trade Program as one of the key strategies for California to reduce GHG emissions. According to ARB, a cap-and-trade program will help put California on the path to meet its goal of reducing GHG emissions to 1990 levels by the year 2020 and ultimately achieving an 80 percent reduction from 1990 levels by 2050. Under cap-and-trade, an overall limit on GHG emissions from capped sectors is established, and facilities subject to the cap will be able to trade permits to emit GHGs within the overall limit.

ARB adopted a California Cap-and-Trade Program pursuant to its authority under AB 32. See Title 17 of the California Code of Regulations (CCR) §§ 95800 to 96023). The Cap-and-Trade Program is designed to reduce GHG emissions from major sources (deemed "covered entities") by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve AB 32's emission-reduction mandate of returning to 1990 levels of emissions by 2020. The statewide cap for GHG emissions from the capped sectors (e.g., electricity generation, petroleum refining, and cement production) commenced in 2013 and will decline over time, achieving GHG emission reductions throughout the program's duration.

Covered entities that emit more than 25.000 $MTCO_2e$ per year must comply with the Cap-and-Trade Program. Triggering of the 25.000 $MTCO_2e$ per year "inclusion threshold" is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of GHG Emissions (Mandatory Reporting Rule or "MRR").

Under the Cap-and-Trade Program, ARB issues allowances equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities. Covered entities are allocated free allowances in whole or part (if eligible), and may buy allowances at auction, purchase allowances from others, or purchase offset credits. Each covered entity with a compliance obligation is required to surrender "compliance instruments" (30) for each $MTCO_2e$ of GHG they emit. There also are requirements to surrender compliance instruments covering 30 percent of the prior year's compliance obligation by November of each year. For example, in November 2014, a covered entity was required to submit compliance instruments to cover 30 percent of its 2013 GHG emissions.

The Cap-and-Trade Program provides a firm cap, ensuring that the 2020 statewide emission limit will not be exceeded. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by ARB in the First Update:

> The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative (ARB 2014).

The Cap-and-Trade Program works with other direct regulatory measures and provides an economic incentive to reduce emissions. If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program will be responsible for relatively more emissions reductions. Thus, the Cap-and-Trade Program assures that California will meet its 2020 GHG emissions reduction mandate:

> The Cap-and-Trade Program establishes an overall limit on GHG emissions from most of the California economy—the "capped sectors." Within the capped sectors, some of the reductions are being accomplished through direct regulations, such as improved building and appliance efficiency standards, the [Low Carbon Fuel Standard] LCFS, and the 33 percent [Renewables Portfolio Standard] RPS. Whatever additional reductions are needed to bring emissions within the cap is accomplished through price incentives posed by emissions allowance prices. Together, direct regulation and price incentives assure that emissions are brought down cost-effectively to the level of the overall cap. The Cap-and-Trade Regulation provides assurance that California's 2020 limit will be met because the regulation sets a firm limit on 85 percent of California's GHG emissions. In sum, the Cap-and-Trade Program will achieve aggregate, rather than site specific or project-level, GHG emissions reductions. Also, due to the regulatory architecture adopted by ARB in AB 32, the reductions attributed to the Cap-and-Trade Program can change over time depending on the State's emissions forecasts and the effectiveness of direct regulatory measures (ARB 2014).

As of January 1, 2015, the Cap-and-Trade Program covered approximately 85 percent of California's GHG emissions. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly,

GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program.

The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period. While the Cap-and-Trade Program technically covered fuel suppliers as early as 2012, they did not have a compliance obligation (i.e., they were not fully regulated) until 2015. The Cap-and-Trade Program covers the GHG emissions associated with the combustion of transportation fuels in California, whether refined in-state or imported. The point of regulation for transportation fuels is when they are "supplied" (i.e., delivered into commerce). Accordingly, as with stationary source GHG emissions and GHG emissions attributable to electricity use, virtually all, if not all, of GHG emissions from CEQA projects associated with vehicle-miles traveled (VMT) are covered by the Cap-and-Trade Program (ARB 2015) (33).

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. "Capped" strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the Program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. "Uncapped" strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional GHG emission reductions.[4]

SB 375 - the Sustainable Communities and Climate Protection Act of 2008. Passing the Senate on August 30, 2008, Senate Bill (SB) 375 was signed by the Governor on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40 percent of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: it (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

Concerning CEQA, SB 375, as codified in Public Resources Code Section 21159.28, states that CEQA findings for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts, or (2) any project-specific or cumulative impacts from cars and light-duty truck

[4] On March 17, 2011, the San Francisco Superior Court issued a final decision in *Association of Irritated Residents v. California Air Resources Board* (Case No. CPF-09-509562). While the Court upheld the validity of the ARB Scoping Plan for the implementation of AB 32, the Court enjoined ARB from further rulemaking under AB 32 until ARB amends its CEQA environmental review of the Scoping Plan to address the flaws identified by the Court. On May 23, 2011, ARB filed an appeal. On June 24, 2011, the Court of Appeal granted ARB's petition staying the trail court's order pending consideration of the appeal. In the interest of informed decision-making, on June 13, 2011, ARB released the expanded alternatives analysis in a draft Supplement to the AB 32 Scoping Plan Functional Equivalent Document. The ARB Board approved the Scoping Plan and the CEQA document on August 24, 2011.

trips generated by the project on global warming or the regional transportation network, if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that the ARB accepts as achieving the GHG emission reduction targets.
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies).
3. Incorporates the mitigation measures required by an applicable prior environmental document.

AB 1493 Pavley Regulations and Fuel Efficiency Standards. California AB 1493, enacted on July 22, 2002, required ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the U.S. District Court for the District of Columbia in 2011.

The standards phase in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in about a 22 percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards will result in about a 30 percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.

The second phase of the implementation for the Pavley bill was incorporated into Amendments to the Low-Emission Vehicle Program referred to as LEV III or the Advanced Clean Cars program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34 percent from 2016 levels by 2025. The new rules will clean up gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles and hydrogen fuel cell cars. The package will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California.

SB 350— Clean Energy and Pollution Reduction Act of 2015. In October 2015, the legislature approved and the Governor signed SB 350, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the renewables portfolio standard (RPS), higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Provisions for a 50 percent reduction in the use of petroleum statewide were removed from the Bill because of opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030, with interim targets of 40 percent by 2024, and 25 percent by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the California Energy Commission (CEC), and local publicly-owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States (California Leginfo 2015).

EXECUTIVE ORDERS RELATED TO GHG EMISSIONS

California's Executive Branch has taken several actions to reduce GHGs through the use of Executive Orders. Although not regulatory, they set the tone for the state and guide the actions of state agencies.

Executive Order S-3-05. Former California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Executive Order S-01-07 – Low Carbon Fuel Standard. The Governor signed Executive Order S-01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the Executive Order established a Low Carbon Fuel Standard and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, the ARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by California Energy Commission on December 24, 2007) and was submitted to ARB for consideration as an "early action" item under AB 32. The ARB adopted the Low Carbon Fuel Standard on April 23, 2009.

The Low Carbon Fuel Standard was challenged in the U.S. District Court in Fresno in 2011. The court's ruling issued on December 29, 2011, included a preliminary injunction against ARB's implementation of the rule. The Ninth Circuit Court of Appeals stayed the injunction on April 23, 2012, pending final ruling on appeal, allowing ARB to continue to implement and enforce the regulation. The Ninth Circuit Court's decision, filed September 18, 2013, vacated the preliminary injunction. In essence, the court held that Low Carbon Fuel Standards adopted by ARB were not in conflict with federal law. On August 8, 2013, the Fifth District Court of Appeal (California) ruled ARB failed to comply with CEQA and the Administrative Procedure Act (APA) when adopting

regulations for Low Carbon Fuel Standards. In a partially published opinion, the Court of Appeal reversed the trial court's judgment and directed issuance of a writ of mandate setting aside Resolution 09-31 and two executive orders of ARB approving Low Carbon Fuel Standards (LCFS) regulations promulgated to reduce GHG emissions. However, the court tailored its remedy to protect the public interest by allowing the LCFS regulations to remain operative while ARB complies with the procedural requirements it failed to satisfy.

To address the Court ruling, ARB was required to bring a new LCFS regulation to the Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon intensity (low-CI) fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. On November 16, 2015 the Office of Administrative Law (OAL) approved the Final Rulemaking Package. The new LCFS regulation became effective on January 1 2016.

Executive Order S-13-08. Executive Order S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the Order, the 2009 California Climate Adaptation Strategy (California Natural Resources Agency 2009) was adopted, which is the ". . . first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-30-15. On April 29, 2015, Governor Edmund G. Brown Jr. issued an executive order to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments ahead of the United Nations Climate Change Conference in Paris late 2015. The Order sets a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050 and directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of CO_2 equivalent ($MMCO_2e$). The Order also requires the state's climate adaptation plan to be updated every three years, and for the State to continue its climate change research program, among other provisions. As with Executive Order S-3-05, this Order is not legally enforceable for local governments and the private sector. Legislation that would update AB 32 to make post 2020 targets and requirements a mandate is in process in the State Legislature.

CALIFORNIA REGULATIONS AND BUILDING CODES

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat even with rapid population growth.

Title 20 Appliance Efficiency Standards. California Code of Regulations, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. 23 categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the state and those designed and sold exclusively for use in recreational vehicles or other mobile equipment (CEC 2012).

Title 24 Energy Efficiency Standards and California Green Building Standards. California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2016 version of Title 24 was adopted by the California Energy Commission (CEC) and became effective on January 1, 2017 and is applicable to the Project.

The CEC indicates that the 2016 Title 24 standards will reduce energy consumption by 5 percent for nonresidential buildings above that achieved by the 2013 Title 24 (CEC 2015).

California Code of Regulations, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2011, and is administered by the California Building Standards Commission. CALGreen is updated on a regular basis, with the most recent update consisting of the 2016 California Green Building Code Standards that became effective January 1, 2017. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction and demolition ordinances and defers to them as the ruling guidance provided they establish a minimum 65 percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. The State Building Code provides the minimum standard that buildings must meet in order to be certified for occupancy, which is generally enforced by the local building official. CALGreen requires:

- Short-term bicycle parking. If a commercial project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of tenant-occupied motorized vehicle parking capacity, with a minimum of one space (5.106.4.1.2).
- Designated parking. Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).

- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling (5.410.1).
- Construction waste. A minimum 65 percent diversion of construction and demolition waste from landfills, increasing voluntarily to 80 percent for new homes and commercial projects (5.408.1, A5.408.3.1 [nonresidential], A5.408.3.1 [residential]). All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled (5.408.3).
- Wastewater reduction. Each building shall reduce the generation of wastewater by one of the following methods:
    - The installation of water-conserving fixtures (5.303.3) or
    - Using nonpotable water systems (5.303.4).
- Water use savings. 20 percent mandatory reduction of indoor water use with voluntary goal standards for 30, 35 and 40 percent reductions (5.303.2, A5303.2.3 [nonresidential]).
- Water meters. Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day (5.303.1).
- Irrigation efficiency. Moisture-sensing irrigation systems for larger landscaped areas (5.304.3).
- Materials pollution control. Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particleboard (5.404).
- Building commissioning. Mandatory inspections of energy systems (i.e., heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies (5.410.2).

Model Water Efficient Landscape Ordinance. The Model Water Efficient Landscape Ordinance (Ordinance) was required by AB 1881, the Water Conservation Act. The bill required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. Reductions in water use of 20 percent consistent with (SBX-7-7) 2020 mandate are expected upon compliance with the ordinance. Governor Brown's Drought Executive Order of April 1, 2015 (EO B-29-15) directed Department of Water Resources (DWR) to update the Ordinance through expedited regulation. The California Water Commission approved the revised Ordinance on July 15, 2015 effective December 15, 2015. New development projects that include landscape areas of 500 square feet or more are subject to the Ordinance. The update requires:

- More efficient irrigation systems;
- Incentives for graywater usage;
- Improvements in on-site stormwater capture;
- Limiting the portion of landscapes that can be planted with high water use plants; and
- Reporting requirements for local agencies.

ARB Refrigerant Management Program. ARB adopted a regulation in 2009 to reduce refrigerant GHG emissions from stationary sources through refrigerant leak detection and monitoring, leak repair, system retirement and retrofitting, reporting and recordkeeping, and proper refrigerant cylinder use, sale, and disposal. The regulation is set forth in sections 95380 to 95398 of Title 17,

California Code of Regulations. The rules implementing the regulation establish a limit on statewide GHG emissions from stationary facilities with refrigeration systems with more than 50 pounds of a high GWP refrigerant. The refrigerant management program is designed to (1) reduce emissions of high-GWP GHG refrigerants from leaky stationary, non-residential refrigeration equipment; (2) reduce emissions from the installation and servicing of refrigeration and air-conditioning appliances using high-GWP refrigerants; and (3) verify GHG emission reductions.

Tractor-Trailer GHG Regulation. The tractors and trailers subject to this regulation must either use EPA SmartWay certified tractors and trailers, or retrofit their existing fleet with SmartWay verified technologies. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the heavy-duty tractors that pull them on California highways. These owners are responsible for replacing or retrofitting their affected vehicles with compliant aerodynamic technologies and low rolling resistance tires. Sleeper cab tractors model year 2011 and later must be SmartWay certified. All other tractors must use SmartWay verified low rolling resistance tires. There are also requirements for trailers to have low rolling resistance tires and aerodynamic devices.

Phase I and 2 Heavy-Duty Vehicle GHG Standards. ARB has adopted a new regulation for greenhouse gas (GHG) emissions from heavy-duty trucks and engines sold in California. It establishes GHG emission limits on truck and engine manufacturers and harmonizes with the U.S. EPA rule for new trucks and engines nationally. Existing heavy-duty vehicle regulations in California include engine criteria emission standards, tractor-trailer GHG requirements to implement SmartWay strategies (i.e., the Heavy-Duty Tractor-Trailer Greenhouse Gas Regulation), and in-use fleet retrofit requirements such as the Truck and Bus Regulation. In September 2011, the U.S. EPA adopted their new rule for heavy-duty trucks and engines. The U.S. EPA rule has compliance requirements for new compression and spark ignition engines, as well as trucks from Class 2b through Class 8. Compliance requirements begin with model year (MY) 2014 with stringency levels increasing through MY 2018. The rule organizes truck compliance into three groupings, which include a) heavy-duty pickups and vans; b) vocational vehicles; and c) combination tractors. The U.S. EPA rule does not regulate trailers.

ARB staff has worked jointly with the U.S. Environmental Protection Agency (U.S. EPA) and the National Highway Traffic Safety Administration (NHTSA) on the next phase of federal greenhouse gas (GHG) emission standards for medium- and heavy-duty vehicles, called federal Phase 2. The federal Phase 2 standards were built on the improvements in engine and vehicle efficiency required by the Phase 1 emission standards and represent a significant opportunity to achieve further GHG reductions for 2018 and later model year heavy-duty vehicles, including trailers.

U.S. EPA and NHTSA issued a Notice of Proposed Rulemaking for Phase 2 in June 2015 and published the final rule in October 2016. On February 8, 2018 the Board approved, with direction to staff to make additional 15-day changes, the proposed Phase 2 standards. Final approval and OAL action is expected to be completed by the end of 2018.

SB 97 and the CEQA Guidelines Update. Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states "(a) On or before July 1, 2009, the Office of

Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a)." Section 21097 was also added to the Public Resources Code. It provided CEQA protection until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006, in stating that the failure to analyze adequately the effects of GHGs would not violate CEQA.

On April 13, 2009, the Office of Planning and Research submitted to the Secretary for Natural Resources its recommended amendments to the CEQA Guidelines for addressing GHG emissions. On July 3, 2009, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting these amendments pursuant to Public Resources Code section 21083.05. Following a 55-day public comment period and two public hearings, the Natural Resources Agency proposed revisions to the text of the proposed Guidelines amendments. The Natural Resources Agency transmitted the adopted amendments and the entire rulemaking file to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

The CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change.

A new section, CEQA Guidelines Section 15064.4, was added to assist agencies in determining the significance of GHG emissions. The new section allows agencies the discretion to determine whether a quantitative or qualitative analysis is best for a particular project. However, little guidance is offered on the crucial next step in this assessment process—how to determine whether the project's estimated GHG emissions are significant or cumulatively considerable.

Also amended were CEQA Guidelines Sections 15126.4 and 15130, which address mitigation measures and cumulative impacts, respectively. GHG mitigation measures are referenced in general terms, but no specific measures are championed. The revision to the cumulative impact discussion requirement (Section 15130) simply directs agencies to analyze GHG emissions in an EIR when a project's incremental contribution of emissions may be cumulatively considerable, however it does not answer the question of when emissions are cumulatively considerable.

Section 15183.5 permits programmatic GHG analysis and later project-specific tiering, as well as the preparation of GHG Reduction Plans. Compliance with such plans can support a determination that a project's cumulative effect is not cumulatively considerable, according to Section 15183.5(b).

In addition, the amendments revised Appendix F of the CEQA Guidelines, which focuses on Energy Conservation. The sample environmental checklist in Appendix G was amended to include GHG questions.

REGIONAL

The project is within the Southern California Air Basin (SoCAB), which is under the jurisdiction of the SCAQMD.

South Coast Air Quality Management District

SCAQMD is the agency responsible for air quality planning and regulation in the SoCAB. The SCAQMD addresses the impacts to climate change of projects subject to SCAQMD permit as a lead agency if they are the only agency having discretionary approval for the project and acts as a responsible agency when a land use agency must also approve discretionary permits for the project. The SCAQMD acts as an expert commenting agency for impacts to air quality. This expertise carries over to GHG emissions, so the agency helps local land use agencies through the development of models and emission thresholds that can be used to address GHG emissions.

In 2008, SCAQMD formed a Working Group to identify GHG emissions thresholds for land use projects that could be used by local lead agencies in the SoCAB. The Working Group developed several different options that are contained in the SCAQMD Draft Guidance Document – Interim CEQA GHG Significance Threshold, that could be applied by lead agencies. The working group has not provided additional guidance since release of the interim guidance in 2008. The SCAQMD Board has not approved the thresholds; however, the Guidance Document provides substantial evidence supporting the approaches to significance of GHG emissions that can be considered by the lead agency in adopting its own threshold. The current interim thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether the project is consistent with a GHG reduction plan. If a project is consistent with a qualifying local GHG reduction plan, it does not have significant GHG emissions.
- Tier 3 consists of screening values, which the lead agency can choose, but must be consistent with all projects within its jurisdiction. A project's construction emissions are averaged over 30 years and are added to the project's operational emissions. If a project's emissions are below one of the following screening thresholds, then the project is less than significant:
    - Residential and Commercial land use: 3,000 $MTCO_2e$ per year
    - Industrial land use: 10,000 $MTCO_2e$ per year
    - Based on land use type: residential: 3,500 $MTCO_2e$ per year; commercial: 1,400 $MTCO_2e$ per year; or mixed use: 3,000 $MTCO_2e$ per year
- Tier 4 has the following options:
    - Option 1: Reduce BAU emissions by a certain percentage; this percentage is currently undefined.

- Option 2: Early implementation of applicable AB 32 Scoping Plan measures
- Option 3, 2020 target for service populations (SP), which includes residents and employees: 4.8 $MTCO_2e$/SP/year for projects and 6.6 $MTCO_2e$/SP/year for plans;
- Option 3, 2035 target: 3.0 $MTCO_2e$/SP/year for projects and 4.1 $MTCO_2e$/SP/year for plans

- Tier 5 involves mitigation offsets to achieve target significance threshold.

The SCAQMD's interim thresholds used the Executive Order S-3-05 year 2050 goal as the basis for the Tier 3 screening level. Achieving the Executive Order's objective would contribute to worldwide efforts to cap carbon dioxide concentrations at 450 ppm, thus stabilizing global climate.

SCAQMD only has authority over GHG emissions from development projects that include air quality permits. At this time, it is unknown if the project would include stationary sources of emissions subject to SCAQMD permits. Notwithstanding, if the Project requires a stationary permit, it would be subject to the applicable SCAQMD regulations.

SCAQMD Regulation XXVII, adopted in 2009 includes the following rules:

- Rule 2700 defines terms and post global warming potentials.
- Rule 2701, SoCal Climate Solutions Exchange, establishes a voluntary program to encourage, quantify, and certify voluntary, high quality certified GHG emission reductions in the SCAQMD.
- Rule 2702, GHG Reduction Program created a program to produce GHG emission reductions within the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

2.8 CITY OF MORENO VALLEY GENERAL PLAN MEASURES

Although the City of Moreno Valley General Plan does not identify specific GHG or climate change policies or goal, a number of the measures identified in the General Plan's Air Quality Element act to reduce or control criteria pollutant emissions and peripherally reduce GHG emissions. The proposed Project has been evaluated for consistency with the City's General Plan Air Quality Element, as shown on Table 2-3.

TABLE 2-3: CITY OF MORENO VALLEY GENERAL PLAN CONSISTENCY

Objective 6.6: Promote land use patterns that reduce daily automotive trips and reduce trip distance for work, shopping, school, and recreation.	**Consistent.** *The Project site is providing employment opportunities to Moreno Valley and the surrounding area.*
Objective 6.7: Reduce mobile and stationary source air pollutant emissions.	**Consistent.** *The Project site is located proximate to existing and proposed major roadways, acting to generally reduce vehicle trip lengths, thereby reducing mobile source emissions. The Project will further reduce mobile source emissions by creating local employment opportunities, reducing commuter vehicle miles traveled (VMT) within the region. Additionally, the Project will implement energy efficient designs and operational programs meeting or surpassing California Code of Regulations (CCR) Title 24 Building Standards,*

	including but not limited to compliance with or betterment of, energy conservation requirements identified at CCR Title 24, Part 6, Energy Code. Energy efficient designs and programs implemented by the Project reduce resources consumption with correlating reductions in stationary-source emissions.
Policy 6.7.5: Require grading activities to comply with South Coast Air Quality Management District's Rule 403 regarding the control of fugitive dust.	**Consistent.** *The Project will be required to implement fugitive dust control measures consistent with SCAQMD Rule 403.*
Policy 6.7.6: Require building construction to comply with the energy conservation requirements of Title 24 of the California Administrative Code [California Code of Regulations].	**Consistent.** *Pursuant to City and State Building Code requirements, the Project will meet or surpass applicable CCR Title 24 energy conservation requirements.*

Source: City of Moreno Valley General Plan, Safety Element

2.9 CITY OF MORENO VALLEY ENERGY EFFICIENCY AND CLIMATE ACTION STRATEGY

The City of Moreno Valley released an Energy Efficiency and Climate Action Strategy (CAS) as well as a Greenhouse Gas Analysis for public review on May 8, 2012. The documents were approved on October 9, 2012. The CAS identifies ways that the City can reduce energy and water consumption and greenhouse gas emissions as an organization (its employees and the operation of its facilities) and outlines the actions that the City can encourage and community members can employ to reduce their own energy and water consumption and greenhouse gas emissions. The policies in the document are to reduce greenhouse gas emissions in 2010 by 15 percent by 2020. The following consists of an analysis of project consistency with the policies in the CAS.

- R2-T1: Land Use Based Trips and VMT Reduction Policies. Encourage the development of Transit Priority Projects along High-Quality Transit Corridors identified in the SCAG Sustainable Communities Plan, to allow a reduction in vehicle miles traveled.

  Project consistency: Not applicable.

- R2-T3: Employment-Based Trip Reductions. Require a Transportation Demand Management (TDM) program for new development to reduce automobile travel by encouraging ride-sharing, carpooling, and alternative modes of transportation.

  Project consistency: The Project will encourage carpooling and provide information to employees on the use of public transit.

- R2-E1: New Construction Residential Energy Efficiency Requirements. Require energy efficient design for all new residential buildings to be 10 percent beyond the current Title 24 standards. (Reach Code)

  Project consistency: Consistent; the project will comply with the City of Moreno Valley's New Construction Requirements.

- R2-E2: New Construction Residential Renewable Energy. Facilitate the use of renewable energy (such as solar (photovoltaic) panels or small wind turbines) for new residential developments. Alternative approach would be the purchase of renewable energy resources offsite.

  Project consistency: Consistent; the project will comply with the City of Moreno Valley's New Construction Residential Renewable Energy Requirements.

- R2-E5: New Construction Commercial Energy Efficiency Requirements. Require energy efficient design for all new commercial buildings to be 10% beyond the 2008 Title 24 standards (which were in effect at the time the CAP was adopted). (Reach Code)

  Project consistency: Not applicable.

- R3-E1: Energy Efficient Development, and Renewable Energy Deployment Facilitation and Streamlining. Updating of codes and zoning requirements and guidelines to further implement green building practices. This could include incentives for energy efficient projects.

  Project consistency: Not applicable on a project-level.

- R3-L2: Heat Island Plan. Develop measures that address "heat islands." Potential measures include using strategically placed shade trees, using paving materials with a Solar Reflective Index of at least 29, an open grid pavement system, or covered parking.

  Project consistency: Consistent; the Project will comply with the City of Moreno Valley's landscaping requirements.

- R2-W1: Water Use Reduction Initiative. Consider adopting a per capita water use reduction goal, which mandates the reduction of water use of 20 percent per capita with requirements applicable to new development and with cooperative support of the water agencies.

  Project consistency: Consistent. California Green Building Standards Code, Chapter 5, Division 5.3, Section 5.303.2 requires that indoor water use be reduced by 20 percent. Section 5.304.3 requires irrigation controllers and sensors.

- R3-W1: Water Efficiency Training and Education. Work with EMWD and local water companies to implement a public information and education program that promotes water conservation.

  Project consistency: Not applicable at a project-level.

- R2-S1: City Diversion Program. For Solid Waste, consider a target of increasing the waste diverted from the landfill to a total of 75 percent by 2020.

  Project consistency: Consistent; the Project will comply with the City of Moreno Valley's citywide goal of solid waste reduction. Additionally, the Project will be compliant with the City of Moreno Valley's Municipal Code 8.80.030 by implementing a Waste Management Plan.

2.10 Discussion on Establishment of Significance Thresholds

The City of Moreno Valley has not adopted its own numeric threshold of significance for determining impacts with respect to greenhouse gas (GHG) emissions. A screening threshold of 3,000 $MTCO_2e$ per year to determine if additional analysis is required is an acceptable approach for small projects. This approach is a widely accepted screening threshold used by the County of Riverside (34) and numerous cities in the South Coast Air Basin and is based on the South Coast Air Quality Management District (SCAQMD) staff's proposed GHG screening threshold for stationary source emissions for non-industrial projects, as described in the SCAQMD's *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans* ("SCAQMD Interim GHG Threshold"). The SCAQMD Interim GHG Threshold identifies a screening threshold to determine whether additional analysis is required (35). As noted by the SCAQMD:

> "…the…screening level for stationary sources is based on an emission capture rate of 90 percent for all new or Projects...the policy objective of [SCAQMD's] recommended interim GHG significance threshold proposal is to achieve an emission capture rate of 90 percent

> of all new or modified stationary source projects. A GHG significance threshold based on a 90 percent emission capture rate may be more appropriate to address the long-term adverse impacts associated with global climate change because most projects will be required to implement GHG reduction measures. Further, a 90 percent emission capture rate sets the emission threshold low enough to capture a substantial fraction of future stationary source projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions. This assertion is based on the fact that [SCAQMD] staff estimates that these GHG emissions would account for slightly less than one percent of future 2050 statewide GHG emissions target (85 [MMTCO$_2$e/yr]). In addition, these small projects may be subject to future applicable GHG control regulations that would further reduce their overall future contribution to the statewide GHG inventory. Finally, these small sources are already subject to [Best Available Control Technology] (BACT) for criteria pollutants and are more likely to be single-permit facilities, so they are more likely to have few opportunities readily available to reduce GHG emissions from other parts of their facility." (35)

Thus, and based on guidance from the SCAQMD, if a non-industrial project would emit GHGs less than 3,000 MTCO$_2$e per year, the project is not considered a substantial GHG emitter and the GHG impact is less than significant, requiring no additional analysis and no mitigation. On the other hand, if a non-industrial project would emit GHGs in excess of 3,000 MTCO$_2$e per year, then the project could be considered a substantial GHG emitter, requiring additional analysis and potential mitigation.

As previously discussed, a screening threshold of 3,000 MTCO$_2$e per year is an acceptable approach for small projects to determine if additional analysis is required and is therefore applied for this Project.

3 PROJECT GREENHOUSE GAS IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will result in a significant greenhouse gas impact. The significance of these potential impacts is described in the following section.

3.2 CALIFORNIA EMISSIONS ESTIMATOR MODEL™ EMPLOYED TO ESTIMATE GHG EMISSIONS

On October 17, 2017, the SCAQMD, in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$) and greenhouse gas (GHG) emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (36). Accordingly, the latest version of CalEEMod™ has been used for this Project to determine greenhouse gas emissions. Output from the model runs for both construction and operational activity are provided in Appendix 3.1. The CalEEMod model includes GHG emissions from the following source categories: construction, area, energy, mobile, waste, water.

3.3 CONSTRUCTION AND OPERATIONAL LIFE-CYCLE ANALYSIS NOT REQUIRED

A full life-cycle analysis (LCA) for construction and operational activity is not included in this analysis due to the lack of consensus guidance on LCA methodology at this time (37). Life-cycle analysis (i.e., assessing economy-wide GHG emissions from the processes in manufacturing and transporting all raw materials used in the project development, infrastructure and on-going operations) depends on emission factors or econometric factors that are not well established for all processes. At this time, an LCA would be extremely speculative and thus has not been prepared.

Additionally, the SCAQMD recommends analyzing direct and indirect project GHG emissions generated within California and not life-cycle emissions because the life-cycle effects from a project could occur outside of California, might not be very well understood or documented, and would be challenging to mitigate (38). Additionally, the science to calculate life cycle emissions is not yet established or well defined; therefore, SCAQMD has not recommended, and is not requiring, life-cycle emissions analysis.

3.4 PROJECT RELATED GREENHOUSE GAS EMISSIONS

3.4.1 CONSTRUCTION EMISSIONS

Construction activities associated with the Project would result in emissions of CO_2 and CH_4 from construction activities. The report *Continental Villages Air Quality Impact Analysis Report*, Urban Crossroads, Inc. (2018) contains detailed information regarding construction activity (39).

For construction phase Project emissions, GHGs are quantified and amortized over the life of the Project. To amortize the emissions over the life of the Project, the SCAQMD recommends calculating the total greenhouse gas emissions for the construction activities, dividing it by a 30-year project life then adding that number to the annual operational phase GHG emissions (40). As such, construction emissions were amortized over a 30-year period and added to the annual operational phase GHG emissions.

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the proposed Project will result in emissions of CO_2, CH_4, and N_2O from the following primary sources:

- Building Energy Use (combustion emissions associated with natural gas and electricity)
- Water Supply, Treatment, and Distribution
- Solid Waste
- Mobile Source Emissions

3.5.1 AREA SOURCE EMISSIONS

Landscape Maintenance Equipment

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shedders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Project. The emissions associated with landscape maintenance equipment were calculated based on assumptions provided in the CalEEMod model.

Hearths/Fireplaces

GHG emissions would result from the combustion of wood or biomass and are considered biogenic emissions of CO_2. The emissions associated with use of hearths/fireplaces were calculated based on assumptions provided in the CalEEMod model. The Project is required to comply with SCAQMD Rule 445, which prohibits the use of wood burning stoves and fireplaces in new development. In order to account for the requirements of this Rule, the unmitigated CalEEMod model estimates were adjusted to remove wood burning stoves and fireplaces. As the project is required to comply with SCAQMD Rule 445, the removal of wood burning stoves and fireplaces is not considered "mitigation" although it must be identified as such in CalEEMod in order to treat the case appropriately.

3.5.2 ENERGY SOURCE EMISSIONS

Combustion Emissions Associated with Natural Gas and Electricity

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO_2 and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a

building, the building energy use emissions do not include street lighting[5]. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. Unless otherwise noted, CalEEMod default parameters were used.

3.5.3 Mobile Source Emissions

Vehicles

Project mobile source air quality impacts are dependent on both overall daily vehicle trip generation and the effect of the Project on peak hour traffic volumes and traffic operations in the vicinity of the Project. The Project-related operational air quality impacts are derived primarily from vehicle trips generated by the Project. Trip characteristics available from the report, *Continental Villages Traffic Impact Analysis* (Urban Crossroads, Inc. 2018) were utilized in this analysis (41). The proposed Project is anticipated to generate a net total of 2,056 trip-ends per day with 215 net AM peak hour trips and 167 net PM peak hour trips.

It should be noted that the due to the Project's proposed retail land use and the location of the Project to other residential land uses within a 1 to 2-mile radius of the Project site, and other fast-food and gasoline stations located in the project vicinity, an average trip length for customers of 3 miles was used in the assessment as opposed to the 8.4-mile model default trip length value. Additionally, 96% of all trips are assumed to be customer trips, 3% of all trips are assumed to be workers, and 1% of all trips are assumed to be other trips.

3.5.4 Solid Waste

Residential and commercial land uses will result in the generation and disposal of solid waste. A large percentage of this waste will be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting. The remainder of the waste not diverted will be disposed of at a landfill. GHG emissions from landfills are associated with the anaerobic breakdown of material. CalEEmod default parameters were used to estimate GHG emissions associated with the disposal of solid waste for the Project scenario.

3.5.5 Water Supply, Treatment and Distribution

Indirect GHG emissions result from the production of electricity used to convey, treat and distribute water and wastewater. The amount of electricity required to convey, treat and distribute water depends on the volume of water as well as the sources of the water. Unless otherwise noted, CalEEMod™ default parameters were used.

3.6 Emissions Summary

The annual GHG emissions associated with the operation of the proposed Project are estimated to be 2,649.11 $MTCO_2e$ per year as summarized in Table 3-1. Direct and indirect operational emissions associated with the Project are compared with the SCAQMD threshold of significance

[5] The CalEEMod emissions inventory model does not include indirect emission related to street lighting. Indirect emissions related to street lighting are expected to be negligible and cannot be accurately quantified at this time as there is insufficient information as to the number and type of street lighting that would occur.

for small land use projects, which is 3,000 $MTCO_2e$ per year (42). As shown, the proposed Project would result in a less than significant impact with respect to GHG emissions.

TABLE 3-1: PROJECT GREENHOUSE GAS EMISSIONS (ANNUAL)

Emission Source	Emissions (metric tons per year)			
	CO_2	CH_4	N_2O	Total CO_2E
Annual construction-related emissions amortized over 30 years	39.85	0.01	0.00	40.03
Area	28.80	2.40E-03	4.90E-04	29.00
Energy	379.97	0.01	4.18E-03	381.56
Mobile Sources	2,088.78	0.16	0.00	2,092.88
Waste	14.93	0.88	0.00	37.00
Water Usage	59.20	0.29	7.29E-03	68.64
Total CO_2E (All Sources)	**2,649.11**			
Screening Threshold (CO_2E)	**3,000**			
Threshold Exceeded?	**NO**			

3.7 GREENHOUSE GAS EMISSIONS FINDINGS AND RECOMMENDATIONS

GHG Impact #1: The Project would not generate direct or indirect greenhouse gas emission that would result in a significant impact on the environment.

The City of Moreno Valley does not have an adopted threshold of significance for GHG emissions. For CEQA purposes, the City has discretion to select an appropriate significance criterion, based on substantial evidence. A screening threshold of 3,000 $MTCO_2e$ per year to determine if additional analysis is required is an acceptable approach for small projects. This approach is a widely accepted screening threshold used by the County of Riverside (34) and numerous cities in the South Coast Air Basin and is based on the South Coast Air Quality Management District (SCAQMD) staff's proposed GHG screening threshold for stationary source emissions for non-industrial projects, as described in the SCAQMD's *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans* ("SCAQMD Interim GHG Threshold").

Thus, and based on guidance from the SCAQMD, if a non-industrial project would emit GHGs less than 3,000 $MTCO_2e$ per year, the project is not considered a substantial GHG emitter and the GHG impact is less than significant, requiring no additional analysis and no mitigation. On the other hand, if a non-industrial project would emit GHGs in excess of 3,000 $MTCO_2e$ per year, then the project could be considered a substantial GHG emitter, requiring additional analysis and potential mitigation.

The Project will result in approximately 556.23 $MTCO_2e$ per year from construction, area, energy, waste, and water usage. In addition, the Project has the potential to result in an additional 2,092.88 $MTCO_2e$ per year from mobile sources if the assumption is made that all of the vehicle trips to and from the Project are "new" trips resulting from the development of the Project. As shown on Table 3-1 (previously presented), the Project has the potential to generate a total of

approximately 2,649.11 $MTCO_2e$ per year. As such, the Project would not exceed the SCAQMD's numeric threshold of 3,000 $MTCO_2e$ if it were applied. Thus, the Project would not have the potential to result in a cumulatively considerable impact with respect to GHG emissions.

GHG Impact #2: The Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

The Project's consistency with AB 32 and SB 32 are discussed below.

2008 CARB Scoping Plan Consistency

AB 32 requires California to reduce its GHG emissions by approximately 28.5% when compared to GHG emissions produced under a Business as Usual scenario (2). CARB identified reduction measures to achieve this goal as set forth in the CARB Scoping Plan.

The Project would generate GHG emissions from a variety of sources which would all emit Carbon CO2, CH4, and N2O. GHGs could also be indirectly generated by incremental electricity consumption and waste generation from the Project.

As stated previously, the CARB Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32. The CARB Scoping Plan recommendations serve as statewide measures to reduce GHG emissions levels. The Project would be consistent with the applicable measures established in the Scoping Plan, as shown in Table 3-2.

TABLE 3-2: PROJECT CONSISTENCY WITH SCOPING PLAN GREENHOUSE GAS EMISSION REDUCTION

Number	Scoping Plan Measure	Remarks
T-1	Pavley Motor Vehicle Standards (AB 1493)	Residents would purchase vehicles in compliance with incumbent CARB vehicle standards
H-4	Limit High GWP Use in Consumer Products	Residents would use consumer products that would comply with the incumbent regulations
H-1	Motor Vehicle Air Conditioning Systems – Reduction from Non-Professional Servicing	Residents would be prohibited from performing air conditioning repairs and required to use professional servicing.
T-4	Tire Pressure Program	Motor vehicles driven by residents would maintain proper tire pressure when vehicles are serviced.
T-2	Low Carbon Fuel Standard	Motor vehicles driven by residents would use fuels that are compliant with incumbent standards.
W-1	Water Use Efficiency	Development proposals within the Project site would implement measures to minimize water use and maximize efficiency.
GB-1	Green Buildings	Development proposals within the Project site would be constructed in compliance with incumbent state or local green building standards.
H-5	Air Conditioning Refrigerant Leak Test During Vehicle Smog Check	Motor vehicles driven by residents, employees, and customers would comply with the leak test requirements during smog checks.
E-1	Energy Efficiency Measures (Electricity)	The Project would comply with incumbent electrical energy efficiency standards

Number	Scoping Plan Measure	Remarks
CR-1	Energy Efficiency (Natural Gas)	Development proposals within the Project site would comply with incumbent natural gas energy efficiency standards
GB-1	Greening New Residential and Commercial Construction	Development proposals within the Project site would comply with incumbent green building standards
GB-1	Greening Existing Homes and Commercial Buildings	Development proposals within the Project site would meet retrofit standards as they become effective.

SB32/2017 Scoping Plan Consistency

Senate Bill 32 (SB 32) requires the state to reduce statewide greenhouse gas emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15. The new legislation builds upon the AB 32 goal of 1990 levels by 2020 and provides an intermediate goal to achieving S-3-05, which sets a statewide greenhouse gas reduction target of 80% below 1990 levels by 2050 (31) (32).

According to research conducted by the Lawrence Berkeley National Laboratory and supported by the CARB, California, under its existing and proposed GHG reduction policies, is on track to meet the 2020 reduction targets under AB 32 and could achieve the 2030 goals under SB 32. (29) (30).

The Project reduces its GHG emissions to the maximum extent feasible as discussed in this document. Additionally, the project applicant would not actively interfere with any future County-mandated, state-mandated, or federally-mandated retrofit obligations enacted or promulgated to legally require development County-wide, state-wide, or nation-wide to assist in meeting state-adopted greenhouse gas emissions reduction targets, including that established under Executive Order S-3-05, Executive Order B-30-15, or SB 32.

The Project does not interfere with the state's implementation of (i) Executive Order B-30-15 and SB 32's target of reducing statewide GHG emissions to 40% below 1990 levels by 2030 or (ii) Executive Order S-3-05's target of reducing statewide GHG emissions to 80% below 1990 levels by 2050 because it does not interfere with the state's implementation of GHG reduction plans described in the CARB's Updated Scoping Plan, including the state providing for 12,000 MW of renewable distributed generation by 2020, the California Building Commission mandating net zero energy homes in the building code after 2020, or existing building retrofits under AB 758. Therefore, the project's impacts on greenhouse gas emissions in the 2030 and 2050 horizon years are less than significant.

The 2017 Scoping Plan builds on the 2008 Scoping Plan in order to achieve the 40 percent reduction from 1990 levels by 2030. Major elements of the 2017 Scoping Plan framework that will achieve the GHG reductions include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks. When adopted, this measure would apply to all trucks accessing the Project site. This may include providing incentives for existing truck retrofits or new trucks purchased by the building operators to be ZEV. As such, this measure has the potential to expedite the Project's implementation of ZEVs through incentives.
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030). When adopted, this measure would apply to all fuel purchased and used by the Project in the state.
- Implementing SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030. When adopted, this measure would apply when electricity is provided to the Project by a utility company.

- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks. When adopted, this measure would apply to all trucks accessing the Project site, this may include existing trucks or new trucks that are part of the statewide goods movement sector.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing methane and hydroflurocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030. When adopted, the Project would be required to comply with this measure and reduce SLPS accordingly.
- Continued implementation of SB 375. The Project is not within the purview of SB 375 and would therefore not conflict with this measure.
- Post-2020 Cap-and-Trade Program that includes declining caps. When adopted, the Project would be required to comply with the Cap-and-Trade Program if it generates emissions from sectors covered by Cap-and-Trade.
- 20 percent reduction in GHG emissions from refineries by 2030. When adopted, the Project would be required to comply with this measure if it were to utilize any fuel from refineries.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink. This is a statewide measure that would not apply to the Project.

As shown above, the Project would not conflict with any of the 2017 Scoping Plan elements as any regulations adopted would apply directly or indirectly to the Project.

Further, as discussed above the State's existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40 percent below 1990 levels by 2030.

City of Moreno Valley Climate Action Plan Consistency

The City of Moreno Valley adopted its CAP in October 2012. The measures identified in the CAP represent the City's actions to achieve the GHG reduction targets of AB 32 for target year 2020. Local measures included in the CAP include:

- R2-T1: Land Use Based Trips and VMT Reduction Policies. Encourage the development of Transit Priority Projects along High Quality Transit Corridors identified in the SCAG Sustainable Communities Plan, to allow a reduction in vehicle miles traveled.
- R2-T3: Employment-Based Trip Reductions. Require a Transportation Demand Management (TDM) program for new development to reduce automobile travel by encouraging ride-sharing, carpooling, and alternative modes of transportation.
- R2-E1: New Construction Residential Energy Efficiency Requirements. Require energy efficient design for all new residential buildings to be 10% beyond the current Title 24 standards. (Reach Code)
- R2-E2: New Construction Residential Renewable Energy. Facilitate the use of renewable energy (such as solar (photovoltaic) panels or small wind turbines) for new residential developments. Alternative approach would be the purchase of renewable energy resources offsite.
- R2-E5: New Construction Commercial Energy Efficiency Requirements. Require energy efficient design for all new commercial buildings to be 10% beyond the current Title 24 standards. (Reach Code)

- R3-E1: Energy Efficient Development, and Renewable Energy Deployment Facilitation and Streamlining. Updating of codes and zoning requirements and guidelines to further implement green building practices. This could include incentives for energy efficient projects.
- R3-L2: Heat Island Plan. Develop measures that address "heat islands." Potential measures include using strategically placed shade trees, using paving materials with a Solar Reflective Index of at least 29, an open grid pavement system, or covered parking.
- R2-W1: Water Use Reduction Initiative. Consider adopting a per capita water use reduction goal which mandates the reduction of water use of 20 percent per capita with requirements applicable to new development and with cooperative support of the water agencies.
- R3-W1: Water Efficiency Training and Education. Work with EMWD and local water companies to implement a public information and education program that promotes water conservation.
- R2-S1: City Diversion Program. For Solid Waste, consider a target of increasing the waste diverted from the landfill to a total of 75% by 2020. (43)

The proposed project would not conflict with these local strategies. Additionally, the proposed project is consistent with state and regional strategies, listed in the CAP. Further, the proposed project is subject to California Building Code requirements. New buildings must achieve the 2016 Building and Energy Efficiency Standards and the 2016 California Green Building Standards requirements, which include water conservation measures. Overall, the proposed project overall would not conflict with the City of Moreno Valley CAP and impacts would be less than significant. No mitigation measures are necessary.

4 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2016.
2. **Air Resources Board.** Assembly Bill 32: Global Warming Solutions Act. [Online] 2006. [Cited: November 13, 2013.] http://www.arb.ca.gov/cc/ab32/ab32.htm.
3. —. Sustainable Communities. [Online] 2008. [Cited: November 13, 2013.] http://www.arb.ca.gov/cc/sb375/sb375.htm.
4. —. Clean Car Standards - Pavley, Assembly Bill 1493. [Online] September 24, 2009. [Cited: November 13, 2013.] http://www.arb.ca.gov/cc/ccms/ccms.htm.
5. **Building Standards Commission.** California Building Standards Code (Title 24, California Code of Regulations). [Online] [Cited: 13 2013, November.] http://www.bsc.ca.gov/codes.aspx.
6. **California Energy Commission.** California Code of Regulations, TITLE 20, Division 2. [Online] September 3, 2013. [Cited: November 13, 2013.] http://www.energy.ca.gov/reports/title20/index.html.
7. **Air Resources Board.** Title 17 - California Code of Regulation. [Online] 2010. [Cited: November 13, 2013.] http://www.arb.ca.gov/regs/regs-17.htm.
8. **Department of Water Resources.** Updated Model Water Efficient Landscape Ordinance AB 1881. [Online] 2006. [Cited: November 13, 2013.] http://www.water.ca.gov/wateruseefficiency/landscapeordinance/updatedOrd_history.cfm.
9. **California Energy Commission.** SB 1368 Emission Performance Standards. [Online] September 29, 2006. [Cited: November 13, 2013.] http://www.energy.ca.gov/emission_standards/.
10. —. Renewables Portfolio Standard (RPS) . [Online] 2002. [Cited: November 13, 2013.] http://www.energy.ca.gov/portfolio/.
11. **United Nations.** GHG Profiles - Annex I. [Online] http://di.unfccc.int/ghg_profile_annex1.
12. —. GHG Profiles - Non-Annex I. [Online] http://di.unfccc.int/ghg_profile_non_annex1.
13. **Environmental Protection Agency.** Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016. [Online] 2018. https://www.epa.gov/sites/production/files/2018-01/documents/2018_complete_report.pdf.
14. **Air Resources Board.** California Greenhouse Gas Emission Inventory -2016 Edition. [Online] June 17, 2016. http://www.arb.ca.gov/cc/inventory/data/data.htm.
15. **World Resources Institute.** Climate Analysis Indicator Tool (CAIT). [Online] http://cait.wri.org.
16. *The Carbon Cycle and Climate Change.* **Bennington, Bret J.** 1, s.l. : Brooks/Cole. ISBN 1 3: 978-0-495-73855-8.
17. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report.* **International Panel on Climate Change.** 4, 2007.
18. *Occupational Safety and Health Guideline for Nitrous Oxide.* **U.S. Department of Labor.**
19. **Environmental Protection Agency.** Overview of Greenhouse Gases. [Online] [Cited: September 17, 2014.] http://www.epa.gov/highgwp/scientific.html.
20. **World Resources Institute.** Nitrogen Trifluoride Now Required in GHG Protocol Greenhouse Gas Emissions Inventory. [Online] May 22, 2013. https://www.wri.org/blog/2013/05/nitrogen-trifluoride-now-required-ghg-protocol-greenhouse-gas-emissions-inventories.

21. **Centeres for Disease Control and Prevention.** Nitrogen Trifluoride. [Online] 2015. https://www.cdc.gov/niosh/ipcsneng/neng1234.html.

22. **American Lung Association.** Climate Change. [Online] 2013. [Cited: November 13, 2013.] http://www.lung.org/associations/states/california/advocacy/climate-change/.

23. **The National Institute for Occupational Safety and Health.** [Online] [Cited: November 13, 2013.] http://www.cdc.gov/niosh/.

24. **U.S. National Library of Medicine.** Methane. [Online] https://toxtown.nlm.nih.gov/chemicals-and-contaminants/methane.

25. **Occupational Health and Safety Administration.** [Online] [Cited: November 13, 2013.] https://www.osha.gov/.

26. **Hardin, Mary and Kahn, Ralph.** Aerosols & Climate Change. *Earth Observatory.* [Online] http://earthobservatory.nasa.gov/Features/Aerosols/.

27. **Center for Climate and Energy Solutions (C2ES).** Outcomes of the U.N. Climate Change Conference. *Center for Climate and Energy Solutions (C2ES).* [Online] 2015a. [Cited: April 19, 2016.] http://www.c2es.org/international/negotiations/cop21-paris/summary.

28. **Agency, United States Environmental Protection.** Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Section 202(a) of the Clean Air Act. *United States Environmental Protection Agency.* [Online] https://www.epa.gov/ghgemissions/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a-clean.

29. **Lawrence Berkeley National Laboratory.** California's Policies Can Significantly Cut Greenhouse Gas Emissions through 2030. *Lawrence Berkeley National Laboratory.* [Online] January 22, 2015. http://newscenter.lbl.gov/2015/01/22/californias-policies-can-significantly-cut-greenhouse-gas-emissions-2030/.

30. **Ernest Orlando Lawrence Berkeley National Laboratory.** Modeling California policy impacts on greenhouse gas emissions. [Online] 2015. https://eetd.lbl.gov/sites/all/files/lbnl-7008e.pdf.

31. **California Legislative Information.** Senate Bill No. 32. [Online] September 8, 2016. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32.

32. **Policy Matters Journal: A Student Publication from the Goldman School of Public Policy.** New California Emissions Targets Spell Next Step in the State's Fight against Climate Change. [Online] September 1, 2016. http://www.policymattersjournal.org/sb32.html.

33. **California Air Resources Board (ARB).** Cap and Trade Overview. *California Air Resources Board.* [Online] [Cited: May 10, 2016.] http://www.arb.ca.gov/cc/capandtrade/guidance/cap_trade_overview.pdf. .

34. **County of Riverside.** *Greenhouse Gas Emissions Screening Tables.* San Bernardino : Atkins, 2012.

35. **South Coast Air Quality Management District.** Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans. [Online] http://www.aqmd.gov/hb/2008/December/081231a.htm.

36. **California Air Pollution Control Officers Association (CAPCOA).** California Emissions Estimator Model (CalEEMod). [Online] September 2016. www.caleemod.com.

37. **California Natural Resources Agency.** Final Statement of Reasons for Regulatory Action, Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97. [Online] December 2009.

38. *Minutes for the GHG CEQA Significance.* **South Coast Air Quality Managment District.** 2008.

39. **Urban Crossroads, Inc.** *Continental Villages Air Quality Impact Analysis Report.* 2018.

40. **South Coast Air Quality Management District.** *Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group #13.* [Powerpoint] Diamond Bar : s.n., 2009.

41. **Urban Crossroads, Inc.** *Continental Villages Traffic Impact Analysis.* 2018.

42. **South Coast Air Quality Management District.** Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans. [Online] http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-8/ghg-meeting-8-minutes.pdf?sfvrsn=2.

43. **City of Moreno Valley.** *City of Moreno Valley Climate Action Plan.* City of Moreno Valley : s.n., 2012.

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5 CERTIFICATION

The contents of this GHGA represent an accurate depiction of the greenhouse gas impacts associated with the proposed Continental Villages Project. The information contained in this greenhouse gas report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

Haseeb Qureshi
Senior Associate
URBAN CROSSROADS, INC.
260 E. Baker, Suite 200
Costa Mesa, CA 92626
(949) 336-5987
hqureshi@urbanxroads.com

EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May, 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June, 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Environmental Site Assessment – American Society for Testing and Materials • June, 2013
Planned Communities and Urban Infill – Urban Land Institute • June, 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April, 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August, 2007
AB2588 Regulatory Standards – Trinity Consultants • November, 2006
Air Dispersion Modeling – Lakes Environmental • June, 2006

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APPENDIX 3.1:

CALEEMOD OPERATIONAL EMISSIONS MODEL OUTPUTS

Continental Village (Operations)

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	593.00	Space	5.30	237,200.00	0
Apartments Low Rise	112.00	Dwelling Unit	5.48	132,472.00	320
Regional Shopping Center	21.00	1000sqft	0.87	21,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Area is 11.64 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Trip Rates are based on information provided in the the TIA by Urban Crossroads (2018).

Woodstoves - Rule 445

Mobile Land Use Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	1.00
tblFireplaces	NumberGas	95.20	112.00
tblFireplaces	NumberNoFireplace	11.20	0.00
tblFireplaces	NumberWood	5.60	0.00
tblLandUse	LandUseSquareFeet	112,000.00	132,472.00
tblLandUse	LotAcreage	5.34	5.30
tblLandUse	LotAcreage	7.00	5.48
tblLandUse	LotAcreage	0.48	0.87
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TTP	64.70	96.00
tblVehicleTrips	CNW_TTP	19.00	1.00
tblVehicleTrips	CW_TTP	16.30	3.00
tblVehicleTrips	PB_TP	11.00	34.00
tblVehicleTrips	PR_TP	54.00	31.00
tblVehicleTrips	ST_TR	7.16	8.14
tblVehicleTrips	ST_TR	49.97	89.15
tblVehicleTrips	SU_TR	6.07	6.28
tblVehicleTrips	SU_TR	25.24	89.15
tblVehicleTrips	WD_TR	6.59	7.32
tblVehicleTrips	WD_TR	42.70	89.15
tblWoodstoves	NumberCatalytic	5.60	0.00
tblWoodstoves	NumberNoncatalytic	5.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.6631	0.0367	1.1766	2.1000e-004		8.2800e-003	8.2800e-003		8.2800e-003	8.2800e-003	0.0000	28.7973	28.7973	2.4000e-003	4.9000e-004	29.0041
Energy	9.6600e-003	0.0827	0.0361	5.3000e-004		6.6700e-003	6.6700e-003		6.6700e-003	6.6700e-003	0.0000	379.9739	379.9739	0.0136	4.1800e-003	381.5593
Mobile	0.7114	5.5463	6.1025	0.0225	1.4306	0.0205	1.4511	0.3833	0.0193	0.4027	0.0000	2,088.7835	2,088.7835	0.1639	0.0000	2,092.8812
Waste						0.0000	0.0000		0.0000	0.0000	14.9341	0.0000	14.9341	0.8826	0.0000	36.9985
Water						0.0000	0.0000		0.0000	0.0000	2.8086	56.3880	59.1966	0.2908	7.2900e-003	68.6398
Total	**1.3842**	**5.6656**	**7.3153**	**0.0232**	**1.4306**	**0.0355**	**1.4660**	**0.3833**	**0.0343**	**0.4176**	**17.7426**	**2,553.9427**	**2,571.6853**	**1.3533**	**0.0120**	**2,609.0829**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.6631	0.0367	1.1766	2.1000e-004		8.2800e-003	8.2800e-003		8.2800e-003	8.2800e-003	0.0000	28.7973	28.7973	2.4000e-003	4.9000e-004	29.0041
Energy	9.6600e-003	0.0827	0.0361	5.3000e-004		6.6700e-003	6.6700e-003		6.6700e-003	6.6700e-003	0.0000	379.9739	379.9739	0.0136	4.1800e-003	381.5593
Mobile	0.7114	5.5463	6.1025	0.0225	1.4306	0.0205	1.4511	0.3833	0.0193	0.4027	0.0000	2,088.7835	2,088.7835	0.1639	0.0000	2,092.8812
Waste						0.0000	0.0000		0.0000	0.0000	14.9341	0.0000	14.9341	0.8826	0.0000	36.9985
Water						0.0000	0.0000		0.0000	0.0000	2.8086	56.3880	59.1966	0.2908	7.2900e-003	68.6398
Total	**1.3842**	**5.6656**	**7.3153**	**0.0232**	**1.4306**	**0.0355**	**1.4660**	**0.3833**	**0.0343**	**0.4176**	**17.7426**	**2,553.9427**	**2,571.6853**	**1.3533**	**0.0120**	**2,609.0829**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/1/2019	3/1/2019	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 5.3

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7114	5.5463	6.1025	0.0225	1.4306	0.0205	1.4511	0.3833	0.0193	0.4027	0.0000	2,088.7835	2,088.7835	0.1639	0.0000	2,092.8812
Unmitigated	0.7114	5.5463	6.1025	0.0225	1.4306	0.0205	1.4511	0.3833	0.0193	0.4027	0.0000	2,088.7835	2,088.7835	0.1639	0.0000	2,092.8812

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	819.84	911.68	703.36	2,789,489	2,789,489
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	1,872.15	1,872.15	1872.15	956,898	956,898
Total	2,691.99	2,783.83	2,575.51	3,746,387	3,746,387

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	3.00	6.90	3.00	96.00	1.00	31	35	34

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120
Parking Lot	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120
Regional Shopping Center	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	284.4012	284.4012	0.0117	2.4300e-003	285.4187
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	284.4012	284.4012	0.0117	2.4300e-003	285.4187
NaturalGas Mitigated	9.6600e-003	0.0827	0.0361	5.3000e-004		6.6700e-003	6.6700e-003		6.6700e-003	6.6700e-003	0.0000	95.5727	95.5727	1.8300e-003	1.7500e-003	96.1406
NaturalGas Unmitigated	9.6600e-003	0.0827	0.0361	5.3000e-004		6.6700e-003	6.6700e-003		6.6700e-003	6.6700e-003	0.0000	95.5727	95.5727	1.8300e-003	1.7500e-003	96.1406

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.74434e+006	9.4100e-003	0.0804	0.0342	5.1000e-004		6.5000e-003	6.5000e-003		6.5000e-003	6.5000e-003	0.0000	93.0848	93.0848	1.7800e-003	1.7100e-003	93.6380
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	46620	2.5000e-004	2.2900e-003	1.9200e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4878	2.4878	5.0000e-005	5.0000e-005	2.5026
Total		**9.6600e-003**	**0.0827**	**0.0361**	**5.2000e-004**		**6.6700e-003**	**6.6700e-003**		**6.6700e-003**	**6.6700e-003**	**0.0000**	**95.5727**	**95.5727**	**1.8300e-003**	**1.7600e-003**	**96.1406**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.74434e+006	9.4100e-003	0.0804	0.0342	5.1000e-004		6.5000e-003	6.5000e-003		6.5000e-003	6.5000e-003	0.0000	93.0848	93.0848	1.7800e-003	1.7100e-003	93.6380
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	46620	2.5000e-004	2.2900e-003	1.9200e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4878	2.4878	5.0000e-005	5.0000e-005	2.5026
Total		**9.6600e-003**	**0.0827**	**0.0361**	**5.2000e-004**		**6.6700e-003**	**6.6700e-003**		**6.6700e-003**	**6.6700e-003**	**0.0000**	**95.5727**	**95.5727**	**1.8300e-003**	**1.7600e-003**	**96.1406**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	544349	173.4413	7.1600e-003	1.4800e-003	174.0618
Parking Lot	83020	26.4520	1.0900e-003	2.3000e-004	26.5466
Regional Shopping Center	265230	84.5080	3.4900e-003	7.2000e-004	84.8103
Total		**284.4012**	**0.0117**	**2.4300e-003**	**285.4187**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	544349	173.4413	7.1600e-003	1.4800e-003	174.0618
Parking Lot	83020	26.4520	1.0900e-003	2.3000e-004	26.5466
Regional Shopping Center	265230	84.5080	3.4900e-003	7.2000e-004	84.8103
Total		**284.4012**	**0.0117**	**2.4300e-003**	**285.4187**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6631	0.0367	1.1766	2.1000e-004		8.2800e-003	8.2800e-003		8.2800e-003	8.2800e-003	0.0000	28.7973	28.7973	2.4000e-003	4.9000e-004	29.0041
Unmitigated	0.6631	0.0367	1.1766	2.1000e-004		8.2800e-003	8.2800e-003		8.2800e-003	8.2800e-003	0.0000	28.7973	28.7973	2.4000e-003	4.9000e-004	29.0041

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0545					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5699					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.7200e-003	0.0232	9.8800e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.8954	26.8954	5.2000e-004	4.9000e-004	27.0552
Landscaping	0.0360	0.0135	1.1667	6.0000e-005		6.4000e-003	6.4000e-003		6.4000e-003	6.4000e-003	0.0000	1.9019	1.9019	1.8800e-003	0.0000	1.9490
Total	**0.6631**	**0.0367**	**1.1766**	**2.1000e-004**		**8.2800e-003**	**8.2800e-003**		**8.2800e-003**	**8.2800e-003**	**0.0000**	**28.7973**	**28.7973**	**2.4000e-003**	**4.9000e-004**	**29.0041**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0545					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5699					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.7200e-003	0.0232	9.8800e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.8954	26.8954	5.2000e-004	4.9000e-004	27.0552
Landscaping	0.0360	0.0135	1.1667	6.0000e-005		6.4000e-003	6.4000e-003		6.4000e-003	6.4000e-003	0.0000	1.9019	1.9019	1.8800e-003	0.0000	1.9490
Total	**0.6631**	**0.0367**	**1.1766**	**2.1000e-004**		**8.2800e-003**	**8.2800e-003**		**8.2800e-003**	**8.2800e-003**	**0.0000**	**28.7973**	**28.7973**	**2.4000e-003**	**4.9000e-004**	**29.0041**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	59.1966	0.2908	7.2900e-003	68.6398
Unmitigated	59.1966	0.2908	7.2900e-003	68.6398

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	7.29725 / 4.60044	48.8747	0.2397	6.0100e-003	56.6589
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1.55552 / 0.953385	10.3219	0.0511	1.2800e-003	11.9809
Total		**59.1966**	**0.2908**	**7.2900e-003**	**68.6398**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	7.29725 / 4.60044	48.8747	0.2397	6.0100e-003	56.6589
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1.55552 / 0.953385	10.3219	0.0511	1.2800e-003	11.9809
Total		**59.1966**	**0.2908**	**7.2900e-003**	**68.6398**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	14.9341	0.8826	0.0000	36.9985
Unmitigated	14.9341	0.8826	0.0000	36.9985

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	51.52	10.4581	0.6181	0.0000	25.9095
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	22.05	4.4760	0.2645	0.0000	11.0890
Total		**14.9340**	**0.8826**	**0.0000**	**36.9985**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	51.52	10.4581	0.6181	0.0000	25.9095
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	22.05	4.4760	0.2645	0.0000	11.0890
Total		**14.9340**	**0.8826**	**0.0000**	**36.9985**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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PHASE I ENVIRONMENTAL SITE ASSESSMENT

Continental Village
Moreno Valley, California

Submitted to

Carlson Strategic Land Solutions
San Juan Capistrano, California

Prepared for

CARLSON STRATEGIC LAND SOLUTIONS
27134A Paseo Espada Suite 323
San Juan Capistrano, CA 92675

Prepared by

GROUP DELTA CONSULTANTS, INC.
32 Mauchly, Suite B
Irvine, California 92618
GDC Project No. EN324

March 29, 2018

GROUP DELTA

Carlson Strategic Land Solutions
27134A Paseo Espada Suite 323
San Juan Capistrano, CA 92675

March 29, 2018
Project No. EN324

Attention: Peter K. Carlson
President

SUBJECT: Phase I Environmental Site Assessment (ESA)
Continental Village
Northeast corner of Krameria Ave. and Lasselle St.
Moreno Valley, California

Dear Mr. Carlson:

Group Delta Consultants, Inc. is pleased to submit to Carlson Strategic Land Solutions this Phase I Environmental Site Assessment report for the proposed Continental Village development located in Moreno Valley, California. This report discusses our project purpose, scope of work, execution of work, conclusions, and recommendations for the site. This Environmental Site Assessment was performed in general accordance with our proposal/authorization on February 23, 2018.

We appreciate your selection of Group Delta Consultants for this project and look forward to assisting you further on this and other projects. If you have any questions, please do not hesitate to contact us.

Should you have any questions regarding this report, please feel free to call us at (949) 450-2100.

Sincerely,
GROUP DELTA CONSULTANTS, INC.

Glenn Burks, Ph.D., P.E.
Principal, Director of Environmental Services

Jerry Sherman
Hazardous Materials Service Mgr.

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PHASE I ENVIRONMENTAL SITE ASSESSMENT
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EXECUTIVE SUMMARY

Carlson Strategic Land Solutions (herein referred to as Client) has engaged Group Delta Consultants, Inc. (GDC) to perform a Phase I Environmental Site Assessment (ESA) for a 10.7-acre site located on the northwest corner of Krameria Ave. and Lasselle St. (Site) in Moreno Valley, California 92555. The Site is identified by the Riverside County Assessor's Parcel Number (APN) 308-040-050, and is currently under consideration for residential development. The Site is currently undeveloped.

This Phase I ESA was performed in accordance with the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Designation E1527-13. This version of the ASTM standard complies with the Federal All Appropriate Inquiry (AAI) rule (40 Code of Federal Regulations [CFR] Part 312 – Standards and Practices for All Appropriate Inquiries). The purpose of the Phase I ESA is to review, evaluate, and document present and past land use and practices, and visually examine Site conditions to identify Recognized Environmental Conditions (RECs). The Phase I ESA included a Site reconnaissance, observation of adjacent properties, environmental regulatory agency records review, review of available historic documents, and an interview.

A Site reconnaissance was performed on March 20, 2018 as part of the ESA to observe current conditions throughout the Site. No observations of environmental concern were observed during the Site reconnaissance. No RECs were identified as a result of the Site reconnaissance.

Group Delta interviewed Mr. Andrew Spousta with Continental East Development, Inc. regarding knowledge of the Site on March 26, 2018. Mr. Spousta stated to his knowledge that no hazardous waste use, illicit dumping, or unauthorized releases have occurred at the Property.

This assessment also included a review of available federal and state data reported by Environmental Data Resources (EDR), available regulatory agency environmental records, and available site history and records. The review did not identify any RECs for the Site. The review also included properties in the vicinity of the Site. Records indicated listed locations within ½ mile of the Site as listed in the EDR report. However, based on type of regulatory listing, regulatory status of the cases, and/or location with respect to regional groundwater flow, the likelihood of Site contamination from an off-site source is considered low.

The information procured during this investigation was used to identify, to the extent practical and within the limitations of the Scope, RECs associated with the Site due to current or past land use. This assessment has revealed no evidence of RECs in association with the Site.

No further assessment appears warranted at this time.

1.0 INTRODUCTION

1.1 Background and Project Description

Carlson Strategic Land Solutions (herein referred to as Client) has engaged Group Delta Consultants, Inc. (GDC) to perform a Phase I Environmental Site Assessment (ESA) for a 10.7-acre site located on the northeast corner of Krameria Ave. and Lasselle St. (Site) in Moreno Valley, California 92555. The Site is identified by the Riverside County Assessor's Parcel Numbers (APN's) 308-040-050, and is currently under consideration for residential development. The Site is undeveloped.

1.2 Purpose

The purpose of the Phase I ESA is to review, evaluate, and document present and past land uses and practices, and visually examine Site conditions in order to identify Recognized Environmental Conditions (RECs). A REC is defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. The REC term does not include *de minimis* conditions that generally do not present a threat to human health or the environment, and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

1.3 Detailed Scope of Work

GDC has interpreted American Society for Testing and Materials (ASTM) E1527-13 as the guidance document and used its provisions to the extent deemed appropriate for this report. In general, the scope of work included:

- Review of available information to describe the general geology and hydrogeology at the Site and adjacent areas;
- Search of regulatory records regarding possible hazardous material handling, spills, storage, or production at the Site or in its vicinity;
- Review of on-line available data including databases maintained by the Department of Toxic Substances Control (DTSC) and the State Water Resources Control Board (SWRCB);
- Perform agency records review of available files from the South Coast Air Quality Management District, Riverside County Department of Environmental Health, Department of Transportation Pipeline and Hazardous Materials Administration (PHMSA) National Pipeline Mapping System (NPMS), and Division of Oil, Gas, and Geothermal Resources (DOGGR) for onsite wells;
- Review of historic aerial photographs, historic topographic maps, Sanborn® fire maps, City Directories, and a radius map database search provided by Environmental Data Resources, Inc. (EDR);

- Reconnaissance of the Site and the immediately surrounding area to identify indicators of the existence of hazardous materials or RECs;
- Interview of an owner representative for the Site;
- Development of conclusions and findings, and;
- Preparation of a report describing the assessment and presenting the results and findings.

A statement of interpretive limitations is contained in Section 1.5 of the report.

1.4 Significant Assumptions

As stated in the previous section, this ESA was conducted in general accordance with ASTM E1527-13 to the extent deemed appropriate. This was done to identify and analyze environmental conditions that constitute existing, past, or potential environmental risks associated with the Site. Performance in accord with this standard is intended to reduce, but not eliminate uncertainty with respect to the potential for RECs associated with the Site.

1.5 Limitations and Exceptions

This ESA report is intended for the sole use of the Client and on the specific project identified. Our services have been performed under mutually agreed-upon terms and conditions. If other parties wish to rely on this report, please have them contact us so that a mutual understanding and agreement of the terms and conditions for our services can be established prior to their use and reliance of this report and the information it contains.

The findings and opinions presented are relative to the dates of our Site work and should not be relied on to represent conditions at substantially later dates. The opinions included herein are based on information obtained during the study and our experience. If additional information becomes available, which might impact our environmental findings, we request the opportunity to review the information, reassess the potential conditions, and modify our opinions, if warranted.

Although this assessment has attempted to identify the potential for environmental impacts to the Site, potential sources of contamination may have escaped detection due to: (1) the limited scope of this assessment, (2) the inaccuracy of public records, and/or (3) the presence of undetected or unreported environmental incidents.

It was not within the scope of this assessment to address issues not included in ASTM E1527-13 (such as radon, lead in drinking water, naturally-occurring hazardous materials or vegetation, endangered species, wetlands, etc.). Furthermore, it was not the purpose of this study to determine the degree or extent of contamination, if any, at the Site.

Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar conditions, by reputable environmental consultants practicing in this or

similar localities. No other warranty, expressed or implied, is made regarding the professional information in this report.

1.6 Special Terms and Conditions

All appropriate inquiry (AAI) into the prior uses of the Site was made in accordance with good commercial and customary practices to identify and analyze RECs constituting existing, past or potential environmental conditions in connection with the Site.

There are no special terms and conditions that apply to the preparation of this report.

1.7 User Reliance

This assessment was performed at the request of the Client, utilizing methods and procedures consistent with good commercial or customary practices designed to conform to acceptable industry standards. The assessment and conclusions presented in this report represent the best professional judgment of the Environmental Professional based on the conditions that existed during the assessment and the information and data available to us during the course of this assignment.

Factual information regarding operations and conditions provided by the Client, owner, or their representative has been assumed to be correct and complete.

The report may be distributed and relied upon by the Client, its successors and assigns. Reliance on the information and conclusions presented in this report by any other party or parties is not authorized without the written consent of GDC.

2.0 SITE DESCRIPTION

2.1 Location and Legal Description of the Site

The Site comprises 10.7 acres and is located on the northeast corner of Krameria Ave. and Lasselle St. (Site) in Moreno Valley, California 92555. The Site is identified by the Riverside County Assessor's Parcel Number (APN) 308-040-050, and is currently under consideration for residential development. The Site is undeveloped.

A complete legal description of the Site is contained in the Preliminary Title Report provided by the Client. The Preliminary Title Report is presented as Appendix A.

2.2 Site and Vicinity General Characteristics

The west portion of the Site, Phase 4 of development, is square in shape and approximately 2.3 acres. The east portion of the Site, Phase 2 of development, is triangular and approximately 8.4 acres. The Site is currently undeveloped. The parcel is rough graded with little vegetation present.

The Site is bordered on the west by Lasselle Street on the south and east by Krameria Avenue and to the north by new construction (Phase 1 of development) and Lasselle Elementary School. The Site's vicinity is generally characterized by residential developments intermixed with a shopping center, a church, condominiums, schools, and Lake Perris Recreational Facility.

2.3 Current Use of the Site

The Site is composed of undeveloped graded land.

Photographic documentation of the Site is provided in Appendix B.

2.4 Physical Setting

The Site is located at an elevation of approximately 1,550 feet. The presumed flow direction of surface water is east to west towards a flood control channel located approximately 1,900 feet to the west of the Site.

A man-made lake is located approximately 900 feet to the northwest of the Site. Terri Peak, Mount Russell, and Lake Perris are all east of the Site.

2.5 Current Uses of Adjacent Properties

The properties to the north include Phase 1 of development and Lasselle Elementary School, the properties to the south, east, and west of the Site are residential developments.

3.0 USER PROVIDED INFORMATION

3.1 Title Records

3.2 Environmental Liens or Activity and Other Use Limitations (AUL)

No reports of environmental liens or AULs were provided by the User during this ESA or identified in the title report.

3.3 Owner/Occupant Interviews

3.3.1 Current Owners

Group Delta interviewed Mr. Andrew Spousta with Continental East Development, Inc. regarding knowledge of the Site on March 26, 2018. According to Mr. Spousta, the current owner of the Site has owned the site since approximately 2013. According to Mr. Spousta, the Site has undergone multiple grading configurations, but has never been developed. Mr. Spousta stated to his knowledge that no hazardous waste use, illicit dumping, or unauthorized releases have occurred at the Property.

3.3.2 Previous Owners

The previous owner of the Site was not identified during this Phase I ESA.

3.4 Reason for Preforming ESA

The purpose of the ESA is to identify apparent and potential sources of contamination for the Site that, by their association or proximity to the Site, could represent an REC. This report can serve to identify environmental conditions at the Site that may impact the proposed project and may permit the User to satisfy one of the requirements to qualify for the bona fide prospective purchaser limitations on Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) liability (42 U.S.C. §9601). It was not the purpose of this study to determine the degree or extent of contamination, if any, but rather to identify the potential for contamination or environmental concern.

3.5 Review of Existing Site Reports

The User provided reporting prepared for the Site. A summary of study reports provided to Group Delta is as follows:

1. Negative Declaration, November 2012

After review of documents provided by the User, no issues of environmental concern were noted.

4.0 ENVIRONMENTAL DATA SEARCH

4.1 Database Information on the Site and the Adjacent Properties

4.1.1 Standard Environmental Record Sources for the Site and Vicinity

GDC conducted a review of reasonably ascertainable environmental regulatory agency databases to identify known or suspected environmental concerns or RECs that may be associated with the Site. A search of readily available environmental records was obtained from EDR of Shelton, Connecticut (Appendix C). The purpose of the regulatory database report review was to evaluate to the extent possible whether prior activities, processes, operations, or actions on the Site, adjoining properties, and nearby locations have the potential to adversely impact the environmental integrity of the Site, are suspected sources of environmental contamination, or present RECs for the Site. The regulatory database report provides information regarding current operations and prior regulatory listings for the Site and previous owners and/or operators on the Site. The presence or absence of information about the Site does not necessarily mean that there are or are not environmental issues associated with the Site.

The regulatory database report includes a list of government databases searched, a statistical profile listing the number of properties within ASTM Standard Practice specified search radii, selected detailed information from environmental regulatory agency databases, and a map illustrating the identified properties, sites, or facilities of interest.

The regulatory database report provides a mechanism to evaluate a relatively large number of environmental regulatory agency databases and eliminate many properties, sites, operations, and/or facilities that have a low potential of adversely impacting the Site. However, it should be noted that the information included in the regulatory database report is not necessarily all-inclusive and environmental regulatory agency files may have been purged by public officials prior to release to the public. In addition, mapping errors may not reflect actual distances and directions between the Site and the properties, sites, operations, and/or facilities listed in the regulatory database report.

The regulatory database report includes information from federal, state, local, military, and tribal environmental regulatory agency databases.

4.1.2 Site Records

The property was not identified on any databases in the EDR regulatory database report.

4.1.3 Vicinity Records Search

Multiple sites were listed in the EDR database radius search for the project area. The radius search area included the project limits and a one-mile radius from the project limits. Numerous

properties within this search area were listed on the EDR database and were found not to pose a hazardous waste impact based on the following criteria, or a combination thereof:

- The regulatory case status of the property is identified as completed and closed;
- The type of media affected was identified as soil only;
- The release was in nominal amounts or concentrations as to not present a hazardous waste impact concern to the project;
- The listing was identified on low-hazardous risk databases (i.e., underground storage tank [UST] HAZNET, small quantity generator databases) with no reported spills, cleanups, or violations;
- The property is identified on a low-hazardous risk database as receiving one or more violations, but the nature of violations received was associated with financial, administrative, or record-keeping practices only;
- The distance of the listing to project limits is great enough that it does not present a hazardous waste impact concern to the project, and/or;
- The listing is down-gradient or cross-gradient from the project limits.

Based on these criteria, these listings are not considered an environmental concern to the project and were not evaluated further.

Table 1 provides a summary of properties in the vicinity of the site identified on high-hazardous risk databases (identify which databases of concern they are listed on here in parentheses) in the EDR regulatory database report. Table X includes the operating business name and address associated with the listing; Map ID number of the listing; associated database(s) on which the listing occurs; and a summary of information pertaining to the listing. For a determination of whether the given listing is a REC or AOC to the project, refer to Section 4.3.2 – Local Department Records.

Table 1: Site Vicinity Findings

Environmental Atlas Findings – Site Vicinity Findings
Lasselle Elementary School, Krameria Avenue, Moreno Valley, CA
Map Key Number 1
EDR Listing of Concern and Associated Databases: Envirostor/Schools
The property is located upgradient of the site to the immediate north. DTSC conducted an assessment prior to the school being constructed. Previous property use is identified as agricultural. The database report states that no contaminants were found on the property in 2003.

A copy of the Radius Search Map is provided in Appendix C.

4.2 Historical Use Information on the Site and Adjoining Properties

GDC reviewed available historical information to ascertain the historical uses of the Site and the adjoining properties. Reviewed information included Sanborn insurance maps, historic aerial photographs, historic topographic maps, and city directories.

4.2.1 Sanborn Map Review

GDC reviewed a certified Sanborn map report prepared by EDR. After a complete search of the Sanborn Library and fire insurance maps by EDR, fire insurance maps of the target property were not found.

A copy of the Sanborn search findings is provided in Appendix C of this report.

4.2.2 Historical Aerial Photography and Topographic Map Review

Aerial photographs and historical topographic maps of the Site and adjoining properties were provided by EDR and reviewed to identify historical land development. Photographs and historical topographic maps dating between 1901 and 2012 were reviewed. Table 2 summarizes the results of the aerial photograph and topographic map review. Copies of the aerial photographs and topographic maps provided by EDR are included as Appendix C.

Table 2: Summary of Historical Review

Table 2 Summary of Historical Review			
Year	**Source and Scale**	**Summary**	
1901 through 1941	Topographic Map 30-minute	Due to the scale of the maps from 1901 through 1941, no inferences regarding land use for the Site, adjacent properties, or surrounding vicinity could be ascertained.	
1942 through 1943	Aerial Photographs 1:500	The Site appears to be undeveloped/agriculture.	Adjacent properties are undeveloped/agriculture.
1944 through 1953	Topographic Maps 15-minute	The Site appears to be undeveloped. Perris Boulevard appears west of the Site.	
1954 through 1967	Aerial Photographs 1:500	The Site appears to be undeveloped/agriculture. A school was constructed to the northwest of the Site.	Adjacent properties appeared to be the following: North: No changes were noted from the previous mapped year South: No changes were noted from the previous mapped year East: No changes were noted from the previous mapped year

			West: No changes were noted from the previous mapped year
1968 through 1973	Aerial Photographs 1:500	The Site appears to be undeveloped/agriculture. The surrounding vicinity appeared to consist of a mix of a trailer park, some residences and pump stations.	Adjacent properties appeared to be the following: North: No changes were noted from the previous mapped year South: The gas station appeared to be replaced with a strip mall East: No changes were noted from the previous mapped year West: No changes were noted from the previous mapped year
1974 through 1980	Aerial Photographs 1:500	The Site appears to be undeveloped/agriculture. The surrounding vicinity appeared to consist of a mix of a trailer park, some residences and pump stations.	Adjacent properties appeared to be the following: North: No changes were noted from the previous mapped year South: No changes were noted from the previous mapped year East: No changes were noted from the previous mapped year West: No changes were noted from the previous mapped year
1980 through 2012	Aerial Photographs 1:500	The Site appears to be undeveloped The surrounding vicinity appeared to consist of new streets residences and a school	Adjacent properties appeared to be the following: North: School, residential South: Residential East: Residential West: Residential

Representative aerial photographs and topographic maps are included in Appendix C.

4.2.3 City Directory Report

The EDR City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. City directories generally include listings of residents or businesses organized both alphabetically and alphanumerically by street names and street addresses and are prepared for many urban and suburban areas of the United States dating back to the early 1900s.

GDC reviewed the city directory search prepared by EDR. The search was performed for the Site and the adjacent properties. According to the city directory, the vicinity of the Site was mainly comprised of residences as early as 1997. Other businesses identified within the Site vicinity include churches and schools. No businesses that would present an environmental concern to the subject Site were identified. No RECs were identified as a result of the review of the EDR City Directory Report.

The city directory search results prepared by EDR are presented in Appendix C.

5.0 REGULATORY AGENCY RECORDS

5.1 Online Available Records

5.1.1 Department of Toxic Substances Control (DTSC)

GDC reviewed available files of the State of California DTSC published on the internet records database Envirostor. The purpose of this search was to identify any evidence of unauthorized releases of hazardous materials to the surface, subsurface soil, and/or groundwater. The Site was not identified on the Envirostor database.

Lasselle Elementary School, located upgradient of the site to the immediate north is listed on the Envirostor database. DTSC conducted an assessment of the property prior to the school being constructed. The database states the property was used for dry farm grain or grass cover crops, indicating the possibility for limited pesticide application, if any. DTSC concluded that neither a release of hazardous material that would pose a threat to human health or the environment under unrestricted land use, was indicated at the property. Further environmental investigation beyond a Phase I ESA was not required by DTSC prior to school construction.

5.1.2 State Water Resources Control Board (SWRCB)

GDC reviewed available files through the online GeoTracker database maintained by the California SWRCB. GeoTracker maintains files related to UST facilities, LUSTs, site clean-ups, disposal sites, wells, and information related to hazardous materials and/or waste. The Site is not listed in the GeoTracker database, and no cases within 0.5 miles of the Site are listed. No RECs were identified as a result of the GeoTracker database review.

5.1.3 Division of Oil, Gas, and Geothermal Resources (DOGGR)

GDC reviewed mapping available on the DOGGR website for oil and gas wells on or in the vicinity of the Project. The mapping did not include any oil and gas wells on, or within 1500 feet of the Site. No RECs were identified as a result of the DOGGR database review.

5.1.4 Office of California State Fire Marshall

GDC reviewed available files through the online National Pipeline Mapping System (NPMS) database maintained by the Office of California State Fire Marshal. NPMS is a Geographic Information System (GIS) database of pipeline information for the specific intent of emergency response. The database does not include natural gas lines or liquefied natural gas facilities.

No pipelines were mapped on or within 1500 feet of the Site. No RECs were identified as a result of the NPMS database review.

5.2 Local Department Records

We requested available records from the following two local agencies:

1. Riverside County Department of Environmental Health
2. South Coast Air Quality Management District

5.2.1 Riverside County Department of Environmental Health (DEH)

Riverside County DEH requires a property address to search for records. Historically, the property has not had an address. It is assumed no records exist at the DEH.

5.2.2 South Coast Air Quality Management District (SCAQMD)

A search for the Site and its vicinity was conducted on the SCAQMD online Facility Information Detail (FIND) database. According to the SCAQMD, no records for the Site are on file with the agency.

6.0 SITE RECONNAISSANCE

6.1 Methodology and Limiting Conditions

A site reconnaissance was performed on March 20, 2018 by Jack Packwood of Group Delta. The Site was observed by traversing The Site by foot while noting evidence of environmental conditions. The Site was accessed from the northeastern portion of the Site.

The purpose of the Site reconnaissance was to observe the present Site use and conditions as they relate to the possible presence of potentially hazardous substances and petroleum products. In addition, adjoining properties and roads were visually observed from the Site to identify land uses and the potential presence of structures, operations, activities, or environmental conditions that may involve the use, treatment, storage, disposal, or generation of hazardous wastes and/or petroleum products that may pose an environmental concern to the Site. Photographic documentation of the reconnaissance is included in Appendix B.

6.2 General Site Setting

The Site is mostly vacant, but has undergone rough grading. Some materials storage and stormwater best management practices were observed. The developer appears to be preparing for construction activities onsite.

6.3 Adjacent Properties Site Observations

The properties adjacent to the Site were observed from the Site to assess if they had potential to present RECs for the Site.

An elementary school is located north-adjacent to the Site, and single- and multi-family residential developments are located to the east, south, and west. All properties adjacent to the Site were well-maintained and did not appear to be of environmental concern.

6.4 Site Visit Findings

The following observations were made during the suite reconnaissance:

- The Site has been sprayed with soil stabilizer as erosion control and stormwater best management practices are in place throughout the Site.
- A construction trailer has been placed in the northeast corner of the Site.
- Staging of construction materials including some equipment, pipe and fittings, shipping containers, hardscape material, and blocks was observed throughout the Site.
- A concrete wash-out was observed onsite.
- Stormwater discharges from Lasselle Elementary School onto the Site and traverses the Site in a visqueen-lined channel.

- Pooled stormwater was observed due to the recent rains.
- Oil was observed dripping from grading equipment and drip pans were observed to be damaged and full of extraneous material. Stained soil was observed. This is considered a *de minimis* environmental condition.

7.0 SIGNIFICANT DATA GAPS

7.1 Data Gaps

In general, a Data Gap is the inability to gather information as prescribed in the ASTM Standard Practice despite good faith efforts. This may include, but not be limited to, a lack of historical information, inability to interview knowledgeable individuals, or inspect portions of the Site.

No data gaps were encountered during this assessment.

7.2 Data Failures

The objective of reviewing historical information is to identify all obvious uses of the Site from first developed use or 1940, whichever is earlier, in order to identify the likelihood of previous uses resulting in a recognized environmental condition(s). Generally, a Data Failure is when all obvious uses of the site cannot be determined despite gathering and reviewing all of the standard historical sources that are reasonably ascertainable. A historical source is considered reasonably ascertainable if it is (1) publicly available, (2) obtainable within a reasonable period of time and at a reasonable cost, and (3) practically reviewable.

The Site uses were identified back to 1901. Therefore, data failure was not encountered during the course of this assessment.

8.0 FINDINGS AND CONCLUSIONS

GDC has performed a Phase I ESA for Carlson Strategic Land Solutions for a 10.7-acre Site located on the northwest corner of Krameria Ave. and Lasselle St. in Moreno Valley, California. This ESA was conducted in general accordance with the scope of work, under guidance provided by the ASTM E1527-13 standard, and in a manner generally consistent with the agreement between the Client and GDC for this type of report.

The information procured during this investigation was used to identify, to the extent practical and within the limitations of the Scope, RECs associated with the Site due to current or past land use. No RECs were identified during this assessment.

The Site was historically used for agriculture, reportedly for dry farm grain or grass cover crops. However, the residual pesticides are not considered a potential environmental concern for the Site. First, the type of farming is associated with limited or no pesticide usage. Second, DTSC conducted an assessment of the elementary school site immediatelly north of the property that has the same history as the Site and concluded that neither a release of hazardous material that would pose a threat to human health or the environment under unrestricted land use, was indicated at the property. Last, the Site has been rough graded on multiple occasions; and therefore, any original topsoil has been dispersed and/or diluted on multiple occasions.

9.0 OPINIONS

We have performed a Phase I ESA of the subject Site in accordance with the scope of work and limitations of ASTM E1527-13. The information procured during this investigation was used to identify, to the extent practical and within the limitations of the Scope, RECs associated with the Site due to current or past land use. This assessment has revealed no evidence of RECs at the Site. No further assessment appears warranted at this time.

10.0 DEVIATIONS

There were no deviations to the ASTM Standard Practice associated with the preparation and development of this Phase I ESA.

11.0 REFERENCES

California Department of Toxic Substances Control, EnviroStor Database, March 26, 2018. www.envirostor.dtsc.ca.gov.

Department of Transportation, National Pipeline Mapping System, March 26, 2018. https://www.npms.phmsa.dot.gov/PublicViewer/,

Environmental Data Resources, Inc., The EDR Radius Map Report with GeoCheck dated March 14, 2018.

Environmental Data Resources, Inc., Certified Sanborn Map Report dated March 14, 2018.

Environmental Data Resources, Inc., Historical Topographic Map Report dated March 14, 2018.

Environmental Data Resources, Inc., The EDR-City Directory Image Report dated March 14, 2018.

Environmental Data Resources, Inc. Aerial Photo Decade Package dated March 14, 2018.

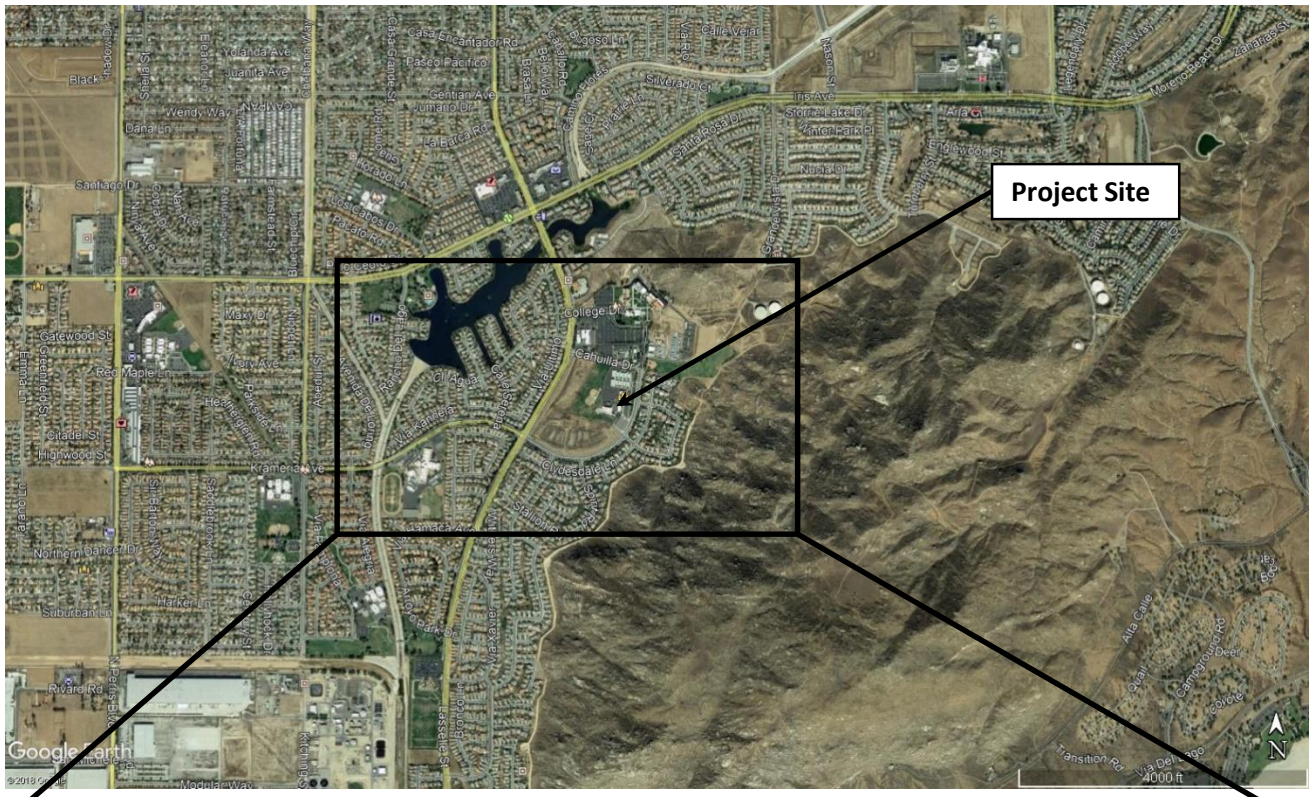
Google Maps, http://maps.google.com

Office of California State Fire Marshal, March 26, 2018. http://osfm.fire.ca.gov/pipeline/pipeline_mapping.php.

State of California, Division of Oil, Gas, and Geothermal Resources, March 26, 2018. http://www.consrv.ca.gov/DOG/index.htm.

State Water Resources Control Board, GeoTracker Database, March 26, 2018. http://geotracker.waterboards.ca.gov/.

FIGURES



Reference: ***Google Earth***

*Locations are approximate

GDC Project No. EN324

Project Location Map

Phase I Environmental Site Assessment
Krameria Ave and Lasselle Street
Moreno Valley, CA

Figure 1

APPENDIX A
PRELIMINARY TITLE REPORT

CLTA Preliminary Report Form
(Rev. 11/06)

Order Number: NHSC-5628427 (tc)
Page Number: 1

First American Title

First American Title Company

1250 Corona Pointe Court, Ste 200
Corona, CA 92879

Andrew Spousta
Continental East Development, Inc.
25467 Medical Center Drive
Murrieta, CA 92563

Customer Reference:	APN: 308-040-050
Order Number:	NHSC-5628427 (tc)
Title Officer:	Terrell Crutchfield
Phone:	(951)256-5879
Fax No.:	(866)558-2872
E-Mail:	tcrutchfield@firstam.com
Owner:	Continental East Fund III, LLC

PRELIMINARY REPORT

In response to the above referenced application for a policy of title insurance, this company hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a Policy or Policies of Title Insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an Exception below or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations of said Policy forms.

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said policy or policies are set forth in Exhibit A attached. *The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties*. Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Exhibit A. Copies of the policy forms should be read. They are available from the office which issued this report.

Please read the exceptions shown or referred to below and the exceptions and exclusions set forth in Exhibit A of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

Dated as of January 22, 2018 at 7:30 A.M.

The form of Policy of title insurance contemplated by this report is:

To Be Determined

A specific request should be made if another form or additional coverage is desired.

Title to said estate or interest at the date hereof is vested in:

Continental East Fund III, LLC, a California limited liability company

The estate or interest in the land hereinafter described or referred to covered by this Report is:

A fee.

The Land referred to herein is described as follows:

(See attached Legal Description)

At the date hereof exceptions to coverage in addition to the printed Exceptions and Exclusions in said policy form would be as follows:

1. General and special taxes and assessments for the fiscal year 2018-2019, a lien not yet due or payable.

2. General and special taxes and assessments for the fiscal year 2017-2018.

First Installment:	$12,131.10, PAID
Penalty:	$0.00
Second Installment:	$12,131.10, PAYABLE
Penalty:	$0.00
Tax Rate Area:	021-400
A. P. No.:	308-040-050-8

3. The lien of special tax assessed pursuant to Chapter 2.5 commencing with Section 53311 of the California Government Code for Community Facilities District 87-1, as disclosed by Notice of Special Tax Lien recorded May 12, 1994 as Instrument Nos. 196245 and 196247, both of Official Records.

4. The lien of special tax assessed pursuant to Chapter 2.5 commencing with Section 53311 of the California Government Code for Community Facilities District 87-1, as disclosed by Notice of Special Tax Lien recorded April 29, 1998 as Instrument No. 167732 of Official Records.

5. The lien of special tax assessed pursuant to Chapter 2.5 commencing with Section 53311 of the California Government Code for Community Facilities District 98-1, as disclosed by Notice of Special Tax Lien recorded June 9, 1998 as Instrument No. 234797 of Official Records.

6. The lien of supplemental taxes, if any, assessed pursuant to Chapter 3.5 commencing with Section 75 of the California Revenue and Taxation Code.

7. The effect of a Development Agreement between the City of Moreno Valley and the Robert P. Warmington Co., Relative to the Development known as Moreno Valley Ranch recorded August 14 1987 as Instrument No. 236665, of Official Records of Riverside County, California.

   Documents declaring a modification of said Development Agreement, recorded October 5, 1988, as Instrument No. 289200 and August 14, 1987, as Instrument No. 236666, both of Official Records of Riverside County, California.

   The effect of an Assignment of Development Agreement and Assumption Agreement executed August 23, 1991 by and between the Warmington Company, a California Corporation and Warmington Moreno Valley Ranch Land Fund, a California Limited Partnership, recorded August 30, 1991 as Instrument No. 302684, of Official Records of Riverside County, California.

   The effect of an Assignment of Development Agreement executed August 31, 1992 by and between the Warmington Moreno Valley Ranch Land Fund, a California Limited Partnership and the Resolution Trust Corporation, as Conservator for Oak Tree Federal Savings Bank, recorded October 28, 1992 as Instrument No. 408431, of Official Records of Riverside County, California.

8. The effect of a Resolution of the Eastern Municipal Water District executed July 20, 1988 by the Warmington Company and Eastern Municipal Water District, recorded August 2, 1988, as Instrument No. 216014, of Official Records of Riverside County, California.

9. The effect of a Resolution recorded August 24, 1988, as Instrument No. 241108, of Official Records of Riverside County, California, which recites among other things that said land lies within Improvement District No. U-22 of the Eastern Municipal Water District.

10. An easement shown or dedicated on Parcel Map 22701, Book 159, Pages 3 through 14 of Parcel Maps. In Favor of the City of Moreno Valley.
    For: Drainage and flowage purposes and incidental purposes.

    (Affects Parcel 2)

11. An easement for a perpetual easement and right of way for public highway including public utility and public service facilities and incidental purposes, recorded October 25, 1990 as Instrument No. 391594 of Official Records.
    In Favor of: The City of Moreno Valley, a Municipal Corporation
    Affects: Lot A

12. The effect of Resolution No. 1482.5 executed June 3, 1992 by Eastern Municipal Water District, recorded June 9, 1992, as Instrument No. 208420, of Official Records of Riverside County, California.

13. The effect of a Declaration of Covenants Regarding Waiver of Defenses Against the Formation of Val Verde Unified School District Community Facilities District No. 98-1 and Defenses to Levy of Special Tax, recorded July 29, 1998, as Instrument No. 314089, of Official Records.

14. The terms and provisions contained in the document entitled "Moreno Valley Ranch Second Amended Development Agreement" recorded October 15, 1999 as Instrument No. 99-458252 of Official Records.

15. The terms and provisions contained in the document entitled "Assignment and Assumption of Development Agreement" recorded May 15, 2002 as Instrument No. 02-256290 of Official Records.

16. The terms and provisions contained in the document entitled "Agreement for Park Improvements" recorded May 1, 2003 as Instrument No. 2003-310344 of Official Records.

17. Any lien, assessment, and/or violation or enforcement of any law, ordinance, permit or governmental regulation arising from the document entitled Notice of Code Violation Non Compliance recorded September 28, 2012 as Instrument No. 2012-0464257 of Official Records.

18. Any lien, assessment, and/or violation or enforcement of any law, ordinance, permit or governmental regulation arising from the document entitled Notice of Code Violation Non Compliance recorded July 12, 2013 as Instrument No. 2013-0337011 of Official Records.

19. Any lien, assessment, and/or violation or enforcement of any law, ordinance, permit or governmental regulation arising from the document entitled Notice of Code Violation Non Compliance recorded July 17, 2014 as Instrument No. 2014-0266424 of Official Records.

20. The following matters shown or disclosed by the filed or recorded map referred to in the legal description:

    City Finance & Conveyance Code 9.14.065

    A future map for development purposes must be processed and recorded in order for any development on the site to occur.

    Parcel Map No. 36468 does not create a legal building site. Further applications are necessary to develop this property.

    Parcel Map No. 36468 does not remove any development requirements set forth with approval of PA 15-0025, which must be satisfied with continued development of the property.

21. An easement shown or dedicated on Parcel Map 36468, Book 243, Pages 27 through 29 of Parcel Maps.
    For: public street and public utility and incidental purposes.

    (Affects Lot A)

22. An easement shown or dedicated on Parcel Map 36468, Book 243, Pages 27 through 29 of Parcel Maps. In Favor of Moreno Valley Utility.
    For: rights of ingress and egress for the purpose of operation, maintenance, facility repair, and meter reading and incidental purposes.

    The location of the easement cannot be determined from record information.

    THE ABOVE OFFER OF DEDICATION WASN'T ACCEPTED ON SAID PARCEL MAP.

23. Water rights, claims or title to water, whether or not shown by the public records.

    Prior to the issuance of any policy of title insurance, the Company will require:

24. With respect toContinental East Fund III, LLC, a California limited liability company:
    a. A copy of its operating agreement and any amendments thereto;
    b. If it is a California limited liability company, that a certified copy of its articles of organization (LLC-1) and any certificate of correction (LLC-11), certificate of amendment (LLC-2), or restatement of articles of organization (LLC-10) be recorded in the public records;
    c. If it is a foreign limited liability company, that a certified copy of its application for registration (LLC-5) be recorded in the public records;
    d. With respect to any deed, deed of trust, lease, subordination agreement or other document or instrument executed by such limited liability company and presented for recordation by the Company or upon which the Company is asked to rely, that such document or instrument be executed in accordance with one of the following, as appropriate:
    (i) If the limited liability company properly operates through officers appointed or elected pursuant to the terms of a written operating agreement, such document must be executed by at least two duly elected or appointed officers, as follows: the chairman of the board, the president or any vice president, and any secretary, assistant secretary, the chief financial officer or any assistant treasurer;
    (ii) If the limited liability company properly operates through a manager or managers identified in the articles of organization and/or duly elected pursuant to the terms of a written operating agreement, such document must be executed by at least two such managers or by one manager if the limited liability company properly operates with the existence of only one manager.
    e. Other requirements which the Company may impose following its review of the material required herein and other information which the Company may require

INFORMATIONAL NOTES

Note: The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than the certain dollar amount set forth in any applicable arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. If you desire to review the terms of the policy, including any arbitration clause that may be included, contact the office that issued this Commitment or Report to obtain a sample of the policy jacket for the policy that is to be issued in connection with your transaction.

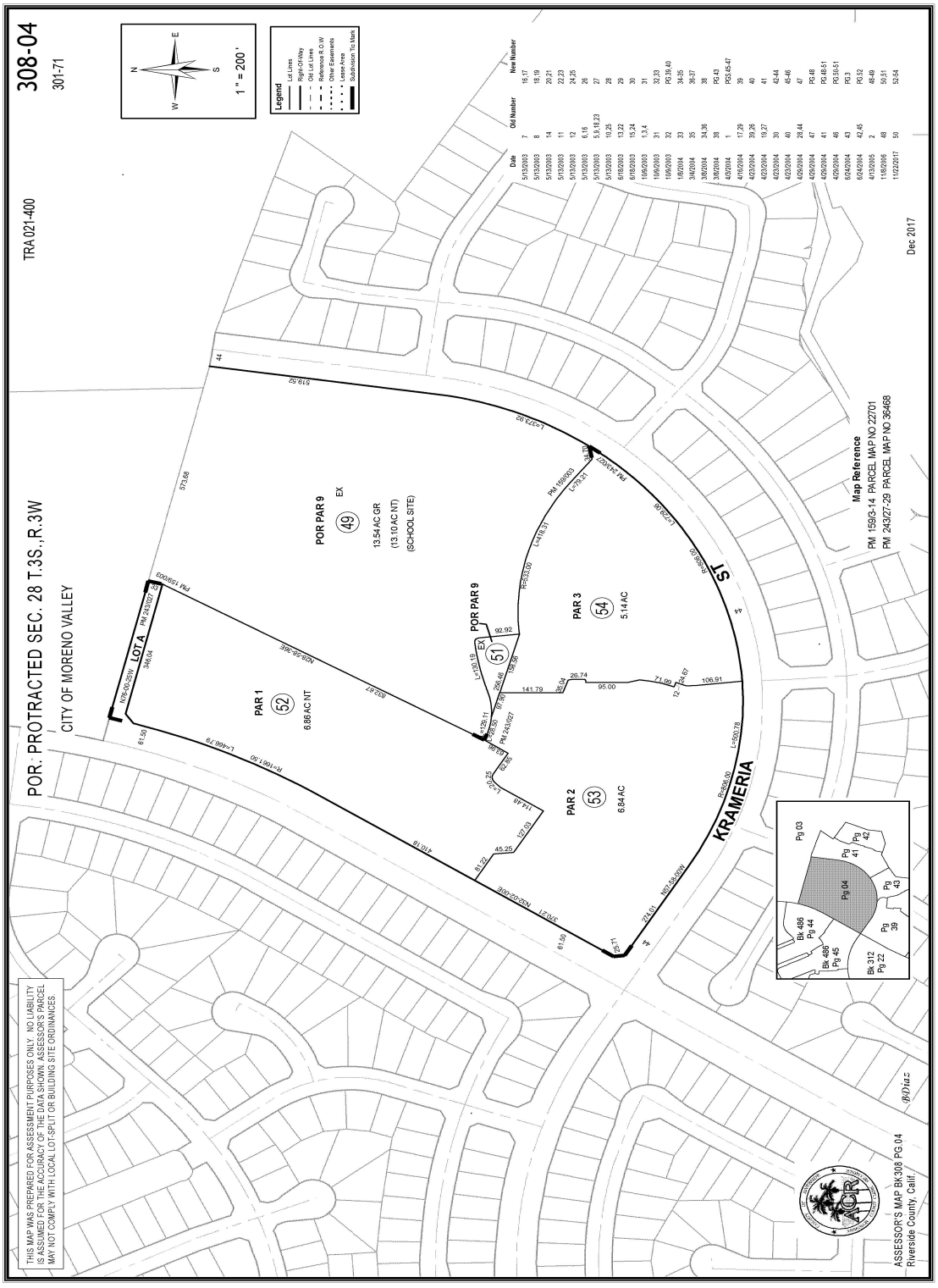
The map attached, if any, may or may not be a survey of the land depicted hereon. First American expressly disclaims any liability for loss or damage which may result from reliance on this map except to the extent coverage for such loss or damage is expressly provided by the terms and provisions of the title insurance policy, if any, to which this map is attached.

LEGAL DESCRIPTION

Real property in the City of Moreno Valley, County of Riverside, State of California, described as follows:

PARCELS 1, 2 AND 3 OF PARCEL MAP NO. 36468, IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP FILED IN BOOK 243, PAGES 27 THROUGH 29 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

APN: 308-040-050-8



Attachment: Phase I Environmental Site Assessment (March 2018) (3448 : Continental East Phase II Project)

NOTICE

Section 12413.1 of the California Insurance Code, effective January 1, 1990, requires that any title insurance company, underwritten title company, or controlled escrow company handling funds in an escrow or sub-escrow capacity, wait a specified number of days after depositing funds, before recording any documents in connection with the transaction or disbursing funds. This statute allows for funds deposited by wire transfer to be disbursed the same day as deposit. In the case of cashier's checks or certified checks, funds may be disbursed the next day after deposit. In order to avoid unnecessary delays of three to seven days, or more, please use wire transfer, cashier's checks, or certified checks whenever possible.

EXHIBIT A
LIST OF PRINTED EXCEPTIONS AND EXCLUSIONS (BY POLICY TYPE)

CLTA STANDARD COVERAGE POLICY – 1990

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;
   (d) attaching or created subsequent to Date of Policy; or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
   Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public, records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

CLTA/ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE (12-02-13)
EXCLUSIONS

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of those portions of any law or government regulation concerning:
   a. building;
   b. zoning;
   c. land use;
   d. improvements on the Land;
   e. land division; and
   f. environmental protection.
   This Exclusion does not limit the coverage described in Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23 or 27.
2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not limit the coverage described in Covered Risk 14 or 15.
3. The right to take the Land by condemning it. This Exclusion does not limit the coverage described in Covered Risk 17.
4. Risks:
   a. that are created, allowed, or agreed to by You, whether or not they are recorded in the Public Records;
   b. that are Known to You at the Policy Date, but not to Us, unless they are recorded in the Public Records at the Policy Date;
   c. that result in no loss to You; or
   d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.e., 25, 26, 27 or 28.
5. Failure to pay value for Your Title.
6. Lack of a right:
   a. to any land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
   b. in streets, alleys, or waterways that touch the Land.
   This Exclusion does not limit the coverage described in Covered Risk 11 or 21.
7. The transfer of the Title to You is invalid as a preferential transfer or as a fraudulent transfer or conveyance under federal bankruptcy, state insolvency, or similar creditors' rights laws.
8. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
9. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:
For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.
The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	Your Deductible Amount	Our Maximum Dollar Limit of Liability
Covered Risk 16:	1% of Policy Amount Shown in Schedule A or $2,500 (whichever is less)	$10,000
Covered Risk 18:	1% of Policy Amount Shown in Schedule A or $5,000 (whichever is less)	$25,000
Covered Risk 19:	1% of Policy Amount Shown in Schedule A or $5,000 (whichever is less)	$25,000
Covered Risk 21:	1% of Policy Amount Shown in Schedule A or $2,500 (whichever is less)	$5,000

2006 ALTA LOAN POLICY (06-17-06)
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to

   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;

(iii) the subdivision of land; or
(iv) environmental protection;

or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
(b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.

2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
(a) created, suffered, assumed, or agreed to by the Insured Claimant;
(b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
(c) resulting in no loss or damage to the Insured Claimant;
(d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13, or 14); or
(e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
(a) a fraudulent conveyance or fraudulent transfer, or
(b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

[Except as provided in Schedule B - Part II,[t[or T]his policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

[PART I

[The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

PART II

In addition to the matters set forth in Part I of this Schedule, the Title is subject to the following matters, and the Company insures against loss or damage sustained in the event that they are not subordinate to the lien of the Insured Mortgage:]

2006 ALTA OWNER'S POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to

(i) the occupancy, use, or enjoyment of the Land;
(ii) the character, dimensions, or location of any improvement erected on the Land;
(iii) the subdivision of land; or
(iv) environmental protection;

or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
(b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.

2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
(a) created, suffered, assumed, or agreed to by the Insured Claimant;
(b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
(c) resulting in no loss or damage to the Insured Claimant;
(d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 or 10); or
(e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
(a) a fraudulent conveyance or fraudulent transfer, or
(b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:
[The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.
7. [Variable exceptions such as taxes, easements, CC&R's, etc. shown here.]

ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (07-26-10)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to

(i) the occupancy, use, or enjoyment of the Land;
(ii) the character, dimensions, or location of any improvement erected on the Land;
(iii) the subdivision of land; or
(iv) environmental protection;

or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
(b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d),

14 or 16.

2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27 or 28); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law. This Exclusion does not modify or limit the coverage provided in Covered Risk 26.
6. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to Advances or modifications made after the Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching subsequent to Date of Policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11(b) or 25.
8. The failure of the residential structure, or any portion of it, to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This Exclusion does not modify or limit the coverage provided in Covered Risk 5 or 6.
9. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 27(b) of this policy.
10. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
11. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

First American Title

Privacy Information

We Are Committed to Safeguarding Customer Information

In order to better serve your needs now and in the future, we may ask you to provide us with certain information. We understand that you may be concerned about what we will do with such information - particularly any personal or financial information. We agree that you have a right to know how we will utilize the personal information you provide to us. Therefore, together with our subsidiaries we have adopted this Privacy Policy to govern the use and handling of your personal information.

Applicability

This Privacy Policy governs our use of the information that you provide to us. It does not govern the manner in which we may use information we have obtained from any other source, such as information obtained from a public record or from another person or entity. First American has also adopted broader guidelines that govern our use of personal information regardless of its source. First American calls these guidelines its Fair Information Values.

Types of Information

Depending upon which of our services you are utilizing, the types of nonpublic personal information that we may collect include:

- Information we receive from you on applications, forms and in other communications to us, whether in writing, in person, by telephone or any other means;
- Information about your transactions with us, our affiliated companies, or others; and
- Information we receive from a consumer reporting agency.

Use of Information

We request information from you for our own legitimate business purposes and not for the benefit of any nonaffiliated party. Therefore, we will not release your information to nonaffiliated parties except: (1) as necessary for us to provide the product or service you have requested of us; or (2) as permitted by law. We may, however, store such information indefinitely, including the period after which any customer relationship has ceased. Such information may be used for any internal purpose, such as quality control efforts or customer analysis. We may also provide all of the types of nonpublic personal information listed above to one or more of our affiliated companies. Such affiliated companies include financial service providers, such as title insurers, property and casualty insurers, and trust and investment advisory companies, or companies involved in real estate services, such as appraisal companies, home warranty companies and escrow companies. Furthermore, we may also provide all the information we collect, as described above, to companies that perform marketing services on our behalf, on behalf of our affiliated companies or to other financial institutions with whom we or our affiliated companies have joint marketing agreements.

Former Customers

Even if you are no longer our customer, our Privacy Policy will continue to apply to you.

Confidentiality and Security

We will use our best efforts to ensure that no unauthorized parties have access to any of your information. We restrict access to nonpublic personal information about you to those individuals and entities who need to know that information to provide products or services to you. We will use our best efforts to train and oversee our employees and agents to ensure that your information will be handled responsibly and in accordance with this Privacy Policy and First American's Fair Information Values. We currently maintain physical, electronic, and procedural safeguards that comply with federal regulations to guard your nonpublic personal information.

Information Obtained Through Our Web Site

First American Financial Corporation is sensitive to privacy issues on the Internet. We believe it is important you know how we treat the information about you we receive on the Internet.
In general, you can visit First American or its affiliates' Web sites on the World Wide Web without telling us who you are or revealing any information about yourself. Our Web servers collect the domain names, not the e-mail addresses, of visitors. This information is aggregated to measure the number of visits, average time spent on the site, pages viewed and similar information. First American uses this information to measure the use of our site and to develop ideas to improve the content of our site.
There are times, however, when we may need information from you, such as your name and email address. When information is needed, we will use our best efforts to let you know at the time of collection how we will use the personal information. Usually, the personal information we collect is used only by us to respond to your inquiry, process an order or allow you to access specific account/profile information. If you choose to share any personal information with us, we will only use it in accordance with the policies outlined above.

Business Relationships

First American Financial Corporation's site and its affiliates' sites may contain links to other Web sites. While we try to link only to sites that share our high standards and respect for privacy, we are not responsible for the content or the privacy practices employed by other sites.

Cookies

Some of First American's Web sites may make use of "cookie" technology to measure site activity and to customize information to your personal tastes. A cookie is an element of data that a Web site can send to your browser, which may then store the cookie on your hard drive.
FirstAm.com uses stored cookies. The goal of this technology is to better serve you when visiting our site, save you time when you are here and to provide you with a more meaningful and productive Web site experience.

Fair Information Values

Fairness We consider consumer expectations about their privacy in all our businesses. We only offer products and services that assure a favorable balance between consumer benefits and consumer privacy.
Public Record We believe that an open public record creates significant value for society, enhances consumer choice and creates consumer opportunity. We actively support an open public record and emphasize its importance and contribution to our economy.
Use We believe we should behave responsibly when we use information about a consumer in our business. We will obey the laws governing the collection, use and dissemination of data.
Accuracy We will take reasonable steps to help assure the accuracy of the data we collect, use and disseminate. Where possible, we will take reasonable steps to correct inaccurate information. When, as with the public record, we cannot correct inaccurate information, we will take all reasonable steps to assist consumers in identifying the source of the erroneous data so that the consumer can secure the required corrections.
Education We endeavor to educate the users of our products and services, our employees and others in our industry about the importance of consumer privacy. We will instruct our employees on our fair information values and on the responsible collection and use of data. We will encourage others in our industry to collect and use information in a responsible manner.
Security We will maintain appropriate facilities and systems to protect against unauthorized access to and corruption of the data we maintain.

APPENDIX B
SITE PHOTOGRAPHS

PROJECT NAME	Continental Village	PROJECT No.	EN324	SHEET	1	OF	

PROJECT PHOTOGRAPHIC NUMBER	1		
DESCRIPTION	Northeast corner facing south		
PHOTOGRAPHED BY	JP	DATE	3-20-18

PROJECT PHOTOGRAPHIC NUMBER	2		
DESCRIPTION	MIddle of the Site facing north.		
PHOTOGRAPHED BY	JP	DATE	3-20-18

PROJECT NAME	Continental Village	PROJECT No.	EN324	SHEET	2	OF	

PROJECT PHOTOGRAPHIC NUMBER	3		
DESCRIPTION	Southwest corner of Site facing east. View of pool,		
equipment, and stormwater conveyance.			
PHOTOGRAPHED BY	JP	DATE	3-20-18

PROJECT PHOTOGRAPHIC NUMBER	4		
DESCRIPTION	Stormwater conveyance through Site.		
PHOTOGRAPHED BY	JP	DATE	3-20-18

PROJECT NAME	Continental Village	PROJECT No.	EN324	SHEET	3	OF	

PROJECT PHOTOGRAPHIC NUMBER	5		
DESCRIPTION	Phase 1 construction to the north of the Site.		
PHOTOGRAPHED BY	JP	DATE	3-20-18

PROJECT PHOTOGRAPHIC NUMBER	6		
DESCRIPTION	Damaged drip pans and stained soil.		
PHOTOGRAPHED BY	JP	DATE	3-20-18

APPENDIX C

ENVIRONMENTAL DATA RESOURCES, INC. REPORT
(RADIUS SEARCH MAP, SANBORN MAPS, AERIAL PHOTOGRAPHS,
TOPOGRAPHIC MAPS, & CITY DIRECTORIES)

Continental Village
Krameria Ave and Lasselle Street
Moreno Valley, CA 92555

Inquiry Number: 5219776.2s
March 14, 2018

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

KRAMERIA AVE AND LASSELLE STREET
MORENO VALLEY, CA 92555

COORDINATES

Latitude (North):	33.8830390 - 33˚ 52' 58.94''
Longitude (West):	117.2051120 - 117˚ 12' 18.40''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	481032.0
UTM Y (Meters):	3749012.5
Elevation:	1538 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5641326 SUNNYMEAD, CA
Version Date:	2012
South Map:	5641330 PERRIS, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140603
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
KRAMERIA AVE AND LASSELLE STREET
MORENO VALLEY, CA 92555

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & DIRECTIC
1	LASSELLE ELEMENTARY	CAHUILLA STREET/KRAM	ENVIROSTOR, SCH	Higher	389, 0.074,
2	CDF-MORENO VALLEY FI	16110 LASSELLE ST	AST	Lower	1083, 0.205
A3	MARCH AFB - POORMAN		FUDS	Higher	1186, 0.225
A4	MARCH AFB - POORMAN	2 MILES EAST OF MARC	RESPONSE, ENVIROSTOR	Higher	1189, 0.225
5	REPLANET LLC	25900 IRIS AVE	SWRCY, HAZNET	Lower	2380, 0.45
6	POORMAN GUNNERY RANG		UXO	Lower	3020, 0.572
7	RED MAPLE SCHOOL SIT	RED MAPLE LANE/EBONY	ENVIROSTOR, SCH	Lower	4422, 0.837

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL_ _ _ _ _ _ _ _ _ _ _ _ National Priority List
Proposed NPL_ _ _ _ _ _ _ _ Proposed National Priority List Sites
NPL LIENS_ _ _ _ _ _ _ _ _ Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL_ _ _ _ _ _ _ _ National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY_ _ _ _ _ Federal Facility Site Information listing
SEMS_ _ _ _ _ _ _ _ _ _ _ _ Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE_ _ _ _ _ _ Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS_ _ _ _ _ _ _ _ Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF_ _ _ _ _ _ _ _ RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG_ _ _ _ _ _ _ _ _ RCRA - Large Quantity Generators
RCRA-SQG_ _ _ _ _ _ _ _ _ RCRA - Small Quantity Generators
RCRA-CESQG_ _ _ _ _ _ _ RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS_ _ _ _ _ _ _ _ _ _ _ _ Land Use Control Information System
US ENG CONTROLS_ _ _ _ Engineering Controls Sites List

EXECUTIVE SUMMARY

US INST CONTROL_ _ _ _ _ Sites with Institutional Controls

Federal ERNS list

ERNS_ _ _ _ _ _ _ _ _ _ _ _ Emergency Response Notification System

State and tribal landfill and/or solid waste disposal site lists

SWF/LF_ _ _ _ _ _ _ _ _ _ _ Solid Waste Information System

State and tribal leaking storage tank lists

LUST_ _ _ _ _ _ _ _ _ _ _ _ Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST_ _ _ _ _ _ _ _ Leaking Underground Storage Tanks on Indian Land
SLIC_ _ _ _ _ _ _ _ _ _ _ _ Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST_ _ _ _ _ _ _ _ _ _ Underground Storage Tank Listing
UST_ _ _ _ _ _ _ _ _ _ _ _ _ Active UST Facilities
INDIAN UST_ _ _ _ _ _ _ _ _ Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

VCP_ _ _ _ _ _ _ _ _ _ _ _ _ Voluntary Cleanup Program Properties
INDIAN VCP_ _ _ _ _ _ _ _ _ Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS_ _ _ _ _ _ _ Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS_ _ _ _ _ A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT_ _ _ _ _ _ _ Waste Management Unit Database
HAULERS_ _ _ _ _ _ _ _ _ _ Registered Waste Tire Haulers Listing
INDIAN ODI_ _ _ _ _ _ _ _ Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9_ _ _ _ _ Torres Martinez Reservation Illegal Dump Site Locations
ODI_ _ _ _ _ _ _ _ _ _ _ _ Open Dump Inventory
IHS OPEN DUMPS_ _ _ _ _ Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL_ _ _ _ _ _ _ _ Delisted National Clandestine Laboratory Register
HIST Cal-Sites_ _ _ _ _ _ _ Historical Calsites Database
CDL_ _ _ _ _ _ _ _ _ _ _ _ Clandestine Drug Labs
Toxic Pits_ _ _ _ _ _ _ _ _ Toxic Pits Cleanup Act Sites
US CDL_ _ _ _ _ _ _ _ _ _ National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

SWEEPS UST_ _ _ _ _ _ _ _ SWEEPS UST Listing

EXECUTIVE SUMMARY

HIST UST_ _ _ _ _ _ _ _ _ Hazardous Substance Storage Container Database
CA FID UST_ _ _ _ _ _ _ _ Facility Inventory Database

Local Land Records

LIENS_ _ _ _ _ _ _ _ _ _ _ Environmental Liens Listing
LIENS 2_ _ _ _ _ _ _ _ _ _ CERCLA Lien Information
DEED_ _ _ _ _ _ _ _ _ _ _ Deed Restriction Listing

Records of Emergency Release Reports

HMIRS_ _ _ _ _ _ _ _ _ _ _ Hazardous Materials Information Reporting System
CHMIRS_ _ _ _ _ _ _ _ _ _ California Hazardous Material Incident Report System
LDS_ _ _ _ _ _ _ _ _ _ _ _ Land Disposal Sites Listing
MCS_ _ _ _ _ _ _ _ _ _ _ _ Military Cleanup Sites Listing
SPILLS 90_ _ _ _ _ _ _ _ _ SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR_ _ _ _ . RCRA - Non Generators / No Longer Regulated
DOD_ _ _ _ _ _ _ _ _ _ _ _ Department of Defense Sites
SCRD DRYCLEANERS_ _ _ . State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR_ _ _ _ _ _ . Financial Assurance Information
EPA WATCH LIST_ _ _ _ _ EPA WATCH LIST
2020 COR ACTION_ _ _ _ . 2020 Corrective Action Program List
TSCA_ _ _ _ _ _ _ _ _ _ _ Toxic Substances Control Act
TRIS_ _ _ _ _ _ _ _ _ _ _ Toxic Chemical Release Inventory System
SSTS_ _ _ _ _ _ _ _ _ _ _ Section 7 Tracking Systems
ROD_ _ _ _ _ _ _ _ _ _ _ _ Records Of Decision
RMP_ _ _ _ _ _ _ _ _ _ _ _ Risk Management Plans
RAATS_ _ _ _ _ _ _ _ _ _ . RCRA Administrative Action Tracking System
PRP_ _ _ _ _ _ _ _ _ _ _ _ Potentially Responsible Parties
PADS_ _ _ _ _ _ _ _ _ _ _ PCB Activity Database System
ICIS_ _ _ _ _ _ _ _ _ _ _ _ Integrated Compliance Information System
FTTS_ _ _ _ _ _ _ _ _ _ _ . FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS_ _ _ _ _ _ _ _ _ _ _ Material Licensing Tracking System
COAL ASH DOE_ _ _ _ _ _ Steam-Electric Plant Operation Data
COAL ASH EPA_ _ _ _ _ _ Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER_ _ _ _ PCB Transformer Registration Database
RADINFO_ _ _ _ _ _ _ _ _ Radiation Information Database
HIST FTTS_ _ _ _ _ _ _ _ _ FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS_ _ _ _ _ _ _ _ _ Incident and Accident Data
CONSENT_ _ _ _ _ _ _ _ _ Superfund (CERCLA) Consent Decrees
INDIAN RESERV_ _ _ _ _ _ Indian Reservations
FUSRAP_ _ _ _ _ _ _ _ _ _ Formerly Utilized Sites Remedial Action Program
UMTRA_ _ _ _ _ _ _ _ _ _ Uranium Mill Tailings Sites
LEAD SMELTERS_ _ _ _ _ _ Lead Smelter Sites
US AIRS_ _ _ _ _ _ _ _ _ _ Aerometric Information Retrieval System Facility Subsystem
US MINES_ _ _ _ _ _ _ _ _ Mines Master Index File
ABANDONED MINES_ _ _ _ Abandoned Mines
FINDS_ _ _ _ _ _ _ _ _ _ _ Facility Index System/Facility Registry System
ECHO_ _ _ _ _ _ _ _ _ _ _ Enforcement & Compliance History Information
DOCKET HWC_ _ _ _ _ _ _ Hazardous Waste Compliance Docket Listing
FUELS PROGRAM_ _ _ _ _ EPA Fuels Program Registered Listing

EXECUTIVE SUMMARY

CA BOND EXP. PLAN_ _ _ _ Bond Expenditure Plan
Cortese_ _ _ _ _ _ _ _ _ _ _ "Cortese" Hazardous Waste & Substances Sites List
CUPA Listings_ _ _ _ _ _ _ CUPA Resources List
DRYCLEANERS_ _ _ _ _ _ Cleaner Facilities
EMI_ _ _ _ _ _ _ _ _ _ _ _ Emissions Inventory Data
ENF_ _ _ _ _ _ _ _ _ _ _ _ Enforcement Action Listing
Financial Assurance_ _ _ _ Financial Assurance Information Listing
HAZNET_ _ _ _ _ _ _ _ _ _ Facility and Manifest Data
ICE_ _ _ _ _ _ _ _ _ _ _ _ ICE
HIST CORTESE_ _ _ _ _ _ Hazardous Waste & Substance Site List
HWP_ _ _ _ _ _ _ _ _ _ _ _ EnviroStor Permitted Facilities Listing
HWT_ _ _ _ _ _ _ _ _ _ _ _ Registered Hazardous Waste Transporter Database
MINES_ _ _ _ _ _ _ _ _ _ _ Mines Site Location Listing
MWMP_ _ _ _ _ _ _ _ _ _ _ Medical Waste Management Program Listing
NPDES_ _ _ _ _ _ _ _ _ _ NPDES Permits Listing
PEST LIC_ _ _ _ _ _ _ _ _ Pesticide Regulation Licenses Listing
PROC_ _ _ _ _ _ _ _ _ _ _ Certified Processors Database
Notify 65_ _ _ _ _ _ _ _ _ _ Proposition 65 Records
UIC_ _ _ _ _ _ _ _ _ _ _ _ UIC Listing
WASTEWATER PITS_ _ _ _ Oil Wastewater Pits Listing
WDS_ _ _ _ _ _ _ _ _ _ _ _ Waste Discharge System
WIP_ _ _ _ _ _ _ _ _ _ _ _ Well Investigation Program Case List

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP_ _ _ _ _ _ _ _ _ EDR Proprietary Manufactured Gas Plants
EDR Hist Auto_ _ _ _ _ _ _ EDR Exclusive Historical Auto Stations
EDR Hist Cleaner_ _ _ _ _ _ EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF_ _ _ _ _ _ _ _ _ _ _ Recovered Government Archive Solid Waste Facilities List
RGA LUST_ _ _ _ _ _ _ _ _ _ Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent NPL

RESPONSE: Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

A review of the RESPONSE list, as provided by EDR, has revealed that there is 1 RESPONSE site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARCH AFB - POORMAN	***2 MILES EAST OF MARC***	***S 1/8 - 1/4 (0.225 mi.)***	***A4***	***12***
Database: RESPONSE, Date of Government Version: 10/30/2017				
Status: No Further Action				
Facility Id: 80001100				

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 10/30/2017 has revealed that there are 3 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
LASSELLE ELEMENTARY	***CAHUILLA STREET/KRAM***	***NE 0 - 1/8 (0.074 mi.)***	***1***	***8***
Facility Id: 33010087				
Status: No Action Required				
MARCH AFB - POORMAN	***2 MILES EAST OF MARC***	***S 1/8 - 1/4 (0.225 mi.)***	***A4***	***12***
Facility Id: 80001100				
Status: No Further Action				

Lower Elevation	Address	Direction / Distance	Map ID	Page
RED MAPLE SCHOOL SIT	***RED MAPLE LANE/EBONY***	***W 1/2 - 1 (0.837 mi.)***	***7***	***17***
Facility Id: 33010052				
Status: No Action Required				

EXECUTIVE SUMMARY

State and tribal registered storage tank lists

AST: A listing of aboveground storage tank petroleum storage tank locations.

A review of the AST list, as provided by EDR, and dated 07/06/2016 has revealed that there is 1 AST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
CDF-MORENO VALLEY FI	16110 LASSELLE ST	N 1/8 - 1/4 (0.205 mi.)	2	10

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY: A listing of recycling facilities in California.

A review of the SWRCY list, as provided by EDR, and dated 12/11/2017 has revealed that there is 1 SWRCY site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
REPLANET LLC Cert Id: RC177902.001	***25900 IRIS AVE***	***NNW 1/4 - 1/2 (0.451 mi.)***	***5***	***15***

Local Lists of Hazardous waste / Contaminated Sites

SCH: This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category. depending on the level of threat to public health and safety or the. environment they pose.

A review of the SCH list, as provided by EDR, and dated 10/30/2017 has revealed that there is 1 SCH site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
LASSELLE ELEMENTARY Facility Id: 33010087 Status: No Action Required	***CAHUILLA STREET/KRAM***	***NE 0 - 1/8 (0.074 mi.)***	***1***	***8***

Other Ascertainable Records

FUDS: The Listing includes locations of Formerly Used Defense Sites Properties where the US Army Corps Of Engineers is actively working or will take necessary cleanup actions.

A review of the FUDS list, as provided by EDR, and dated 01/31/2015 has revealed that there is 1 FUDS site within approximately 1 mile of the target property.

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARCH AFB - POORMAN		S 1/8 - 1/4 (0.225 mi.)	A3	11

UXO: A listing of unexploded ordnance site locations

A review of the UXO list, as provided by EDR, and dated 09/30/2016 has revealed that there is 1 UXO site within approximately 1 mile of the target property.

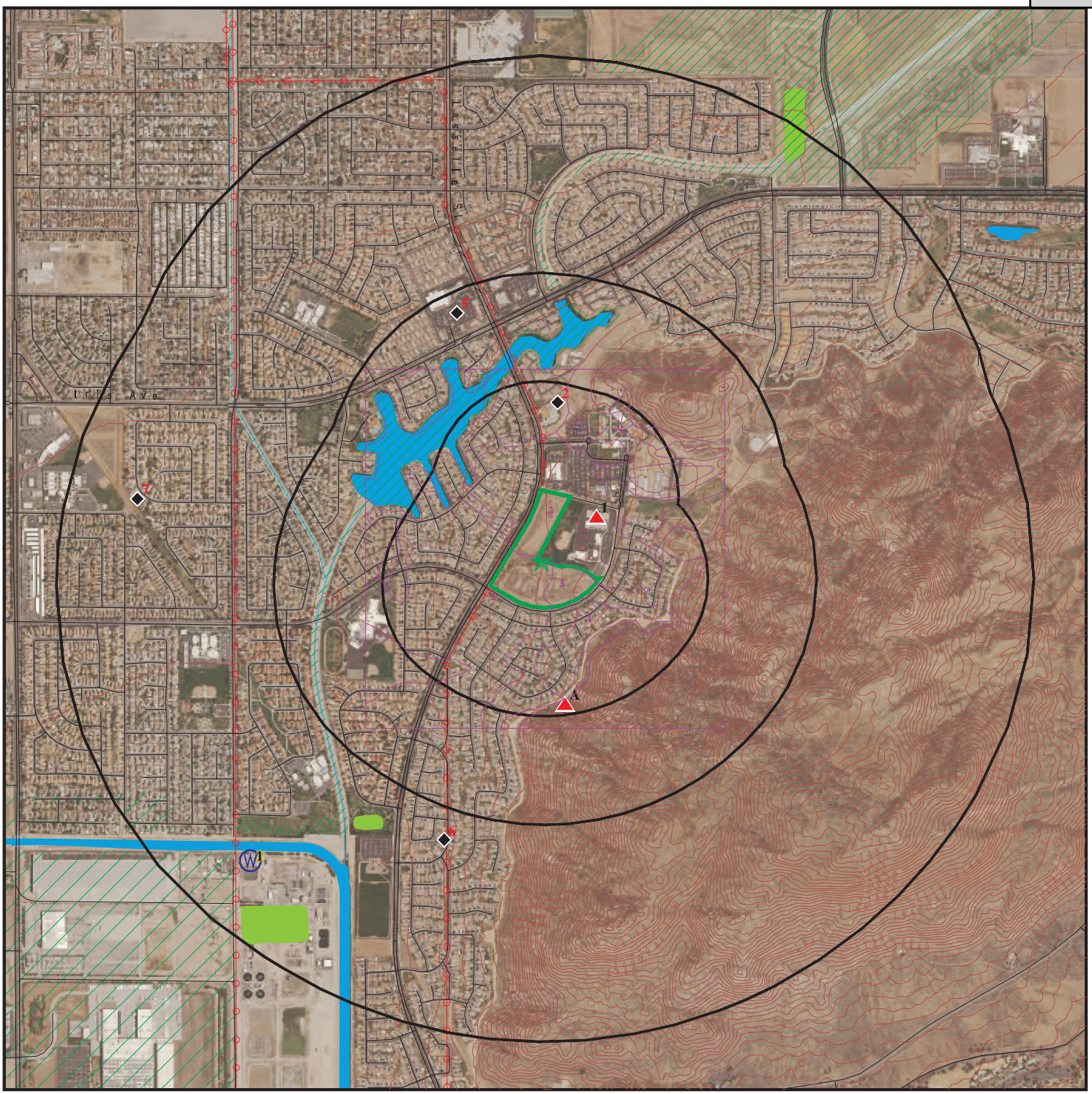
Lower Elevation	Address	Direction / Distance	Map ID	Page
POORMAN GUNNERY RANG		SSW 1/2 - 1 (0.572 mi.)	6	17

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 5219776.2S

F.1.ac



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Upgradient Area

Areas of Concern

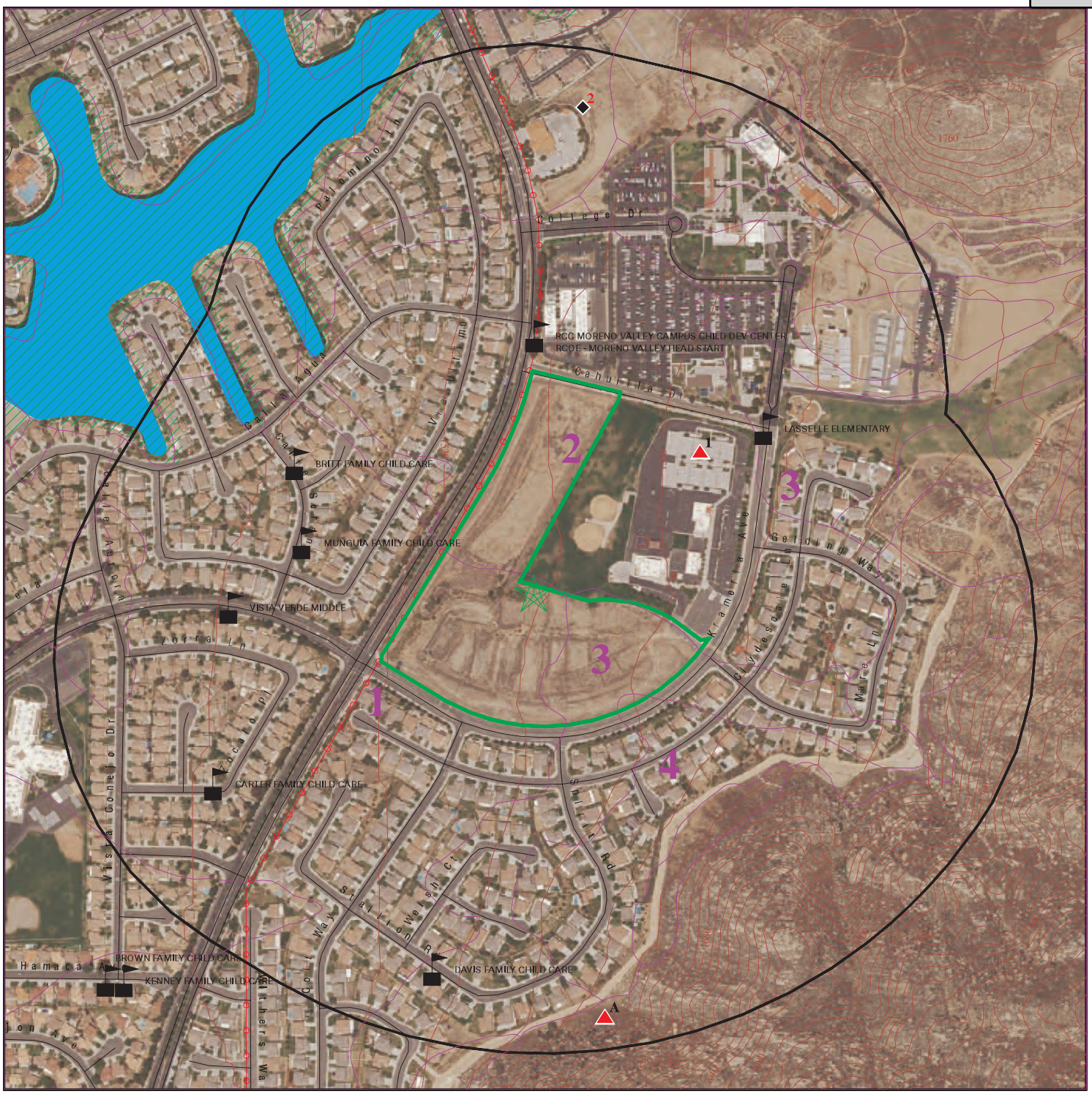
N

This report includes Interactive Map Layers display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Continental Village	CLIENT:	Group Delta Consultants
ADDRESS:	Krameria Ave and Lasselle Street Moreno Valley CA 92555	CONTACT:	Jack Packwood
LAT/LONG:	33.883039 / 117.205112	INQUIRY #:	5219776.2s
		DATE:	March 14, 2018 3:24 pm

DETAIL MAP - 5219776.2S

F.1.ac



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- Power transmission lines
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

This report includes Interactive Map Layers display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Continental Village	CLIENT:	Group Delta Consultants
ADDRESS:	Krameria Ave and Lasselle Street Moreno Valley CA 92555	CONTACT:	Jack Packwood
LAT/LONG:	33.883039 / 117.205112	INQUIRY #:	5219776.2s
		DATE:	March 14, 2018 3:25 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	1	0	0	NR	1
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		1	1	0	1	NR	3
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	1	NR	NR	NR	1
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	1	NR	NR	1
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		1	0	NR	NR	NR	1
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	1	0	0	NR	1
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	0.001		0	NR	NR	NR	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.001		0	NR	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	1	NR	1
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.001		0	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	2	4	1	2	0	9

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
1 **NE** **< 1/8** **0.074 mi.** **389 ft.**	**LASSELLE ELEMENTARY SCHOOL** **CAHUILLA STREET/KRAMERIA AVENUE** **MORENO VALLEY, CA 92555**	**ENVIROSTOR** **SCH**	**S118756718** **N/A**

Relative: Higher

Actual: 1566 ft.

ENVIROSTOR:

Facility ID:	33010087
Status:	No Action Required
Status Date:	10/28/2003
Site Code:	404475
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	12
NPL:	NO
Regulatory Agencies:	DTSC
Lead Agency:	DTSC
Program Manager:	Not reported
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	61
Senate:	31
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.88460
Longitude:	-117.2029
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	NONE SPECIFIED No Contaminants found
Confirmed COC:	NONE SPECIFIED
Potential Description:	NMA
Alias Name:	LASSELLE ELEMENTARY SCHOOL
Alias Type:	Alternate Name
Alias Name:	VAL VERDE UNIFIED SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	VAL VERDE USD-LASSELLE ELEMENTARY SCHOOL
Alias Type:	Alternate Name
Alias Name:	404475
Alias Type:	Project Code (Site Code)
Alias Name:	33010087
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	10/28/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	10/28/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Inspections/Visit (Non LUR)

LASSELLE ELEMENTARY SCHOOL (Continued) **S118756718**

Completed Date:	09/04/2003
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

SCH:

Facility ID:	33010087
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	12
National Priorities List:	NO
Cleanup Oversight Agencies:	DTSC
Lead Agency:	DTSC
Lead Agency Description:	* DTSC
Project Manager:	Not reported
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404475
Assembly:	61
Senate:	31
Special Program Status:	Not reported
Status:	No Action Required
Status Date:	10/28/2003
Restricted Use:	NO
Funding:	School District
Latitude:	33.88460
Longitude:	-117.2029
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	NONE SPECIFIED, No Contaminants found
Confirmed COC:	NONE SPECIFIED
Potential Description:	NMA
Alias Name:	LASSELLE ELEMENTARY SCHOOL
Alias Type:	Alternate Name
Alias Name:	VAL VERDE UNIFIED SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	VAL VERDE USD-LASSELLE ELEMENTARY SCHOOL
Alias Type:	Alternate Name
Alias Name:	404475
Alias Type:	Project Code (Site Code)
Alias Name:	33010087
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1

LASSELLE ELEMENTARY SCHOOL (Continued) **S118756718**

Completed Date:	10/28/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	10/28/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Inspections/Visit (Non LUR)
Completed Date:	09/04/2003
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

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2 **CDF-MORENO VALLEY FIRE STATION #91** **AST** **A100418574**
North **16110 LASSELLE ST** **N/A**
1/8-1/4 **MORENO VALLEY, CA 92555**
0.205 mi.
1083 ft.

Relative: **Lower**

Actual: **1529 ft.**

AST:

Certified Unified Program Agencies:	Not reported
Owner:	County of Riverside/CDF
Total Gallons:	Not reported
CERSID:	10323727
Facility ID:	Not reported
Business Name:	CDF-Moreno Valley Fire Station #91
Phone:	9519242714
Fax:	Not reported
Mailing Address:	210 W San Jacinto
Mailing Address City:	Perris
Mailing Address State:	CA
Mailing Address Zip Code:	92570
Operator Name:	County of Riverside/CDF
Operator Phone:	9519242714
Owner Phone:	9519242714
Owner Mail Address:	210 W San Jacinto
Owner State:	CA
Owner Zip Code:	92570
Owner Country:	United States
Property Owner Name:	Not reported
Property Owner Phone:	Not reported
Property Owner Mailing Address:	Not reported
Property Owner City:	Not reported
Property Owner Stat :	Not reported
Property Owner Zip Code:	Not reported
Property Owner Country:	Not reported

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

CDF-MORENO VALLEY FIRE STATION #91 (Continued) **A100418574**

EPAID: Not reported

A3 **MARCH AFB - POORMAN GUNNERY RANGE** **FUDS** **1009484262**
South **N/A**
1/8-1/4 **MORENO VALLEY, CA**
0.225 mi.
1186 ft. **Site 1 of 2 in cluster A**

Relative:
Higher

Actual:
1597 ft.

FUDS:

EPA Region:	09
Congressional District:	41
FUDS Number:	J09CA7400
State:	CA
Facility Name:	MARCH AFB - POORMAN GUNNERY RANGE
Fiscal Year:	2013
City:	MORENO VALLEY
Federal Facility ID:	CA9799FA427
Telephone:	213-452-3920
INST ID:	63136
County:	RIVERSIDE
RAB:	Not reported
CORPS_DIST:	Los Angeles District (SPL)
NPL Status:	Not reported
CTC:	59.799999999999997
Current Owner:	Not reported
Future Prog:	Not reported
Description:	he U.S. Army Air Corps acquired 162.84 acres by lease from a private party on 8 May 1944. A total of 3.04 acres were acquired by license from three private individuals between October 1944 and January 1945. Total acquisition was 165.88 acres.The site is located in Moreno Valley in Riverside County, California, approximately 1 mile northwest of Lake Perris. The property is largely undeveloped, but a small portion has been incorporated into a local park and housing development.
Current Program:	Not reported
History:	Based on documentation, the range was used as a range and included a platform for the following types of practice: A-GC gun mount, Sperry ball turret, Emerson nose turret, machine gun, and Martin upper with steel sighting support. he lease for the 162.84 acres was terminated on 1 December 1946. The three licenses were terminated on 7 September 1946 and 7 October 1946. Currently, the property is largely undeveloped. A small portion of the former range is now part of a local park and the Del Rey housing development.
Latitude Degree:	33
Latitude Minute:	52
Latitude Second:	26
Latitude Direction:	N
Longitude Degree:	-117
Longitude Minute:	13
Longitude Second:	32
Longitude Direction:	E

FUDS:

Inst ID:	63136
FUDS Number:	J09CA7400
Facility Name:	MARCH AFB - POORMAN GUNNERY RANGE
PHASE:	4
ARC:	Y

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

MARCH AFB - POORMAN GUNNERY RANGE (Continued) **1009484262**

DIST:	SPL
MMRP:	Y
MRA ID:	J09CA740001R01

FUDS:

Inst ID:	63136
FUDS Number:	J09CA7400
Facility Name:	MARCH AFB - POORMAN GUNNERY RANGE
PHASE:	4
Site ID:	01
DIST:	SPL
MMRP:	Y
MRA ID:	J09CA740001R01
PROJ NO:	J09CA740001

A4 **MARCH AFB - POORMAN GUNNERY RANGE** **RESPONSE** **S110711878**
South **2 MILES EAST OF MARCH AIR RESERVE BASE NEAR LAKE PERRIS, IN** **ENVIROSTOR** **N/A**
1/8-1/4 **MORENO VALLEY, CA 92555**
0.225 mi.
1189 ft. **Site 2 of 2 in cluster A**

Relative: **Higher**

Actual: **1598 ft.**

RESPONSE:

Facility ID:	80001100
Site Type:	State Response
Site Type Detail:	FUDS
Acres:	640
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Daniel Cordero
Supervisor:	Manny Alonzo
Division Branch:	Cleanup Cypress
Site Code:	Not reported
Site Mgmt. Req.:	NONE SPECIFIED
Assembly:	61
Senate:	31
Special Program Status:	Not reported
Status:	No Further Action
Status Date:	03/05/2012
Restricted Use:	NO
Funding:	DERA
Latitude:	33.87833
Longitude:	-117.2041
APN:	NONE SPECIFIED
Past Use:	FIRING RANGE - SMALL ARMS ETC...
Potential COC :	Explosives (UXO, MEC Lead Copper and compounds
Confirmed COC:	30013-NO 30011-NO 30156-NO
Potential Description:	SOIL
Alias Name:	March AFB - Poorman Gunnery Range
Alias Type:	Alternate Name
Alias Name:	CA99799FA42700
Alias Type:	Federal Facility ID
Alias Name:	J09CA7400
Alias Type:	INPR
Alias Name:	80001100
Alias Type:	Envirostor ID Number

MARCH AFB - POORMAN GUNNERY RANGE (Continued) **S110711878**

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Inventory Project Report (INPR)
Completed Date:	01/20/2000
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Other Report
Completed Date:	06/22/2010
Comments:	Approval letter sent, awaiting final document.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Workplan
Completed Date:	07/06/2010
Comments:	DTSC concurred with document as submitted.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Assessment/Site Inspection Report (PA/SI)
Completed Date:	03/05/2012
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

ENVIROSTOR:

Facility ID:	80001100
Status:	No Further Action
Status Date:	03/05/2012
Site Code:	Not reported
Site Type:	State Response
Site Type Detailed:	FUDS
Acres:	640
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Daniel Cordero
Supervisor:	Manny Alonzo
Division Branch:	Cleanup Cypress
Assembly:	61
Senate:	31
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	DERA
Latitude:	33.87833

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

MARCH AFB - POORMAN GUNNERY RANGE (Continued) **S110711878**

Longitude: -117.2041
APN: NONE SPECIFIED
Past Use: FIRING RANGE - SMALL ARMS ETC...
Potential COC: Explosives (UXO, MEC Lead Copper and compounds
Confirmed COC: 30013-NO 30011-NO 30156-NO
Potential Description: SOIL
Alias Name: March AFB - Poorman Gunnery Range
Alias Type: Alternate Name
Alias Name: CA99799FA42700
Alias Type: Federal Facility ID
Alias Name: J09CA7400
Alias Type: INPR
Alias Name: 80001100
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Inventory Project Report (INPR)
Completed Date: 01/20/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 06/22/2010
Comments: Approval letter sent, awaiting final document.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Workplan
Completed Date: 07/06/2010
Comments: DTSC concurred with document as submitted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Assessment/Site Inspection Report (PA/SI)
Completed Date: 03/05/2012
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
5 **NNW** **1/4-1/2** **0.451 mi.** **2380 ft.**	**REPLANET LLC** **25900 IRIS AVE** **MORENO VALLEY, CA 92551**	**SWRCY** **HAZNET**	**S107136967** **N/A**

Relative: **Lower**

Actual: **1492 ft.**

SWRCY:

Reg Id:	177902
Cert Id:	RC177902.001
Mailing Address:	800 N Haven Ave Suite 120
Mailing City:	Ontario
Mailing State:	CA
Mailing Zip Code:	91764
Website:	http://www.replanet.com
Email:	jennifer.june@replanet.com
Phone Number:	(877) 737-5263
Grand Father:	N
Rural:	N
Operation Begin Date:	01/31/2013
Aluminium:	Y
Glass:	Y
Plastic:	Y
Bimetal:	Y
Agency:	N/A
Monday Hours Of Operation:	9:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Tuesday Hours Of Operation:	9:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Wednesday Hours Of Operation:	9:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Thursday Hours Of Operation:	9:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Friday Hours Of Operation:	9:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Saturday Hours Of Operation:	9:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Sunday Hours Of Operation:	9:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Organization ID:	151891
Organization Name:	rePlanet LLC

HAZNET:

envid:	S107136967
Year:	2015
GEPAID:	CAL000334463
Contact:	CHERYL SKALICKY
Telephone:	9097335288
Mailing Name:	Not reported
Mailing Address:	PO BOX 150
Mailing City,St,Zip:	SAN BERNARDINO, CA 924020000
Gen County:	Riverside
TSD EPA ID:	CAD028409019
TSD County:	Los Angeles
Waste Category:	Pharmaceutical waste
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.0025
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Riverside

envid:	S107136967
Year:	2014
GEPAID:	CAL000334463
Contact:	CHERYL SKALICKY
Telephone:	9097335288

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number / EPA ID Number

REPLANET LLC (Continued) **S107136967**

Mailing Name:	Not reported
Mailing Address:	PO BOX 150
Mailing City,St,Zip:	SAN BERNARDINO, CA 924020000
Gen County:	Riverside
TSD EPA ID:	CAD028409019
TSD County:	Los Angeles
Waste Category:	Pharmaceutical waste
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.005
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Riverside
envid:	S107136967
Year:	2013
GEPAID:	CAL000334463
Contact:	CHERYL SKALICKY
Telephone:	9097335288
Mailing Name:	Not reported
Mailing Address:	PO BOX 150
Mailing City,St,Zip:	SAN BERNARDINO, CA 924020000
Gen County:	Riverside
TSD EPA ID:	CAD028409019
TSD County:	Los Angeles
Waste Category:	Not reported
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.004
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Not reported
envid:	S107136967
Year:	2013
GEPAID:	CAL000334463
Contact:	CHERYL SKALICKY
Telephone:	9097335288
Mailing Name:	Not reported
Mailing Address:	PO BOX 150
Mailing City,St,Zip:	SAN BERNARDINO, CA 924020000
Gen County:	Riverside
TSD EPA ID:	CAD059494310
TSD County:	Santa Clara
Waste Category:	Not reported
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.0034
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Not reported

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
6 **SSW** **1/2-1** **0.572 mi.** **3020 ft.**	**POORMAN GUNNERY RANGE** **MORENO VALLEY, CA**	**UXO**	**1018150515** **N/A**

Relative: Lower

Actual: 1496 ft.

UXO:

DoD Component:	FUDS
Installation Name:	MARCH AFB - POORMAN GUNNERY RANGE
Facility Address 2:	Not reported
Site ID:	01OEW
Site Type:	Small Arms Range
Latitude:	33.873798
Longitude:	-117.209000

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7 **West** **1/2-1** **0.837 mi.** **4422 ft.**	**RED MAPLE SCHOOL SITE** **RED MAPLE LANE/EBONY AVENUE** **MORENO VALLEY, CA 92551**	**ENVIROSTOR** **SCH**	**S118756706** **N/A**

Relative: Lower

Actual: 1493 ft.

ENVIROSTOR:

Facility ID:	33010052
Status:	No Action Required
Status Date:	11/29/2001
Site Code:	404298
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	13.76
NPL:	NO
Regulatory Agencies:	DTSC
Lead Agency:	DTSC
Program Manager:	Not reported
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	61
Senate:	31
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.88519
Longitude:	-117.2213
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	NONE SPECIFIED No Contaminants found
Confirmed COC:	NONE SPECIFIED
Potential Description:	NMA
Alias Name:	RED MAPLE SCHOOL SITE (PROPOSED)
Alias Type:	Alternate Name
Alias Name:	VAL VERDE UNIFIED SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	VAL VERDE USD-RED MAPLE ELEM
Alias Type:	Alternate Name
Alias Name:	VAL VERDE USD-RED MAPLE PROPERTY
Alias Type:	Alternate Name
Alias Name:	404295
Alias Type:	Project Code (Site Code)
Alias Name:	404298
Alias Type:	Project Code (Site Code)

RED MAPLE SCHOOL SITE (Continued) **S118756706**

Alias Name: 33010052
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 11/29/2001
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 11/08/2001
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 11/03/2005
Comments: Two CRU Memos completed for Site Codes 404295 & 404298.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Facility ID: 33010052
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 13.76
National Priorities List: NO
Cleanup Oversight Agencies: DTSC
Lead Agency: DTSC
Lead Agency Description: * DTSC
Project Manager: Not reported
Supervisor: Shahir Haddad
Division Branch: Southern California Schools & Brownfields Outreach
Site Code: 404298
Assembly: 61
Senate: 31
Special Program Status: Not reported
Status: No Action Required
Status Date: 11/29/2001
Restricted Use: NO
Funding: School District
Latitude: 33.88519
Longitude: -117.2213
APN: NONE SPECIFIED

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

RED MAPLE SCHOOL SITE (Continued) **S118756706**

Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	NONE SPECIFIED, No Contaminants found
Confirmed COC:	NONE SPECIFIED
Potential Description:	NMA
Alias Name:	RED MAPLE SCHOOL SITE (PROPOSED)
Alias Type:	Alternate Name
Alias Name:	VAL VERDE UNIFIED SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	VAL VERDE USD-RED MAPLE ELEM
Alias Type:	Alternate Name
Alias Name:	VAL VERDE USD-RED MAPLE PROPERTY
Alias Type:	Alternate Name
Alias Name:	404295
Alias Type:	Project Code (Site Code)
Alias Name:	404298
Alias Type:	Project Code (Site Code)
Alias Name:	33010052
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	11/29/2001
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Inspections/Visit (Non LUR)
Completed Date:	11/08/2001
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	11/03/2005
Comments:	Two CRU Memos completed for Site Codes 404295 & 404298.
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/22/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 02/06/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/22/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 02/06/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/22/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 02/06/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 01/05/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/22/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 21

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 02/06/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/22/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 21

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 02/06/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/26/2017
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 45

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/26/2017
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/26/2017
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/26/2017
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/26/2017
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/22/2017
Date Data Arrived at EDR: 06/13/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 94

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/09/2018
Next Scheduled EDR Contact: 05/28/2018
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 11/13/2017
Date Data Arrived at EDR: 11/27/2017
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 74

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/27/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 11/13/2017
Date Data Arrived at EDR: 11/27/2017
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 74

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/27/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/18/2017
Date Data Arrived at EDR: 09/21/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 22

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 10/30/2017
Date Data Arrived at EDR: 10/31/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 45

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 10/30/2017
Date Data Arrived at EDR: 10/31/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 45

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/13/2017
Date Data Arrived at EDR: 11/14/2017
Date Made Active in Reports: 12/07/2017
Number of Days to Update: 23

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 02/14/2018
Next Scheduled EDR Contact: 05/28/2018
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/12/2017
Date Made Active in Reports: 01/11/2018
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Quarterly

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/14/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/14/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 05/01/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/13/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/25/2017
Date Data Arrived at EDR: 11/07/2017
Date Made Active in Reports: 12/08/2017
Number of Days to Update: 31

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/26/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 10/14/2016
Date Data Arrived at EDR: 01/27/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 98

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Semi-Annually

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/24/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/12/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 31

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/09/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/12/2017
Date Made Active in Reports: 01/17/2018
Number of Days to Update: 36

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 12/12/2017
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 12/26/2017
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/14/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/24/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 12/08/2017
Number of Days to Update: 134

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 05/02/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 10/14/2016
Date Data Arrived at EDR: 01/27/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 98

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/26/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/13/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/25/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 05/01/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/20/2017
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 10/30/2017
Date Data Arrived at EDR: 10/31/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 45

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Quarterly

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 12/22/2017
Date Data Arrived at EDR: 12/26/2017
Date Made Active in Reports: 01/31/2018
Number of Days to Update: 36

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 12/26/2017
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 01/19/2018
Date Data Arrived at EDR: 01/19/2018
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 01/31/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/12/2017
Date Made Active in Reports: 01/17/2018
Number of Days to Update: 36

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/12/2017
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 05/30/2017
Date Data Arrived at EDR: 05/31/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 76

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 02/09/2018
Next Scheduled EDR Contact: 02/26/2018
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 01/30/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 02/02/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 01/19/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 16

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/27/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 10/30/2017
Date Data Arrived at EDR: 10/31/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 45

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2017
Date Data Arrived at EDR: 08/18/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 34

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 02/22/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 01/09/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 16

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/27/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 11/27/2017
Date Data Arrived at EDR: 11/29/2017
Date Made Active in Reports: 12/18/2017
Number of Days to Update: 19

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 02/22/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database
The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 11/30/2017
Date Data Arrived at EDR: 12/01/2017
Date Made Active in Reports: 01/11/2018
Number of Days to Update: 41

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/22/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 02/06/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 02/08/2018
Date Data Arrived at EDR: 02/08/2018
Date Made Active in Reports: 02/08/2018
Number of Days to Update: 0

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 03/06/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/21/2017
Date Data Arrived at EDR: 09/21/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 22

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 05/09/2017
Date Data Arrived at EDR: 07/26/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 57

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 02/20/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/12/2017
Date Made Active in Reports: 01/11/2018
Number of Days to Update: 30

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/12/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 31

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/26/2017
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 02/21/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/13/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/11/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/16/2018
Next Scheduled EDR Contact: 05/28/2018
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 01/11/2018
Date Data Arrived at EDR: 01/19/2018
Date Made Active in Reports: 03/02/2018
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 01/31/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/08/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/22/2017
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 01/10/2018
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 2

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/23/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/25/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/22/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 21

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/09/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/17/2017
Date Made Active in Reports: 12/08/2017
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 02/06/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/01/2017
Date Data Arrived at EDR: 06/09/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 126

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/12/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 01/09/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 03/09/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/06/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017
Date Data Arrived at EDR: 11/30/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/26/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 10/02/2017
Date Data Arrived at EDR: 10/05/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 11/10/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 63

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/23/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/09/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 12/23/2016
Date Data Arrived at EDR: 12/27/2016
Date Made Active in Reports: 02/17/2017
Number of Days to Update: 52

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/23/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 01/09/2018
Date Data Arrived at EDR: 02/06/2018
Date Made Active in Reports: 03/02/2018
Number of Days to Update: 24

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 02/06/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 10/29/2017
Date Data Arrived at EDR: 11/28/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 45

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing
This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/02/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/02/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 09/25/2017
Date Data Arrived at EDR: 09/26/2017
Date Made Active in Reports: 10/20/2017
Number of Days to Update: 24

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 03/07/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/23/2017
Date Data Arrived at EDR: 09/06/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 9

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 02/23/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 01/13/2018
Date Data Arrived at EDR: 01/19/2018
Date Made Active in Reports: 03/02/2018
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 03/07/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 10/31/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 73

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 01/02/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DOCKET HWC: Hazardous Waste Compliance Docket Listing
A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 06/27/2017
Date Data Arrived at EDR: 11/21/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 52
Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 03/02/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 11/20/2017
Date Data Arrived at EDR: 11/20/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 53
Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 02/21/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6
Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 02/08/2018
Date Data Arrived at EDR: 02/08/2018
Date Made Active in Reports: 02/08/2018
Number of Days to Update: 0
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 02/08/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/02/2017
Date Data Arrived at EDR: 08/08/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 69
Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Annually

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 03/21/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 147
Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/22/2017
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 11/01/2017
Date Data Arrived at EDR: 11/03/2017
Date Made Active in Reports: 12/07/2017
Number of Days to Update: 34

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 10/23/2017
Date Data Arrived at EDR: 10/24/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 52

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/14/2017
Date Data Arrived at EDR: 11/17/2017
Date Made Active in Reports: 12/18/2017
Number of Days to Update: 31

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/08/2018
Next Scheduled EDR Contact: 05/28/2018
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 07/12/2017
Date Made Active in Reports: 10/17/2017
Number of Days to Update: 97

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/08/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 11/20/2017
Date Data Arrived at EDR: 11/20/2017
Date Made Active in Reports: 12/27/2017
Number of Days to Update: 37

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 02/21/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/20/2017
Date Data Arrived at EDR: 11/20/2017
Date Made Active in Reports: 12/27/2017
Number of Days to Update: 37
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/21/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/08/2018
Date Data Arrived at EDR: 01/09/2018
Date Made Active in Reports: 02/06/2018
Number of Days to Update: 28
Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/09/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/12/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 31
Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 12/12/2017
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 11/29/2017
Date Data Arrived at EDR: 12/05/2017
Date Made Active in Reports: 01/16/2018
Number of Days to Update: 42
Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 03/06/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 11/13/2017
Date Data Arrived at EDR: 11/14/2017
Date Made Active in Reports: 12/07/2017
Number of Days to Update: 23
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 02/14/2018
Next Scheduled EDR Contact: 05/28/2018
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 12/04/2017
Date Data Arrived at EDR: 12/05/2017
Date Made Active in Reports: 01/16/2018
Number of Days to Update: 42
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 03/05/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/12/2017
Date Made Active in Reports: 01/16/2018
Number of Days to Update: 35

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/12/2017
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 12/14/2017
Date Data Arrived at EDR: 12/15/2017
Date Made Active in Reports: 01/16/2018
Number of Days to Update: 32

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 12/13/2017
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/12/2017
Date Made Active in Reports: 01/17/2018
Number of Days to Update: 36

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 12/12/2017
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water board?s review found that more than one-third of the region?s active disposal pits are operating without permission.

Date of Government Version: 04/15/2015
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/23/2015
Number of Days to Update: 67

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 01/12/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 02/15/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Quarterly

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/19/2017
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2018
Date Data Arrived at EDR: 01/11/2018
Date Made Active in Reports: 02/22/2018
Number of Days to Update: 42

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 10/11/2017
Date Data Arrived at EDR: 10/12/2017
Date Made Active in Reports: 11/08/2017
Number of Days to Update: 27

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 12/08/2017
Date Data Arrived at EDR: 12/12/2017
Date Made Active in Reports: 12/27/2017
Number of Days to Update: 15

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 08/31/2017
Date Data Arrived at EDR: 09/05/2017
Date Made Active in Reports: 11/08/2017
Number of Days to Update: 64

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/20/2017
Next Scheduled EDR Contact: 10/09/2017
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 08/07/2017
Date Data Arrived at EDR: 08/08/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 69

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 02/14/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 11/20/2017
Date Data Arrived at EDR: 11/29/2017
Date Made Active in Reports: 01/19/2018
Number of Days to Update: 51

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 01/29/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 10/31/2017
Date Data Arrived at EDR: 11/01/2017
Date Made Active in Reports: 11/14/2017
Number of Days to Update: 13

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 01/29/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 12/04/2017
Date Data Arrived at EDR: 12/06/2017
Date Made Active in Reports: 12/27/2017
Number of Days to Update: 21

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 01/29/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 10/03/2017
Date Data Arrived at EDR: 10/06/2017
Date Made Active in Reports: 11/15/2017
Number of Days to Update: 40

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 02/22/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 10/25/2017
Date Data Arrived at EDR: 10/27/2017
Date Made Active in Reports: 11/15/2017
Number of Days to Update: 19

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 08/03/2017
Date Data Arrived at EDR: 08/08/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 69

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 02/05/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 10/23/2017
Date Data Arrived at EDR: 10/24/2017
Date Made Active in Reports: 11/15/2017
Number of Days to Update: 22

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INYO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List
Cupa facility list.

Date of Government Version: 06/08/2017
Date Data Arrived at EDR: 06/09/2017
Date Made Active in Reports: 08/04/2017
Number of Days to Update: 56

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 02/14/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/07/2017
Date Made Active in Reports: 12/20/2017
Number of Days to Update: 43

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 02/01/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 11/14/2017
Date Data Arrived at EDR: 11/17/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 28

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 11/09/2017
Date Data Arrived at EDR: 11/10/2017
Date Made Active in Reports: 11/15/2017
Number of Days to Update: 5

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 01/16/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 07/24/2017
Date Data Arrived at EDR: 07/26/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 82

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

LOS ANGELES COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 12/13/2017
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 10/11/2017
Date Data Arrived at EDR: 10/12/2017
Date Made Active in Reports: 10/17/2017
Number of Days to Update: 5

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/16/2018
Date Data Arrived at EDR: 01/16/2018
Date Made Active in Reports: 02/14/2018
Number of Days to Update: 29

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/16/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 04/21/2017
Date Made Active in Reports: 10/09/2017
Number of Days to Update: 171

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/10/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/01/2018
Date Data Arrived at EDR: 01/17/2018
Date Made Active in Reports: 02/14/2018
Number of Days to Update: 28

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 01/17/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 01/10/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/09/2017
Date Data Arrived at EDR: 03/10/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 54

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/04/2018
Date Data Arrived at EDR: 01/05/2018
Date Made Active in Reports: 01/18/2018
Number of Days to Update: 13

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 10/26/2017
Date Data Arrived at EDR: 10/27/2017
Date Made Active in Reports: 11/06/2017
Number of Days to Update: 10

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 02/14/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 01/02/2018
Date Data Arrived at EDR: 01/05/2018
Date Made Active in Reports: 01/17/2018
Number of Days to Update: 12

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 01/02/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 01/11/2018
Date Data Arrived at EDR: 01/12/2018
Date Made Active in Reports: 02/08/2018
Number of Days to Update: 27

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 02/14/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 11/21/2017
Date Data Arrived at EDR: 11/27/2017
Date Made Active in Reports: 12/27/2017
Number of Days to Update: 30

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 02/22/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Varies

MONTEREY COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 01/09/2018
Date Data Arrived at EDR: 01/11/2018
Date Made Active in Reports: 01/31/2018
Number of Days to Update: 20

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 02/20/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/22/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 11/22/2017
Date Data Arrived at EDR: 11/27/2017
Date Made Active in Reports: 12/19/2017
Number of Days to Update: 22

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/22/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/07/2017
Date Made Active in Reports: 11/15/2017
Number of Days to Update: 8

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 01/29/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/09/2017
Date Made Active in Reports: 12/07/2017
Number of Days to Update: 28

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/05/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/09/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 36

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/05/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/07/2017
Date Made Active in Reports: 12/19/2017
Number of Days to Update: 42

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/07/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 12/08/2017
Date Data Arrived at EDR: 12/12/2017
Date Made Active in Reports: 01/31/2018
Number of Days to Update: 50

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 03/06/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 10/23/2017
Date Data Arrived at EDR: 11/03/2017
Date Made Active in Reports: 11/15/2017
Number of Days to Update: 12

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 10/11/2017
Date Data Arrived at EDR: 10/12/2017
Date Made Active in Reports: 11/09/2017
Number of Days to Update: 28

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/15/2017
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 10/12/2017
Date Data Arrived at EDR: 10/12/2017
Date Made Active in Reports: 11/08/2017
Number of Days to Update: 27

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/15/2017
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 01/03/2018
Date Made Active in Reports: 02/05/2018
Number of Days to Update: 33

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/03/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 01/03/2018
Date Made Active in Reports: 02/14/2018
Number of Days to Update: 42

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/03/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 11/01/2017
Date Data Arrived at EDR: 11/03/2017
Date Made Active in Reports: 11/17/2017
Number of Days to Update: 14

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 02/15/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 11/30/2017
Date Data Arrived at EDR: 12/01/2017
Date Made Active in Reports: 01/16/2018
Number of Days to Update: 46

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/05/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 12/04/2017
Date Data Arrived at EDR: 12/05/2017
Date Made Active in Reports: 01/11/2018
Number of Days to Update: 37

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 03/07/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2015
Date Data Arrived at EDR: 11/07/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 58

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 02/01/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 02/01/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/07/2017
Date Made Active in Reports: 12/19/2017
Number of Days to Update: 42

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 12/20/2017
Date Data Arrived at EDR: 12/21/2017
Date Made Active in Reports: 02/01/2018
Number of Days to Update: 42

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 12/13/2017
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 11/16/2017
Date Data Arrived at EDR: 11/17/2017
Date Made Active in Reports: 12/18/2017
Number of Days to Update: 31

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 02/15/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

SAN MATEO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 12/12/2017
Date Data Arrived at EDR: 12/14/2017
Date Made Active in Reports: 01/11/2018
Number of Days to Update: 28
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/07/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 12/12/2017
Date Data Arrived at EDR: 12/14/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 29
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/07/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28
Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 02/15/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 11/14/2017
Date Data Arrived at EDR: 11/16/2017
Date Made Active in Reports: 01/04/2018
Number of Days to Update: 49
Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 02/15/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22
Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13
Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 02/22/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/01/2017
Date Data Arrived at EDR: 11/03/2017
Date Made Active in Reports: 12/07/2017
Number of Days to Update: 34

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 02/01/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 02/15/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 02/15/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 12/14/2017
Date Data Arrived at EDR: 12/15/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 28

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 12/14/2017
Date Data Arrived at EDR: 12/15/2017
Date Made Active in Reports: 01/18/2018
Number of Days to Update: 34

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 12/20/2017
Date Data Arrived at EDR: 12/21/2017
Date Made Active in Reports: 01/31/2018
Number of Days to Update: 41

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 12/19/2017
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 01/04/2018
Date Data Arrived at EDR: 01/09/2018
Date Made Active in Reports: 02/06/2018
Number of Days to Update: 28

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 11/01/2017
Date Data Arrived at EDR: 11/10/2017
Date Made Active in Reports: 11/16/2017
Number of Days to Update: 6

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 01/16/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Varies

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 12/01/2017
Date Data Arrived at EDR: 12/04/2017
Date Made Active in Reports: 12/19/2017
Number of Days to Update: 15

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA Facility List
Cupa facilities

Date of Government Version: 11/16/2017
Date Data Arrived at EDR: 11/17/2017
Date Made Active in Reports: 12/18/2017
Number of Days to Update: 31

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 02/01/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 10/23/2017
Date Data Arrived at EDR: 10/24/2017
Date Made Active in Reports: 11/16/2017
Number of Days to Update: 23

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

TULARE COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List
Cupa program facilities

Date of Government Version: 09/27/2017
Date Data Arrived at EDR: 09/28/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 18

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 03/06/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 10/24/2017
Date Data Arrived at EDR: 10/25/2017
Date Made Active in Reports: 11/16/2017
Number of Days to Update: 22

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 09/26/2017
Date Data Arrived at EDR: 10/25/2017
Date Made Active in Reports: 12/07/2017
Number of Days to Update: 43

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/26/2017
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/08/2018
Next Scheduled EDR Contact: 05/28/2018
Data Release Frequency: Quarterly

Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/26/2017
Date Data Arrived at EDR: 10/25/2017
Date Made Active in Reports: 12/07/2017
Number of Days to Update: 43

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/27/2017
Date Data Arrived at EDR: 12/13/2017
Date Made Active in Reports: 01/19/2018
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/11/2017
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 01/02/2018
Date Data Arrived at EDR: 01/09/2018
Date Made Active in Reports: 01/19/2018
Number of Days to Update: 10

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 01/02/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 11/08/2017
Date Data Arrived at EDR: 11/10/2017
Date Made Active in Reports: 11/16/2017
Number of Days to Update: 6

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 01/29/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 11/11/2017
Date Data Arrived at EDR: 11/14/2017
Date Made Active in Reports: 12/18/2017
Number of Days to Update: 34

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/14/2018
Next Scheduled EDR Contact: 05/28/2018
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 04/11/2017
Date Made Active in Reports: 07/27/2017
Number of Days to Update: 107

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/05/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 01/31/2018
Date Made Active in Reports: 03/09/2018
Number of Days to Update: 37

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 01/31/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 07/25/2017
Date Made Active in Reports: 09/25/2017
Number of Days to Update: 62

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/16/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/19/2015
Date Made Active in Reports: 07/15/2015
Number of Days to Update: 26

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/21/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 04/13/2017
Date Made Active in Reports: 07/14/2017
Number of Days to Update: 92

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/08/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.
Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.
Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.
Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

CONTINENTAL VILLAGE
KRAMERIA AVE AND LASSELLE STREET
MORENO VALLEY, CA 92555

TARGET PROPERTY COORDINATES

Latitude (North):	33.883039 - 33° 52' 58.94''
Longitude (West):	117.205112 - 117° 12' 18.40''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	481032.0
UTM Y (Meters):	3749012.5
Elevation:	1538 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5641326 SUNNYMEAD, CA
Version Date:	2012
South Map:	5641330 PERRIS, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

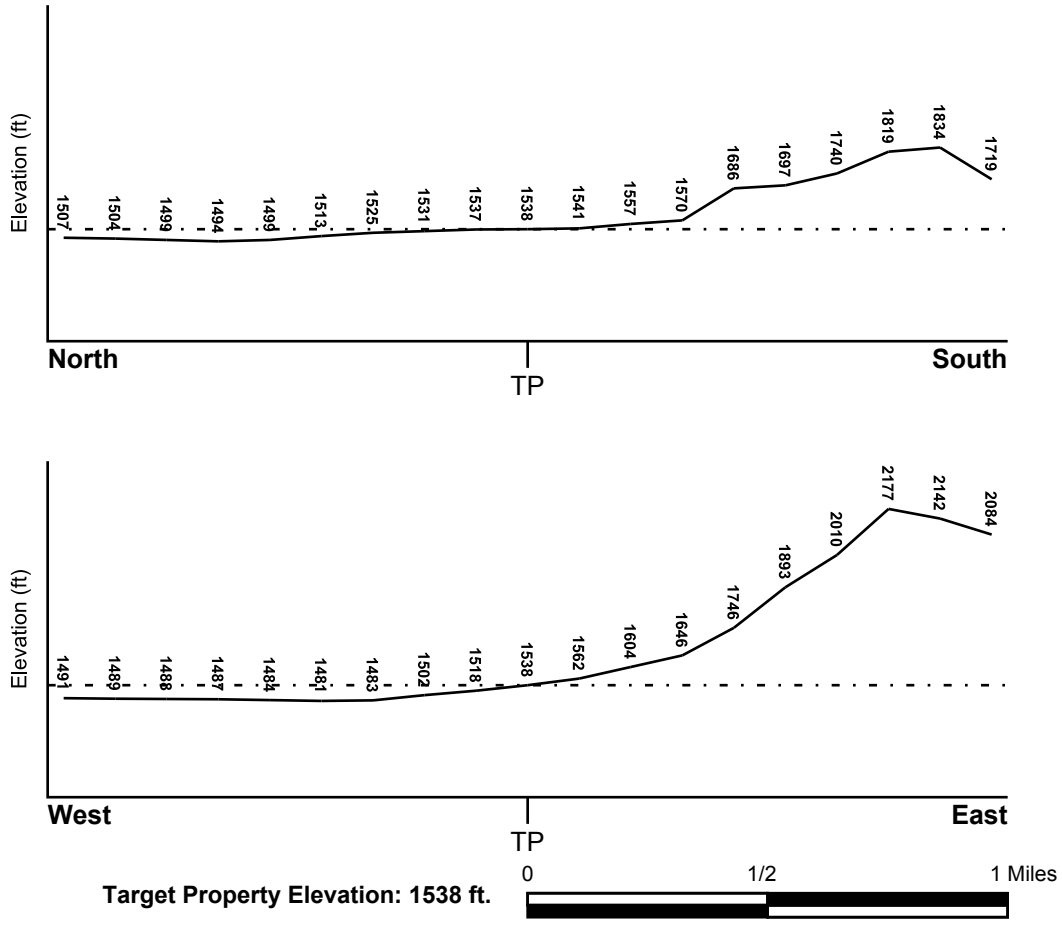
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General WNW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 1538 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06065C0765G	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06065C1430H	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Mesozoic
System:	Cretaceous
Series:	Cretaceous granitic rocks
Code:	Kg *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Plutonic and Intrusive Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 5219776.2s

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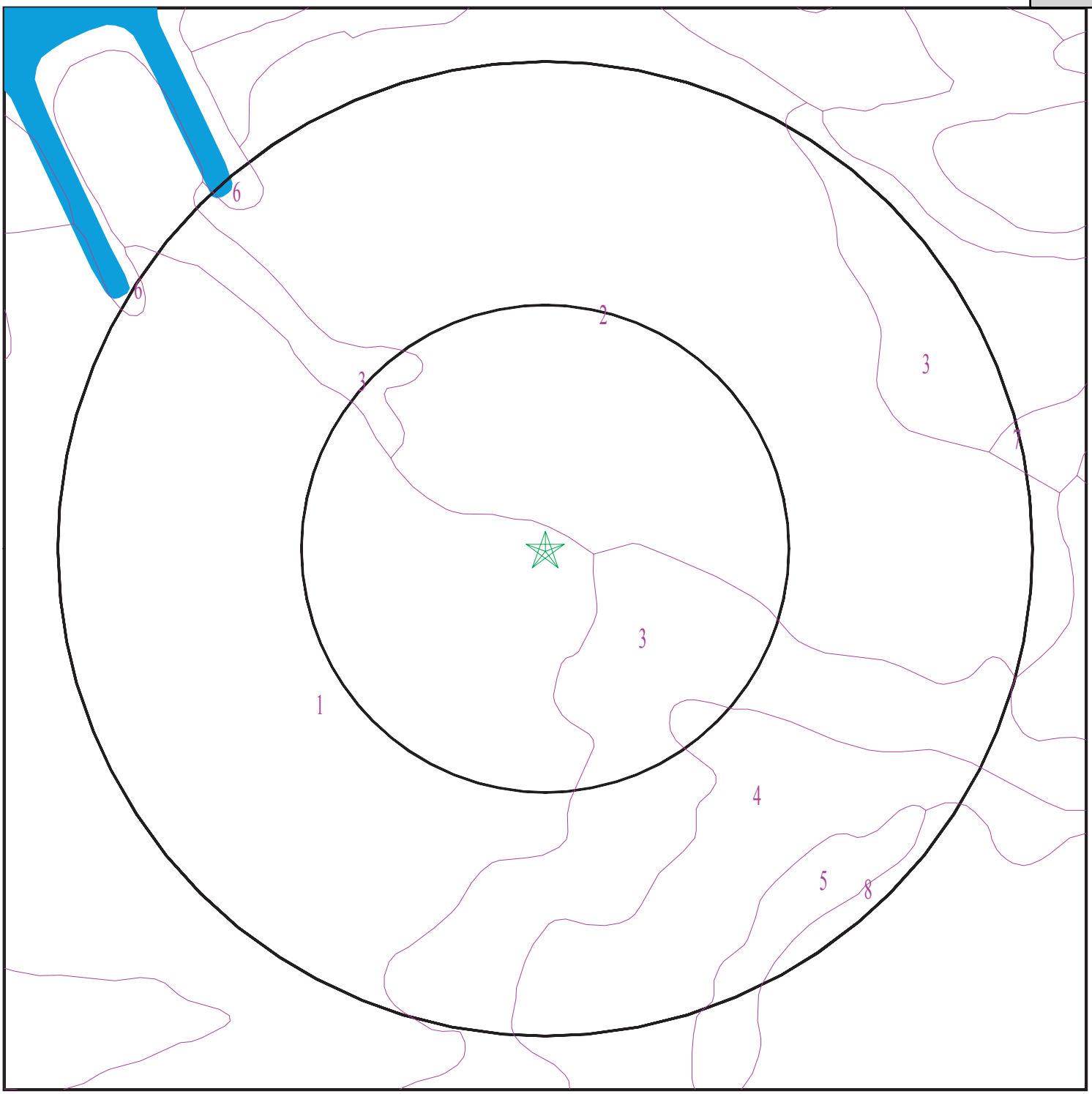

Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

Attachment: Phase I Environmental Site Assessment (March 2018) (3448 : Continental East Phase II Project)

SITE NAME:	Continental Village	CLIENT:	Group Delta Consultants
ADDRESS:	Krameria Ave and Lasselle Street Moreno Valley CA 92555	CONTACT:	Jack Packwood
LAT/LONG:	33.883039 / 117.205112	INQUIRY #:	5219776.2s
		DATE:	March 14, 2018 3:25 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: GREENFIELD

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	25 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1
2	25 inches	42 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1
3	42 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.8 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
4	59 inches	72 inches	stratified loamy sand to sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6

Soil Map ID: 2

Soil Component Name: RAMONA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 7.3 Min: 5.6
2	7 inches	16 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.3 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	16 inches	68 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1
4	68 inches	74 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6

Soil Map ID: 3

Soil Component Name: HANFORD

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 5.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	7 inches	40 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 5.6
3	40 inches	59 inches	stratified loamy sand to coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6

Soil Map ID: 4

Soil Component Name: HANFORD

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 5.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	7 inches	40 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 5.6
3	40 inches	59 inches	stratified loamy sand to coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6

Soil Map ID: 5

Soil Component Name: VISTA

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.3 Min: 5.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	14 inches	24 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.3 Min: 5.6
3	24 inches	27 inches	weathered bedrock	Not reported	Not reported	Max: 0.42 Min: 0	Max: Min:

Soil Map ID: 6

Soil Component Name: Water

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 7

Soil Component Name: GORGONIO

Soil Surface Texture: stratified gravelly loamy sand to gravelly loamy fine sand

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat excessively drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	14 inches	59 inches	stratified gravelly loamy sand to gravelly loamy fine sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6
2	0 inches	14 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6

Soil Map ID: 8

Soil Component Name: ROCKLAND

Soil Surface Texture: unweathered bedrock

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	59 inches	unweathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CADW60000009876	1/2 - 1 Mile SW

PHYSICAL SETTING SOURCE MAP - 5219776.2s

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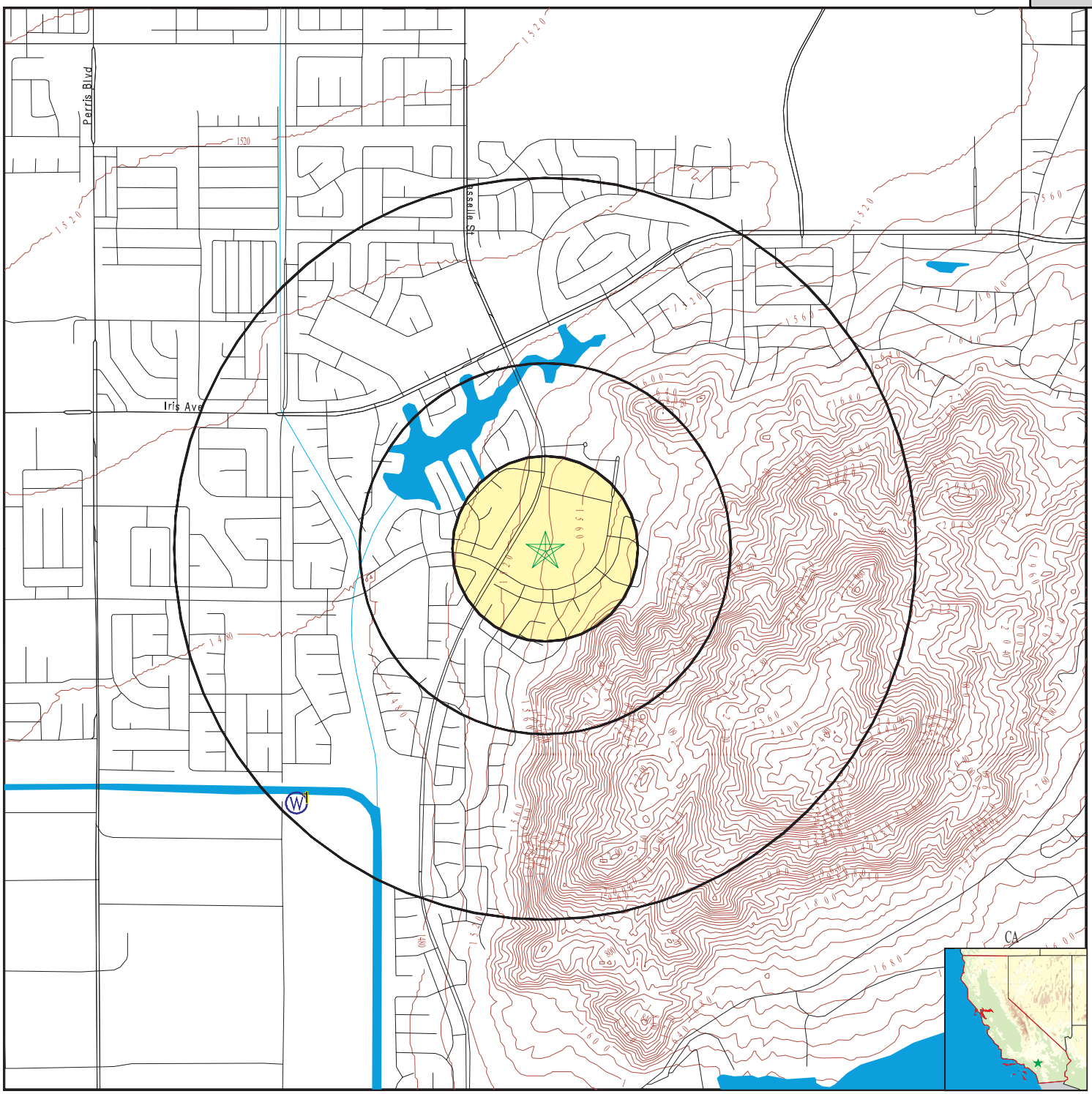

- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

Attachment: Phase I Environmental Site Assessment (March 2018) (3448 : Continental East Phase II Project)

SITE NAME:	Continental Village	CLIENT:	Group Delta Consultants
ADDRESS:	Krameria Ave and Lasselle Street Moreno Valley CA 92555	CONTACT:	Jack Packwood
LAT/LONG:	33.883039 / 117.205112	INQUIRY #:	5219776.2s
		DATE:	March 14, 2018 3:25 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
1 **SW** **1/2 - 1 Mile** **Lower**		**CA WELLS**	**CADW60000009876**
Objectid:	9876		
Latitude:	33.873089		
Longitude:	-117.216774		
Site code:	338731N1172168W001		
State well numbe:	03S03W32B001S		
Local well name:	'EMWD25515'		
Well use id:	1		
Well use descrip:	Observation		
County id:	33		
County name:	Riverside		
Basin code:	'8-5'		
Basin desc:	San Jacinto		
Dwr region id:	80238		
Dwr region:	Southern Region Office		
Site id:	CADW60000009876		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92555	4	0

Federal EPA Radon Zone for RIVERSIDE County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for RIVERSIDE COUNTY, CA

Number of sites tested: 12

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.117 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.450 pCi/L	100%	0%	0%
Basement	1.700 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

Continental Village
Krameria Ave and Lasselle Street
Moreno Valley, CA 92555

Inquiry Number: 5219776.5
March 16, 2018

The EDR-City Directory Image Repor

EDR® Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

EDR is licensed to reproduce certain City Directory works by the copyright holders of those works. The purchaser of this EDR City Directory Report may include it in report(s) delivered to a customer. Reproduction of City Directories without permission of the publisher or licensed vendor may be a violation of copyright.

Data by infoUSA®

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2014	☑	☐	EDR Digital Archive
2010	☑	☐	EDR Digital Archive
2005	☑	☐	EDR Digital Archive
2000	☑	☐	EDR Digital Archive
1995	☑	☐	EDR Digital Archive
1992	☑	☐	EDR Digital Archive
1985	☐	☐	Haines Criss-Cross Directory
1980	☐	☐	Haines Criss-Cross Directory
1975	☐	☐	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

Krameria Ave and Lasselle Street
Moreno Valley, CA 92555

Year	CD Image	Source	
KRAMERIA ST			
2014	pg A1	EDR Digital Archive	
2010	pg A3	EDR Digital Archive	
2005	pg A5	EDR Digital Archive	
2000	pg A7	EDR Digital Archive	
1995	pg A9	EDR Digital Archive	
1992	pg A11	EDR Digital Archive	
1985	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1975	-	Haines Criss-Cross Directory	Street not listed in Source
LASSELLE ST			
2014	pg A2	EDR Digital Archive	
2010	pg A4	EDR Digital Archive	
2005	pg A6	EDR Digital Archive	
2000	pg A8	EDR Digital Archive	
1995	pg A10	EDR Digital Archive	
1992	pg A12	EDR Digital Archive	
1985	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1975	-	Haines Criss-Cross Directory	Street not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

F.1.ac

KRAMERIA ST 2014

25390 VAL VERDE UNIFIED SCH DIS
25777 VAL VERDE UNIFIED SCH DIS

LASSELLE ST 2014

15740	KEEPSAFE PREVENTION SVCS LLC
	SYA TRANSPORT INC
15750	1KING ENTERPRISES
15770	VEATRICE JEWELRY DESIGNS
15780	ADOLFO ARZATE
15868	CONSTANTELLOS, EVANTHIA
	ENRIQUEZ, DIANA
	EVANS, NYKEE
	QIAO, CHUN M
	WATTERSON, ZEANNA
15870	HUDSON, DEIDRE
15874	CASTRO, RICARDO
	GORDON, TRAVIS L
	GUO, JOHN S
	HARPER, OATHER L
	NORMAN, LEWIS A
	WANG, WEI
15880	FLOTTE, MARIO
	FOK, DIANE
	HOSINO, GEORGETTA
15886	GRAVENBERG, ROSHAN A
	GRIFFIN, JOHN W
	HUANG, HUI M
15892	FERNANDEZ, CECILY
	GARCIA, MICHAEL A
	HARRIS, NIKKOLE
	ODEN, ELIZABETH
15898	MARSHALL, WALDEN
	MENDOZA, SHERRY L
	MYRICK, SHEKEMA
15904	BARRETT, VINCENT A
	SCATES, JUOWON C
	SNATCHED WAIST SOCIETY
15910	BALLESTEROS, TRACY
	BETHUNE, OSCAR F
	GUI, JUN
	JONES, CHARLES
	KOWALKE, JOSHUA J
	VASQUEZ, JENNIFER
15916	HENDERSON, RICHARD
	LIU, FULI
	NEIL VINCENT
	PUTMAN, TIKIE
16110	RIVERSIDE COUNTY OF
16130	BARNES & NOBLE COLLEGE
	MORENO VALLEY CAMPUS LIBRARY
	RIVERSIDE CMNTY COLLEGE DST
17750	VAL VERDE UNIFIED SCH DIS

KRAMERIA ST 2010

25390 VAL VERDE UNIFIED SCH DIS
25777 VAL VERDE UNIFIED SCH DIS

LASSELLE ST 2010

15730	CRYSTAL CLEAR AND CLEAN
15750	WELLBAUM WILLIAM EUGENE
15780	AARON CAPITAL INC
	FOXFIRE LLC
15850	CHAMBERS GARY
15870	HUDSON, DEIDRE
15874	BECK, REX G
	HARPER, OATHER L
15880	BRACKINS, SANDRA
	CHANCE, JERRY L
	KYLES, KENNETH W
	SALDANA, STELLA
15886	BUSCH, JOAN
	SU, HSIAO L
15892	ESTRADA, ROBERT C
	ODEN, DONALD R
	PAGE, EULANDA L
15898	BANKSTON, ANTHONY
	DANIELY, B
	MENDOZA, SHERRY L
	NORIEGA, OSWALDO F
15904	CANNON, JAMAAL E
	PAYAN, LILIAN
	SS ENTERTAINMENT
	WALLACE, MONIQUE Y
15910	BONAFEDE, RHONDA
	HALL, LAWRENCE
	JONES, BRANDY
15916	HENDERSON, RICHARD
16110	RIVERSIDE COUNTY OF
16130	BARNES & NOBLE COLLEGE
	BARNHART DOUGLAS E INC
	MORENO VALLEY CAMPUS LIBRARY
	RIVERSIDE CMNTY COLLEGE DST
17750	VAL VERDE UNIFIED SCH DIS

KRAMERIA ST 2005

25390 VAL VERDE UNIFIED SCHOOL DST
25777 VAL VERDE UNIFIED SCHOOL DST

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

F.1.ac

LASSELLE ST 2005

15760 FRESH AND CLEAN
16110 RIVERSIDE COUNTY OF
16130 BARNES NBLE CLLEGE BOOKSELLERS
MORENO VALLEY CAMPUS LIBRARY
RIVERSIDE CMNTY COLLEGE DST
17750 VAL VERDE UNIFIED SCHOOL DST

KRAMERIA ST 2000

25390 VAL VERDE UNIFIED SCHOOL DST
25777 VAL VERDE UNIFIED SCHOOL DST

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

F.1.ac

LASSELLE ST 2000

16130 MORENA VALLEY CAMPUS LIBR
RIVERSIDE CMNTY COLLEGE DST
17750 VAL VERDE UNIFIED SCHOOL DST

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

F.1.ac

KRAMERIA ST 1995

25390 MARY MCLEOD BETHUNE MIDDLE SCH
25777 VISTA VERDE MIDDLE SCHOOL

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

F.1.ac

LASSELLE ST 1995

17750 RANCHO VERDE HIGH SCHOOL

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

F.1.ac

KRAMERIA ST 1992

25390 MARY MCLEOD BETHUNE MIDDLE SCH

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

F.1.ac

LASSELLE ST 1992

17750 RANCHO VERDE HIGH SCHOOL

Continental Village
Krameria Ave and Lasselle Street
Moreno Valley, CA 92555

Inquiry Number: 5219776.3
March 14, 2018

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

03/14/18

Site Name:

Continental Village
Krameria Ave and Lasselle Str
Moreno Valley, CA 92555
EDR Inquiry # 5219776.3

Client Name:

Group Delta Consultants
1035 S. Milliken Ave Suite G
Ontario, CA 91761
Contact: Jack Packwood

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Group Delta Consultants were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 78DB-4391-A4D0

PO # EN324

Project Continental Village

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 78DB-4391-A4D0

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✓ Library of Congress
- ✓ University Publications of America
- ✓ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Continental Village
Krameria Ave and Lasselle Street
Moreno Valley, CA 92555

Inquiry Number: 5219776.4
March 14, 2018

EDR Historical Topo Map Repo
with QuadMatch

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

03/14/18

Site Name:

Continental Village
Krameria Ave and Lasselle Stre
Moreno Valley, CA 92555
EDR Inquiry # 5219776.4

Client Name:

Group Delta Consultants
1035 S. Milliken Ave Suite G
Ontario, CA 91761
Contact: Jack Packwood

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Group Delta Consultants were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# EN324
Project: Continental Village

Coordinates:

Latitude:	33.883039 33° 52' 59" North
Longitude:	-117.205112 -117° 12' 18" West
UTM Zone:	Zone 11 North
UTM X Meters:	481032.41
UTM Y Meters:	3749206.62
Elevation:	1538.61' above sea level

Maps Provided:

2012
1979, 1980
1973
1967
1953
1943
1942
1901

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2012 Source Sheets

Perris
2012
7.5-minute, 24000

Sunnymead
2012
7.5-minute, 24000

1979, 1980 Source Sheets

Perris
1979
7.5-minute, 24000
Aerial Photo Revised 1978

Sunnymead
1980
7.5-minute, 24000
Aerial Photo Revised 1978

1973 Source Sheets

Sunnymead
1973
7.5-minute, 24000
Aerial Photo Revised 1973

Perris
1973
7.5-minute, 24000
Aerial Photo Revised 1973

1967 Source Sheets

Sunnymead
1967
7.5-minute, 24000
Aerial Photo Revised 1966

Perris
1967
7.5-minute, 24000
Aerial Photo Revised 1966

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1953 Source Sheets

Perris
1953
7.5-minute, 24000
Aerial Photo Revised 1951

Sunnymead
1953
7.5-minute, 24000
Aerial Photo Revised 1951

1943 Source Sheets

PERRIS
1943
15-minute, 62500

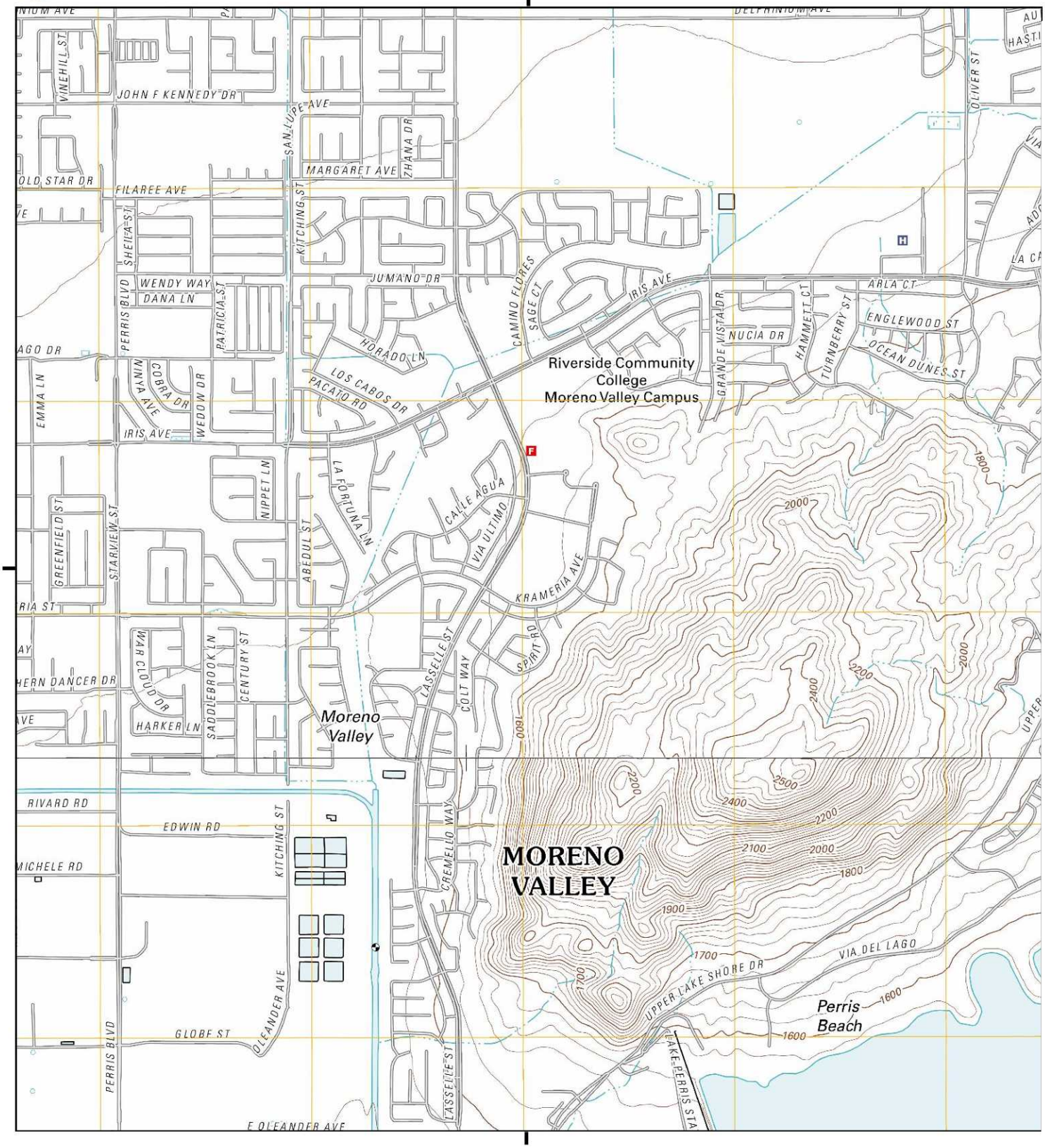
1942 Source Sheets

Perris
1942
15-minute, 62500
Aerial Photo Revised 1939

1901 Source Sheets

Elsinore
1901
30-minute, 125000

Historical Topo Map



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

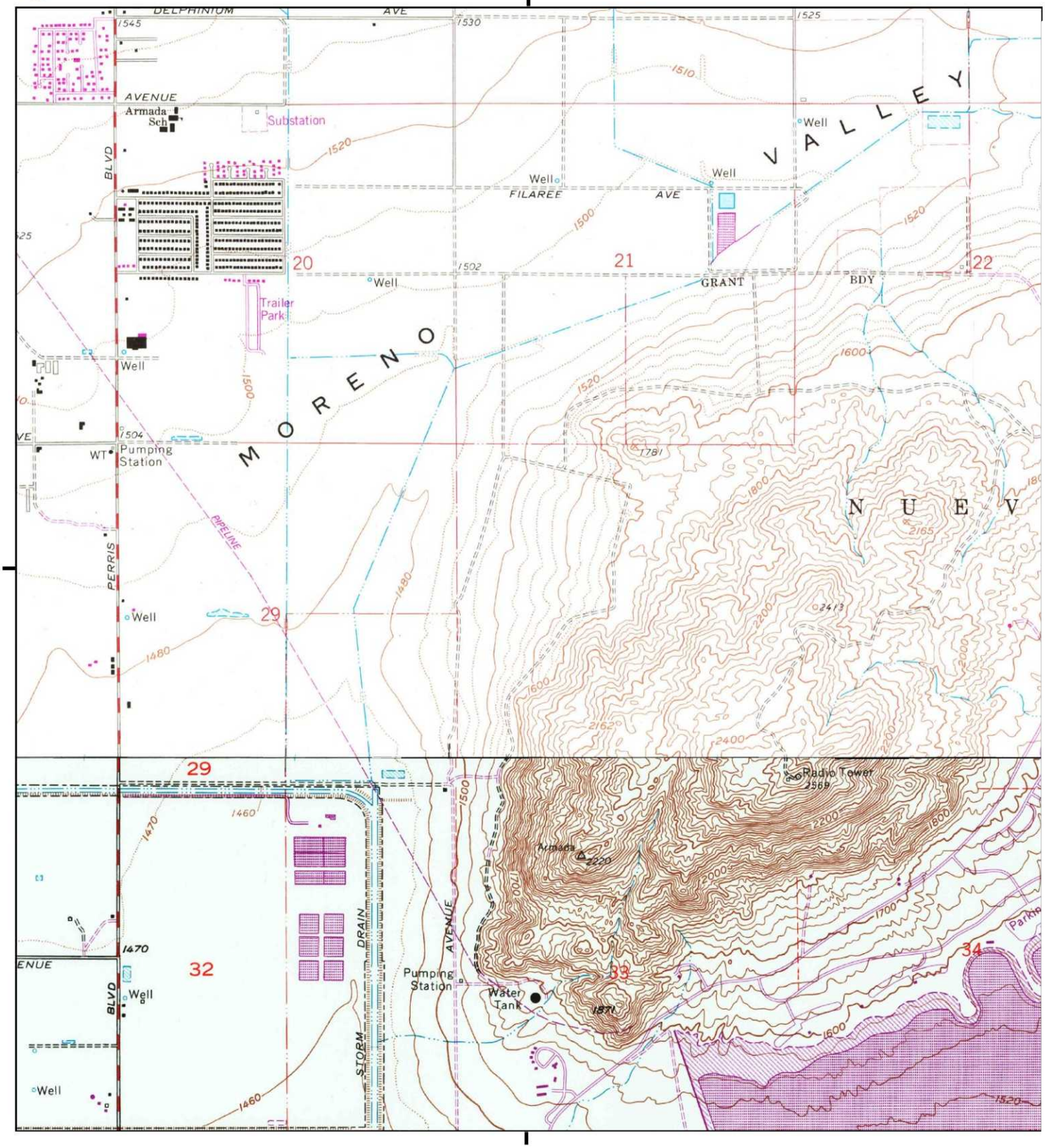
TP, Sunnymead, 2012, 7.5-minute
S, Perris, 2012, 7.5-minute

SITE NAME: Continental Village
ADDRESS: Krameria Ave and Lasselle Street
Moreno Valley, CA 92555
CLIENT: Group Delta Consultants

N

Historical Topo Map

1979,



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0 Miles 0.25 0.5 1 1.5

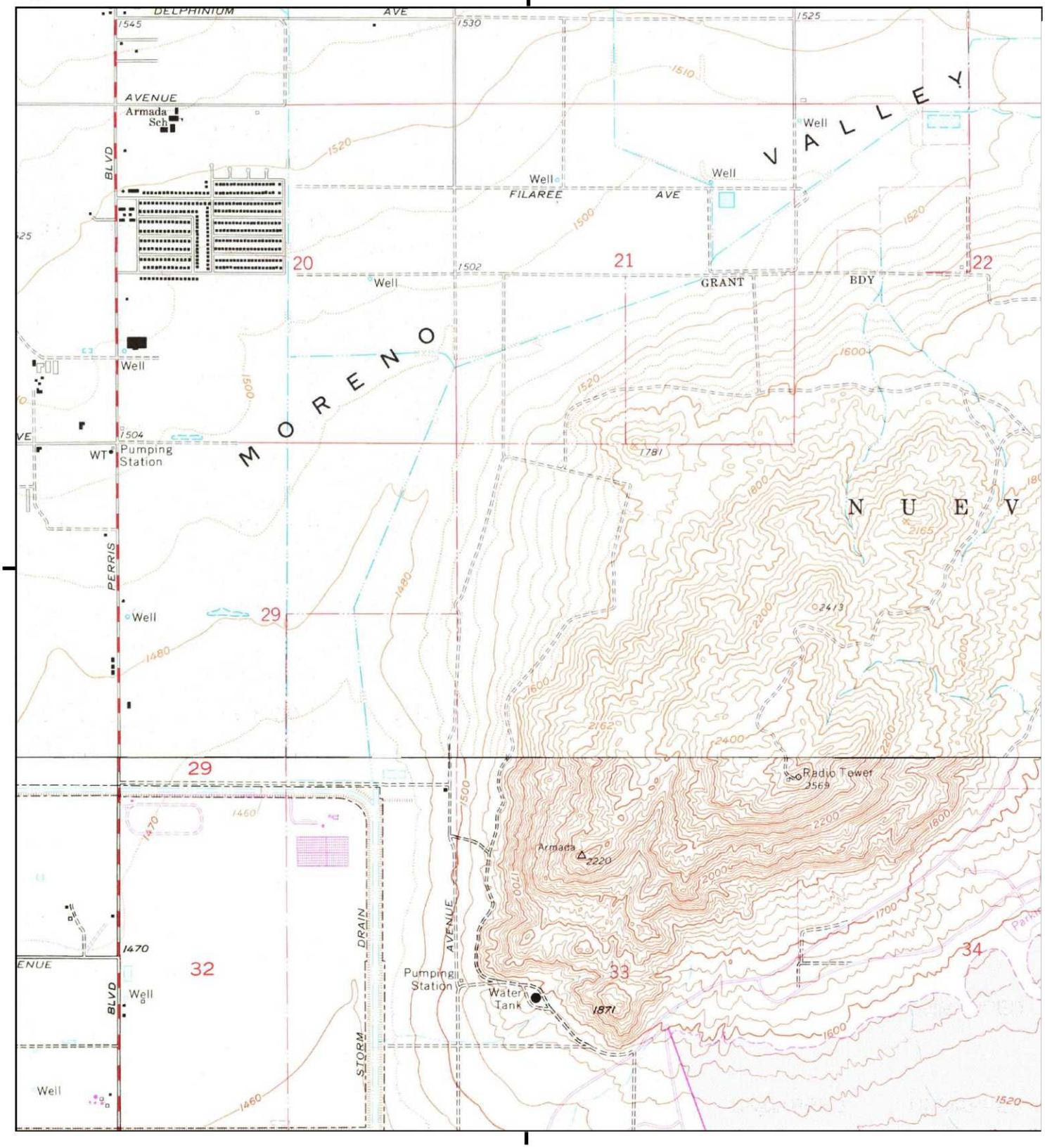
NW N NE
W E
SW S SE

TP, Sunnymead, 1980, 7.5-minute
S, Perris, 1979, 7.5-minute

SITE NAME: Continental Village
ADDRESS: Krameria Ave and Lasselle Street
Moreno Valley, CA 92555
CLIENT: Group Delta Consultants

N

Historical Topo Map



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

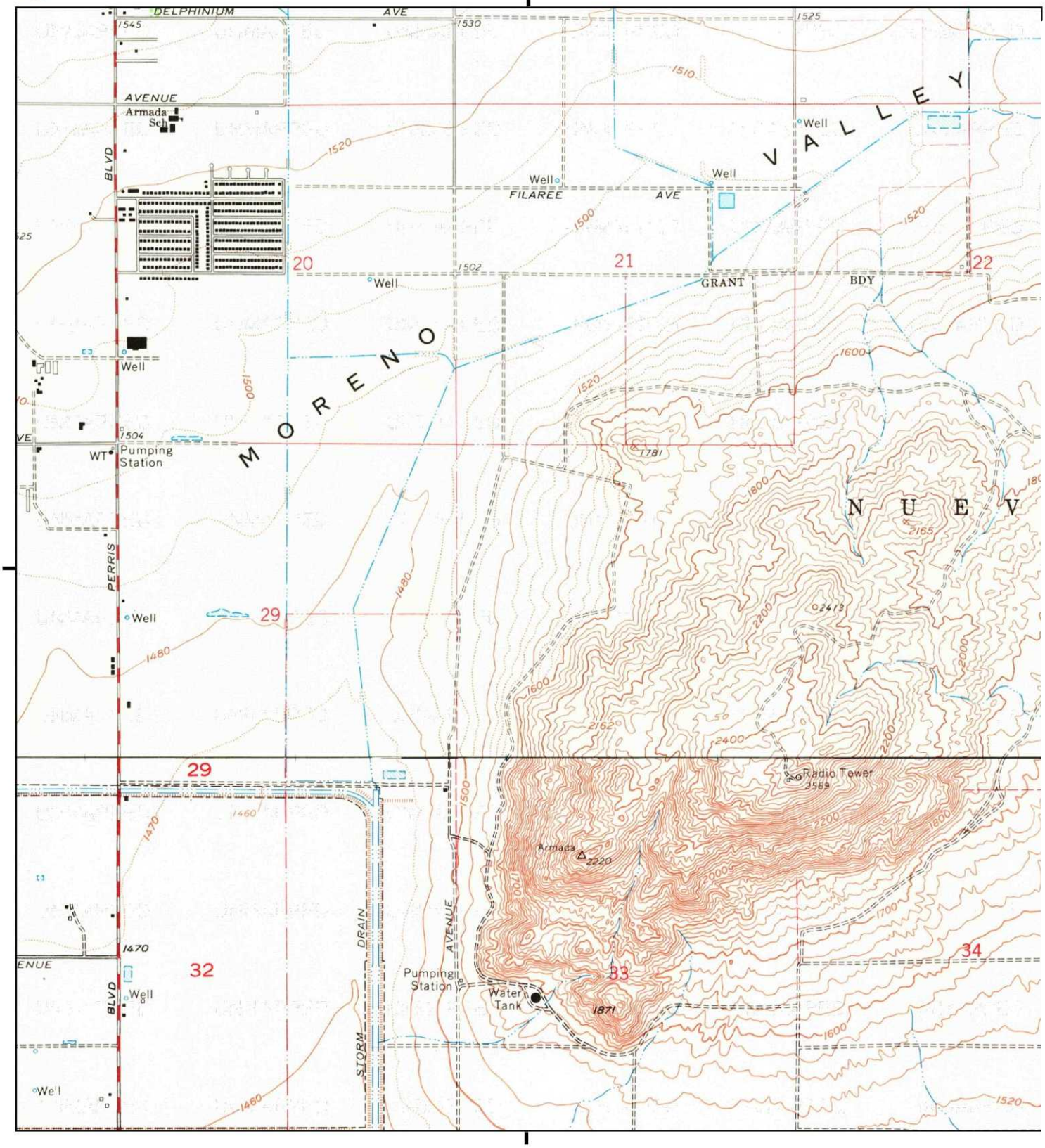
NW N NE
W E
SW S SE

TP, Sunnymead, 1973, 7.5-minute
S, Perris, 1973, 7.5-minute

SITE NAME: Continental Village
ADDRESS: Krameria Ave and Lasselle Street
Moreno Valley, CA 92555
CLIENT: Group Delta Consultants

N

Historical Topo Map



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

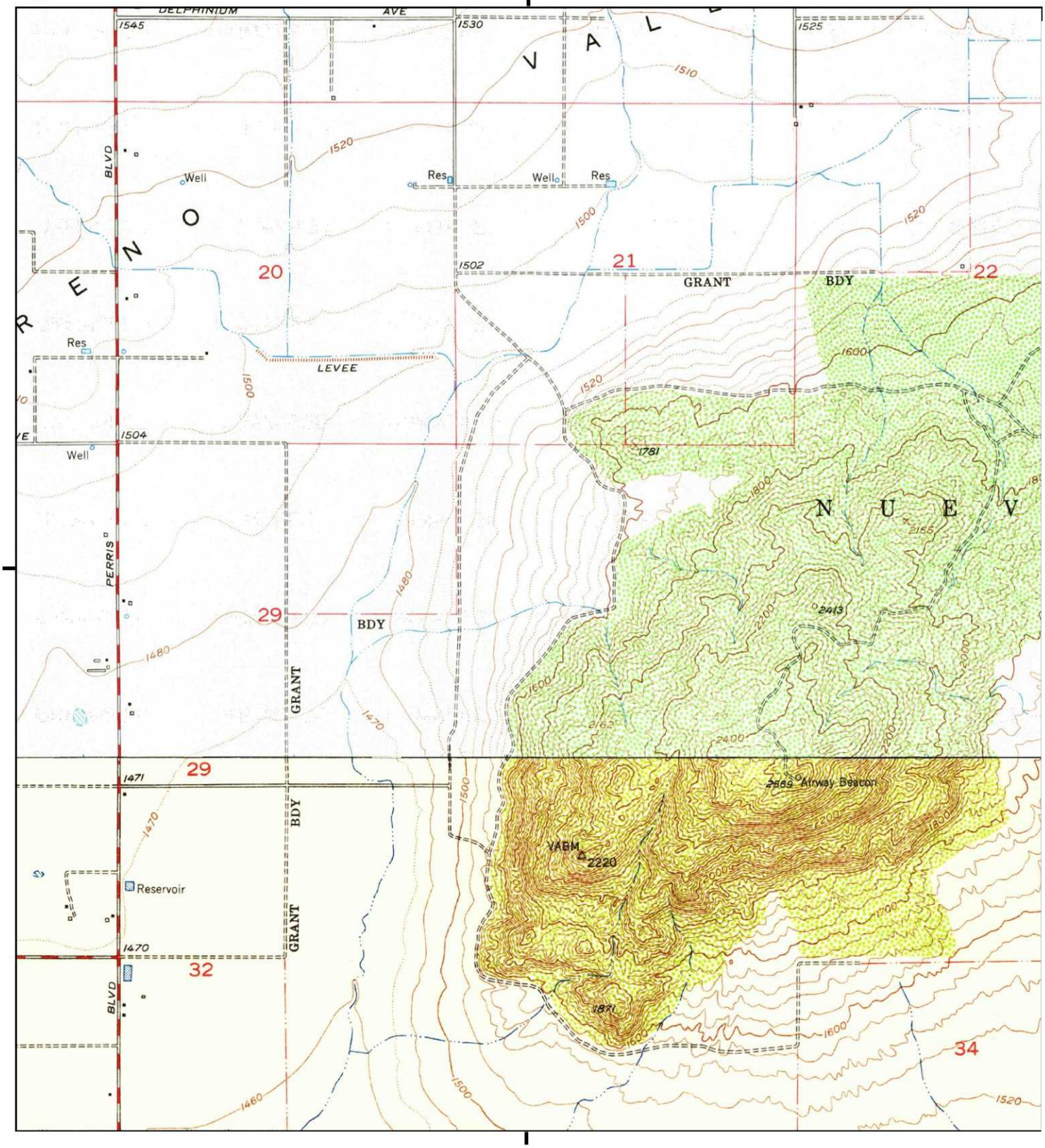
NW N NE
W E
SW S SE

TP, Sunnymead, 1967, 7.5-minute
S, Perris, 1967, 7.5-minute

SITE NAME: Continental Village
ADDRESS: Krameria Ave and Lasselle Street
Moreno Valley, CA 92555
CLIENT: Group Delta Consultants

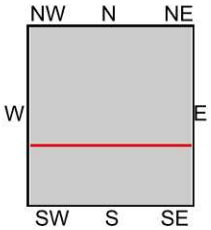
N

Historical Topo Map



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

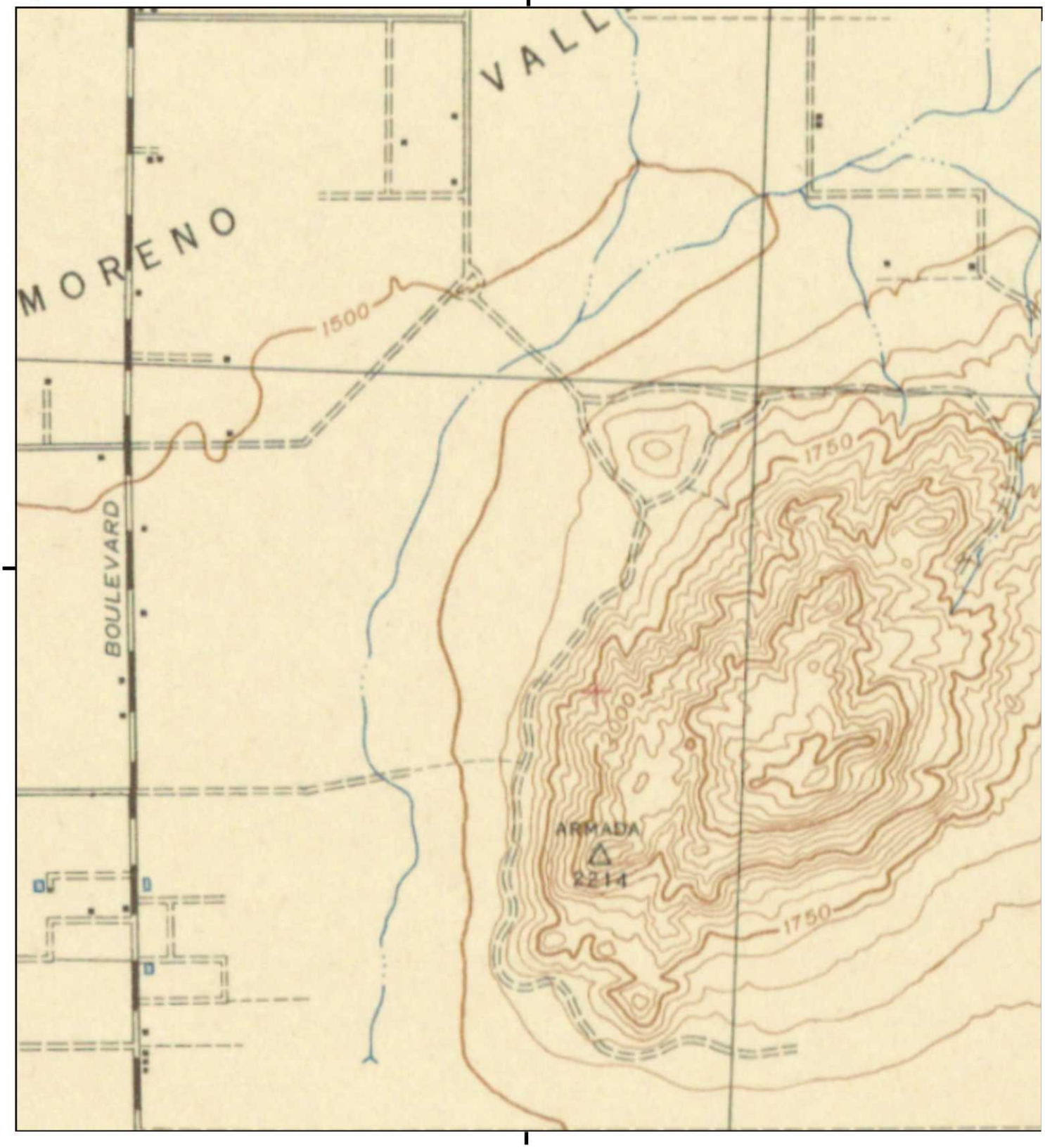


TP, Sunnymead, 1953, 7.5-minute
S, Perris, 1953, 7.5-minute

SITE NAME: Continental Village
ADDRESS: Krameria Ave and Lasselle Street
Moreno Valley, CA 92555
CLIENT: Group Delta Consultants

N

Historical Topo Map



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

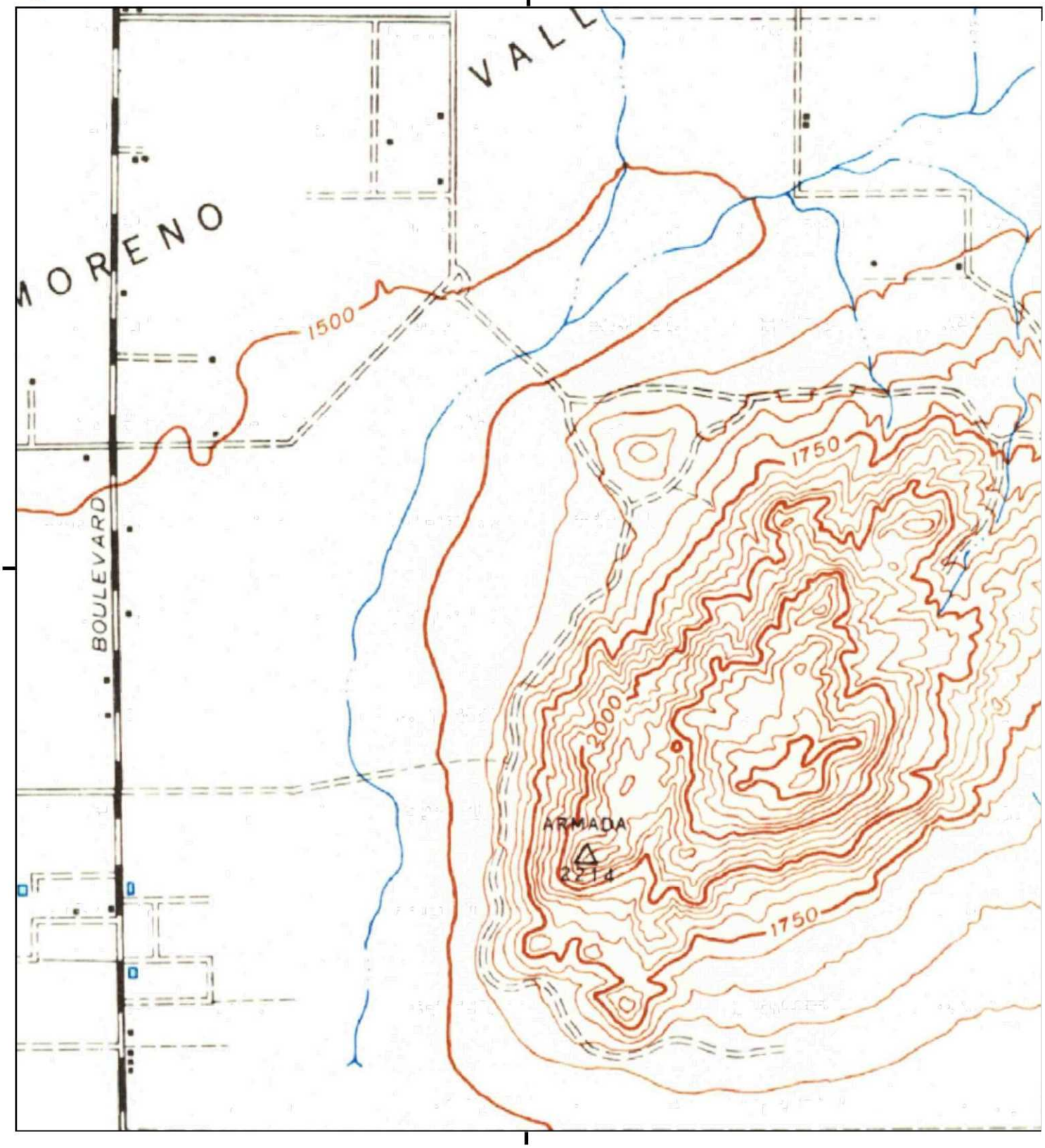
NW N NE
W E
SW S SE

TP, PERRIS, 1943, 15-minute

SITE NAME: Continental Village
ADDRESS: Krameria Ave and Lasselle Street
Moreno Valley, CA 92555
CLIENT: Group Delta Consultants

N

Historical Topo Map



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

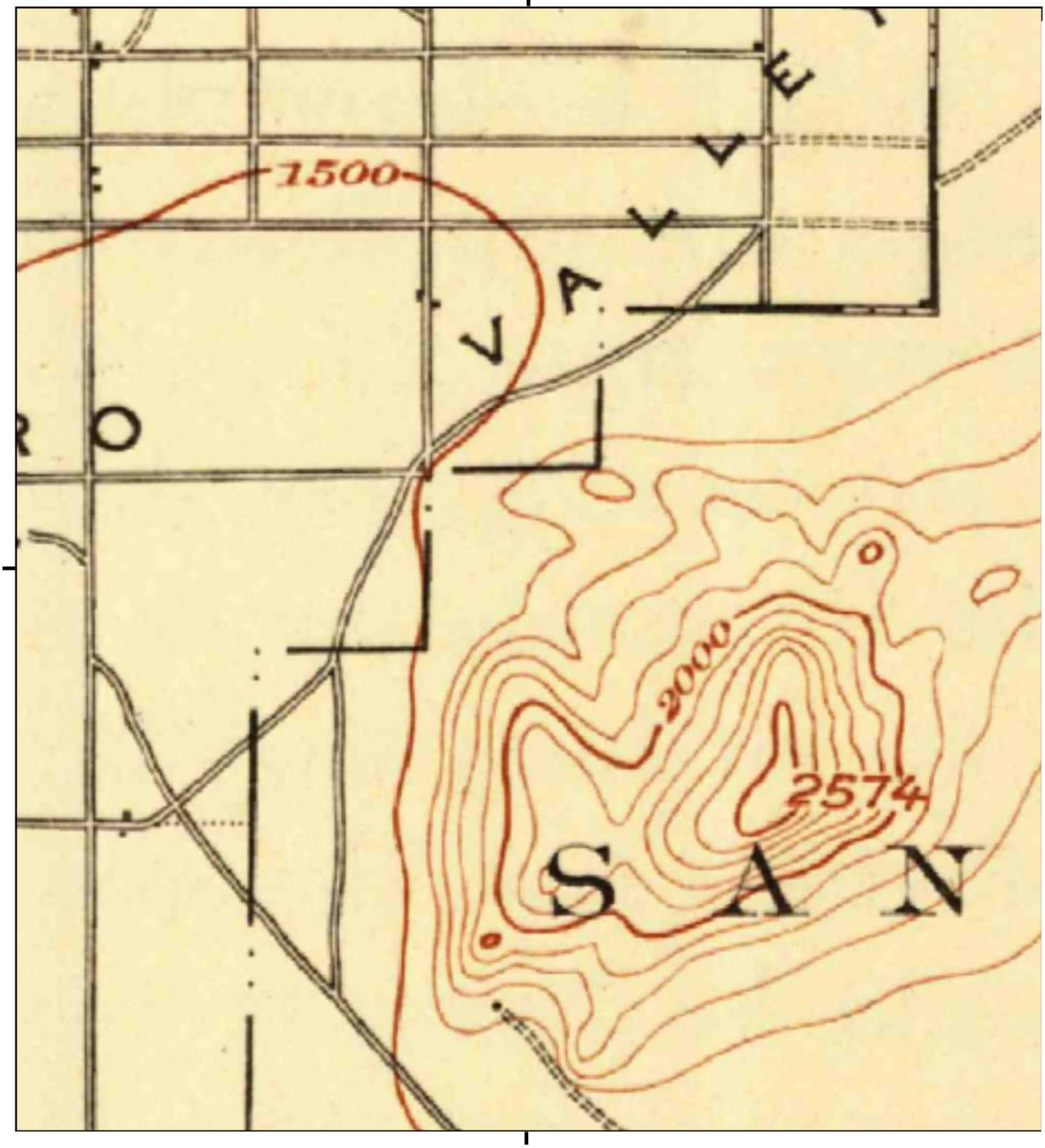
NW N NE
W E
SW S SE

TP, Perris, 1942, 15-minute

SITE NAME: Continental Village
ADDRESS: Krameria Ave and Lasselle Street
Moreno Valley, CA 92555
CLIENT: Group Delta Consultants

N

Historical Topo Map



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Elsinore, 1901, 30-minute

SITE NAME: Continental Village
ADDRESS: Krameria Ave and Lasselle Street
Moreno Valley, CA 92555
CLIENT: Group Delta Consultants

N

Continental Village

Krameria Ave and Lasselle Street

Moreno Valley, CA 92555

Inquiry Number: 5219776.9

March 15, 2018

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
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EDR Aerial Photo Decade Package

03/15/18

Site Name:

Continental Village
Krameria Ave and Lasselle Str
Moreno Valley, CA 92555
EDR Inquiry # 5219776.9

Client Name:

Group Delta Consultants
1035 S. Milliken Ave Suite G
Ontario, CA 91761
Contact: Jack Packwood

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Search Results:

Year	Scale	Details	Source
2014	1"=500'	Flight Year: 2014	USDA/NAIP
2010	1"=500'	Flight Year: 2010	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
2002	1"=500'	Acquisition Date: June 06, 2002	USGS/DOQQ
1997	1"=500'	Flight Date: October 16, 1997	USGS
1989	1"=500'	Flight Date: August 15, 1989	USDA
1985	1"=500'	Flight Date: July 28, 1985	USDA
1978	1"=500'	Flight Date: September 20, 1978	USDA
1967	1"=500'	Flight Date: May 15, 1967	USDA
1961	1"=500'	Flight Date: June 14, 1961	USDA
1953	1"=500'	Flight Date: August 28, 1953	USDA
1949	1"=500'	Flight Date: May 08, 1949	USDA
1938	1"=500'	Flight Date: January 01, 1938	USDA

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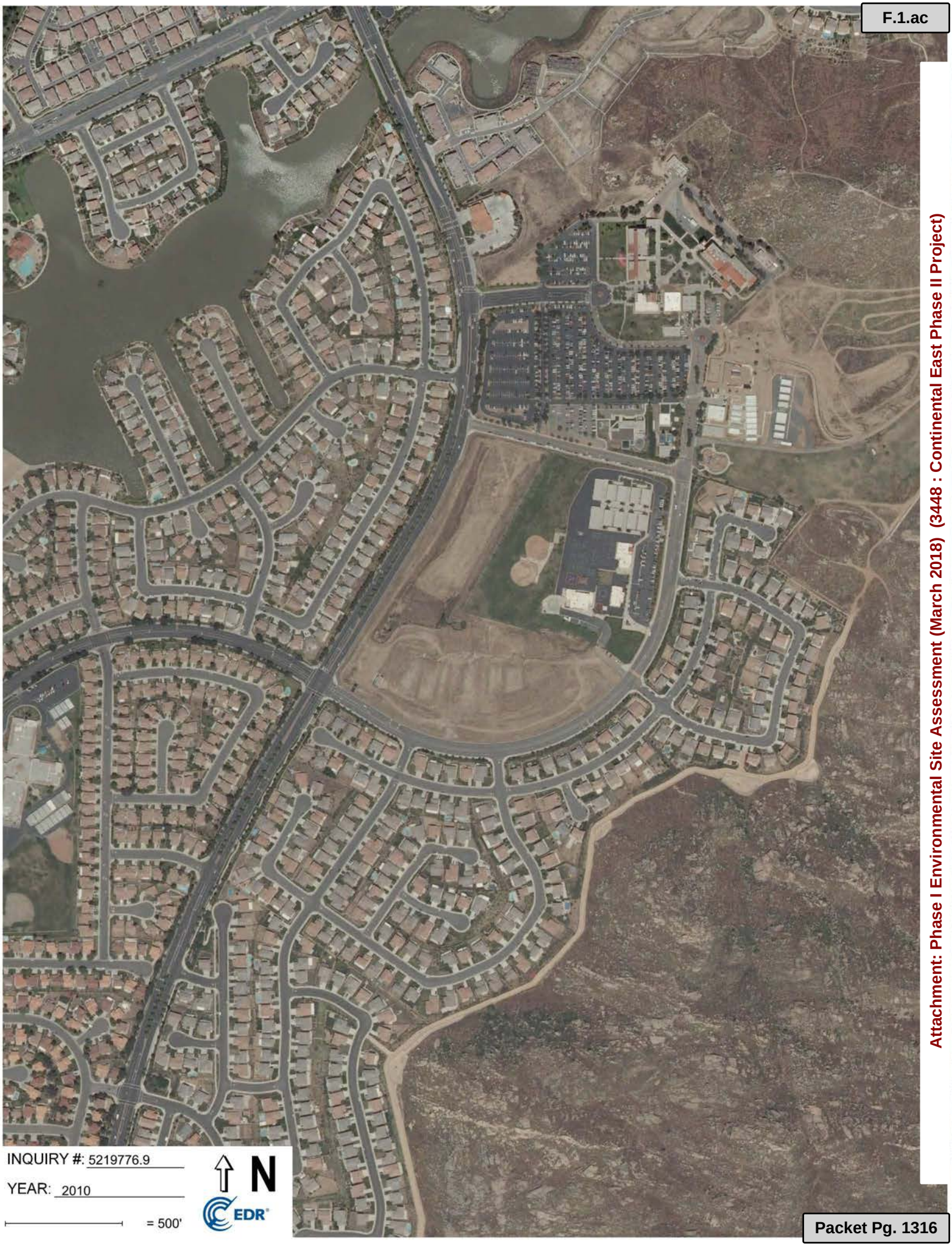
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YEAR: 2010
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EDR

INQUIRY #: 5219776.9

YEAR: 2006

= 500'

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EDR

Attachment: Phase I Environmental Site Assessment (March 2018) (3448 : Continental East Phase II Project)

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YEAR: 1989

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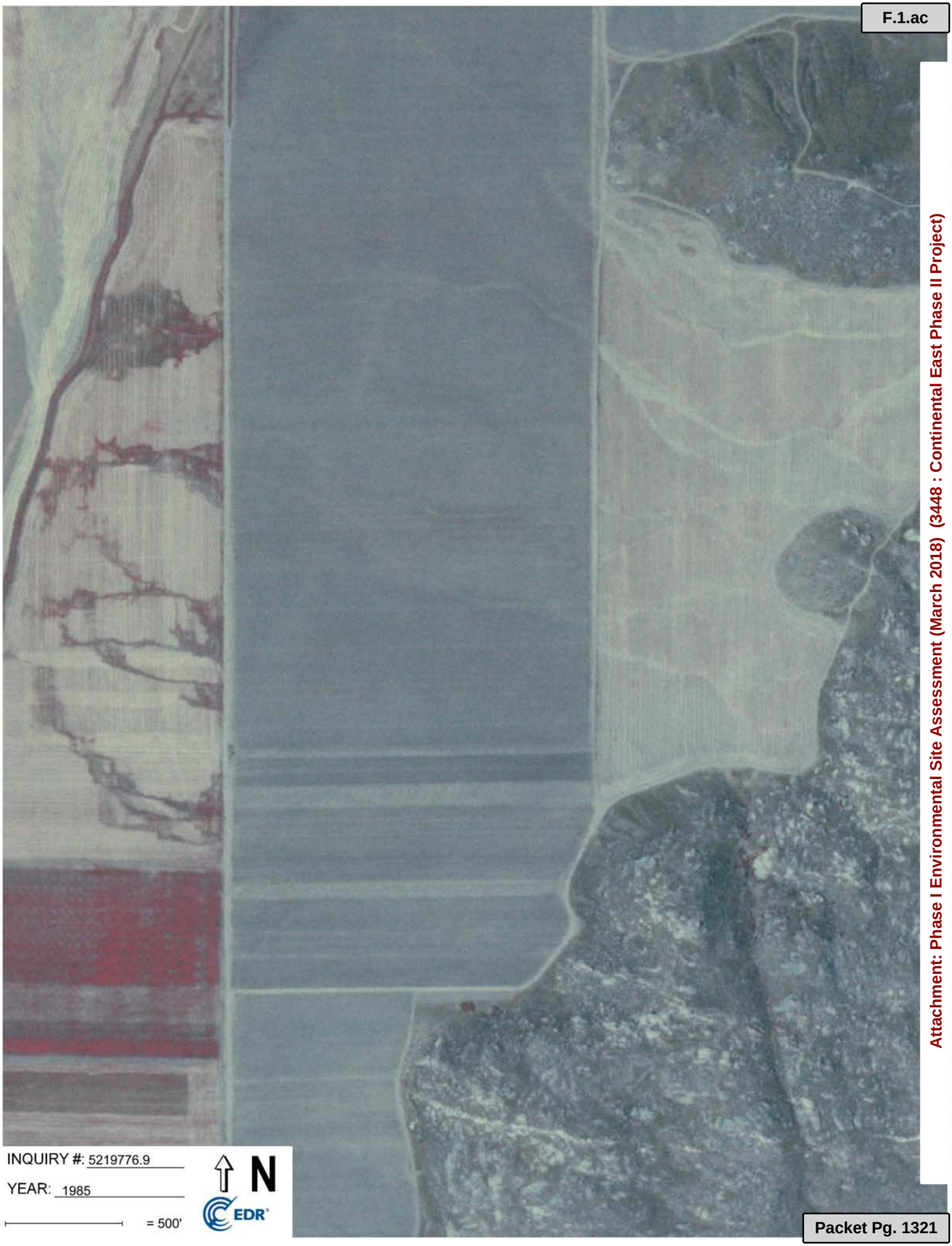

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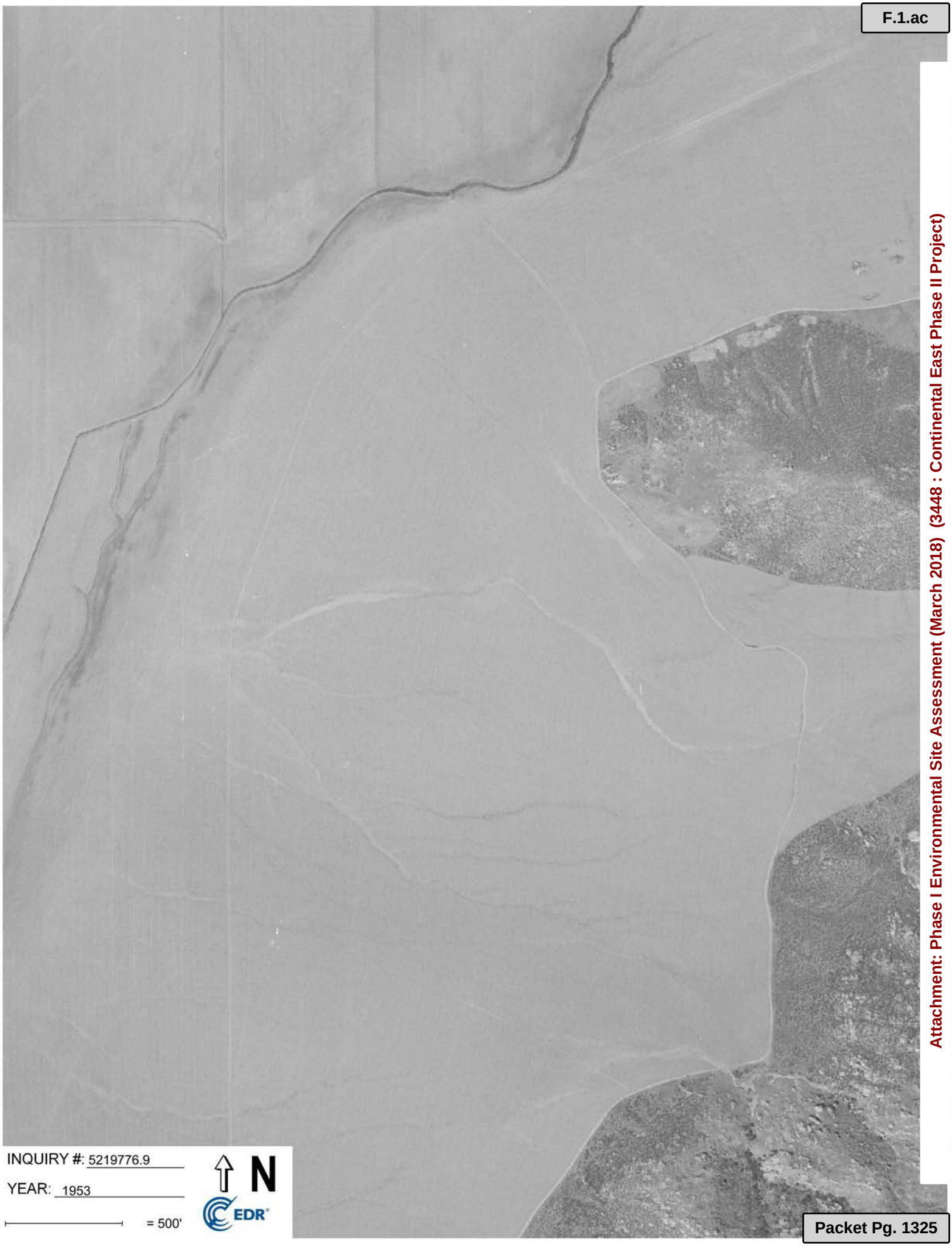

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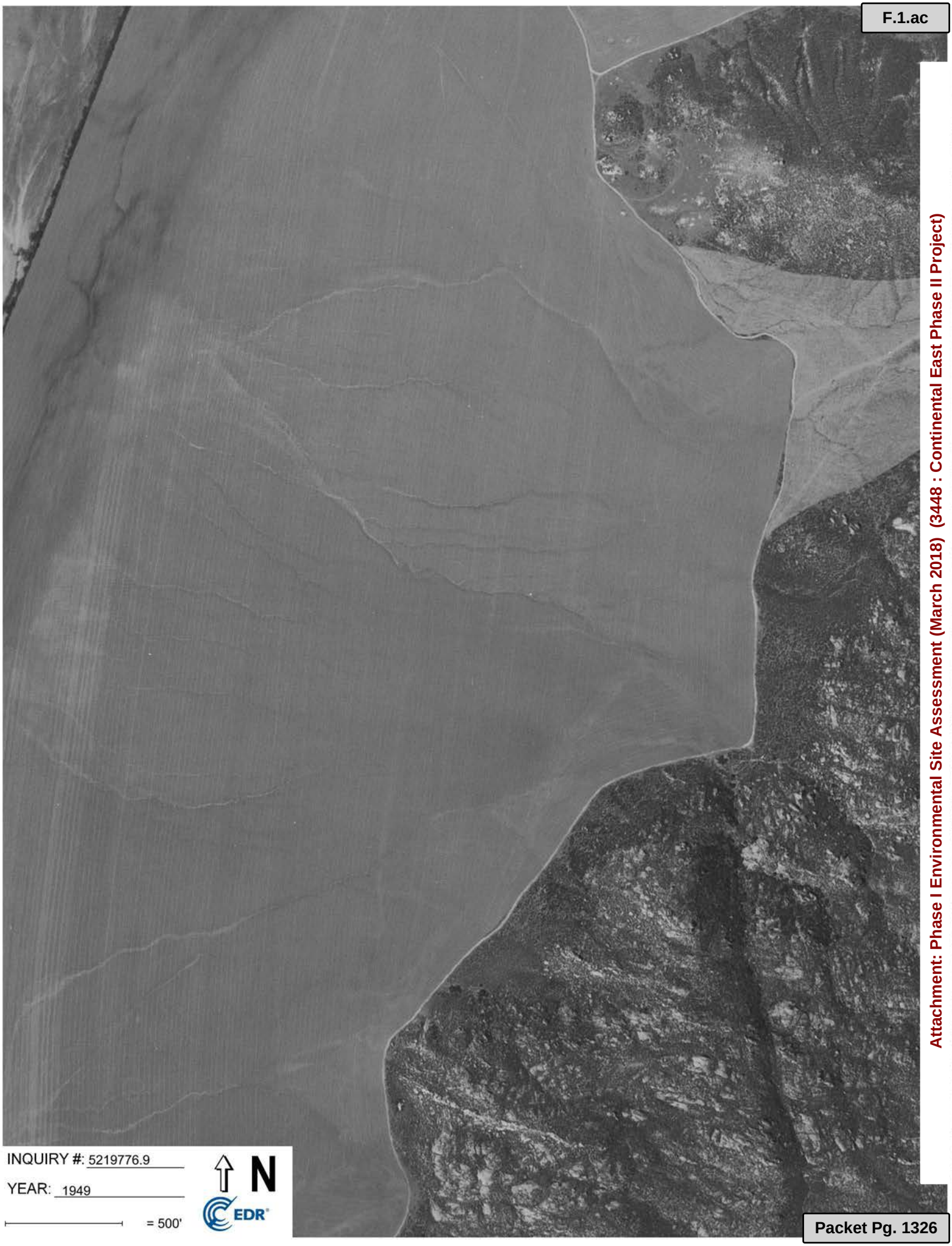

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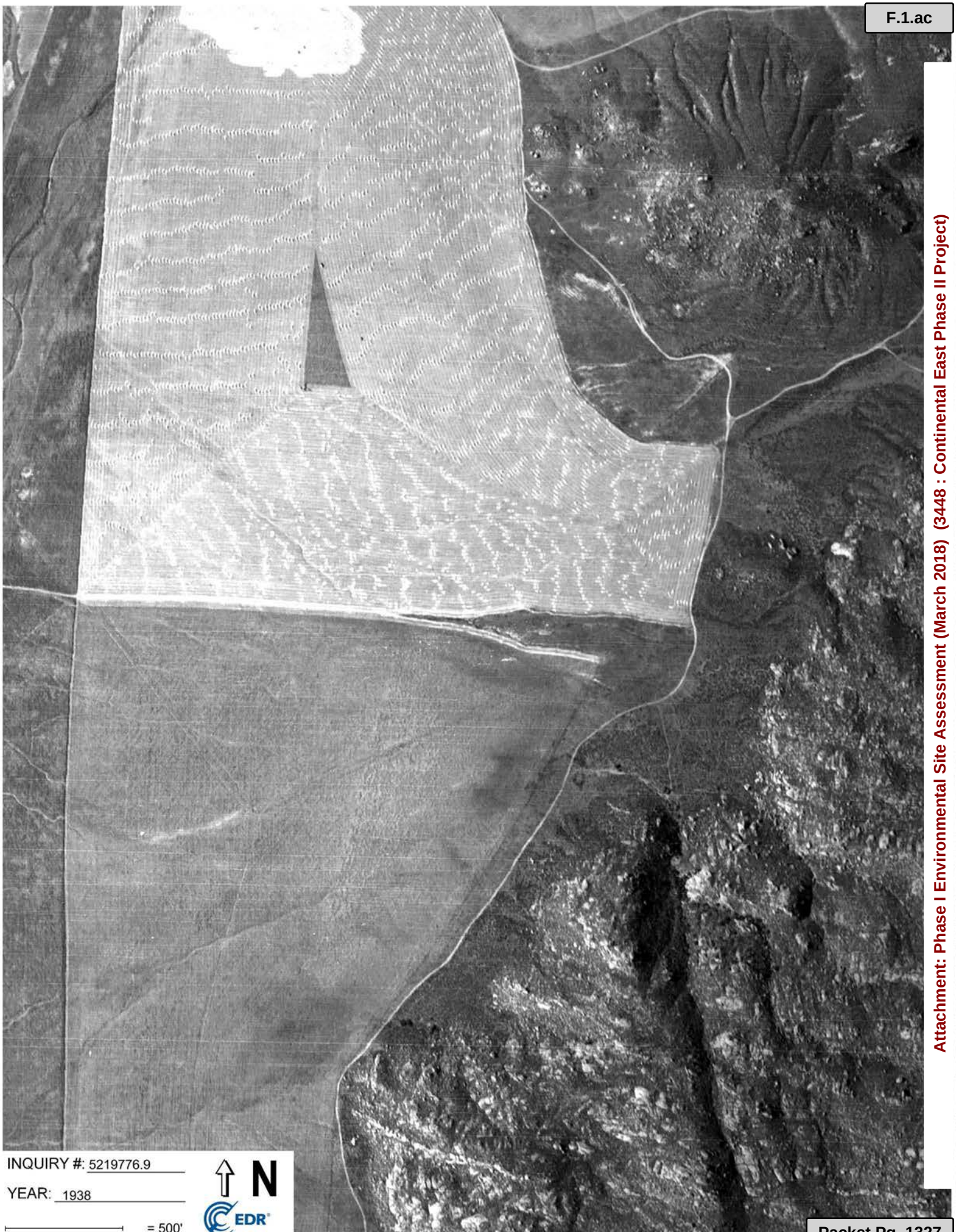

INQUIRY #: 5219776.9

YEAR: 1938

= 500'

N

EDR

Continental Villages

NOISE IMPACT ANALYSIS

CITY OF MORENO VALLEY

PREPARED BY:

Bill Lawson, PE, INCE
blawson@urbanxroads.com
(949) 336-5979

Alex Wolfe, INCE
awolfe@urbanxroads.com
(949) 336-5977

NOVEMBER 19, 2018

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
I-215	Interstate 215
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
OPR	Office of Planning and Research
PPV	Peak particle velocity
Project	Continental Villages
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures, if any, for the proposed Continental Villages development ("Project"). The Project site is located on the northeast corner of Lasselle Street and Krameria Avenue in the City of Moreno Valley. The Project is proposed to consist of up to 112 apartments/duplexes and 21,000 square feet of commercial retail use. This study has been prepared to satisfy the City of Moreno Valley noise standards, and identifies thresholds of significance based on guidance in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the proposed Project will influence the traffic noise levels in surrounding off-site areas. To quantify the traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on 11 roadway segments surrounding the Project site were calculated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in *Continental Villages Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (2) To assess the off-site noise level impacts associated with the proposed Project, noise contour boundaries were developed for Existing, Opening Year 2023, and Horizon Year 2040 traffic conditions. The analysis shows that the unmitigated Project-related traffic noise level increases under all traffic scenarios will be *less than significant*.

ON-SITE TRAFFIC NOISE ANALYSIS

A noise impact analysis has been completed to determine the noise exposure levels that would result from off-site traffic noise sources, and to identify potential noise mitigation measures, if any, that would achieve acceptable Project exterior and interior noise levels. The primary source of traffic noise affecting the Project site is anticipated to be from Lasselle Street and Krameria Avenue. The Project will also experience some background traffic noise impacts from the Project's internal parking lot, however, due to the lower traffic volume and speeds of vehicles transiting on these roadways, traffic noise from these roadways will not make a significant contribution to the noise environment at the Project site.

EXTERIOR NOISE LEVELS

The future unmitigated on-site traffic noise levels at the residential building façades are shown to approach 59.8 dBA CNEL and represent *normally acceptable* exterior noise levels for residential home land use. (3) Further, Project interior noise levels are analyzed herein to identify the necessary interior noise reduction measures, if any, to satisfy the City of Moreno Valley General Plan Noise Element 45 dBA CNEL interior noise level standard.

INTERIOR NOISE LEVELS

This noise study evaluates the interior noise levels at the Project building based on the City of Moreno Valley 45 dBA CNEL residential interior noise level standard. The Project buildings are shown to require a Noise Reduction (NR) of up to 14.8 dBA and a windows-closed condition requiring a means of mechanical ventilation (e.g. air conditioning). To meet the City of Moreno Valley 45 dBA CNEL interior noise standards the following on-site standard construction measures are required:

- Windows/Glass Doors: All units require windows and sliding glass doors that have well-fitted, well-weather-stripped assemblies, and minimum sound transmission class (STC) ratings of 27.
- Exterior Doors (Non-Glass): All exterior doors shall be well weather-stripped and have well-sealed perimeter gaps to achieve minimum sound transmission class (STC) ratings of 27. (4)
- Exterior Walls: At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal.
- Roof: Roof sheathing of wood construction shall be per manufacturer's specification or caulked plywood of at least one-half inch thick. Ceilings shall be per manufacturer's specification or well-sealed gypsum board of at least one-half inch thick. Insulation with at least a rating of R-19 shall be used in the attic space.
- Ventilation: Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g. air conditioning) or active ventilation system (e.g. fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.

Based on the results of this analysis, the Project will satisfy the 45 dBA CNEL interior noise level standard with standard building construction. Exhibit ES-A shows the on-site recommendations.

OPERATIONAL NOISE ANALYSIS

Using reference noise levels to represent the expected noise sources from the Continental Villages site, this analysis estimates the Project-related stationary-source noise levels at nearby sensitive receiver locations. The normal activities associated with the proposed Continental Villages are anticipated to include roof-top air conditioning units, residential entry gate activity, residential and commercial parking lot vehicle movements, and outdoor pool/spa activity. The operational noise analysis shows that the Project-related stationary-source noise levels due to the roof-top air conditioning units, residential entry gate activity, residential and commercial parking lot vehicle movements, and outdoor pool/spa activity will satisfy the City of Moreno Valley noise level standards at 200 feet from the property line of the noise source (Project site) and at all nearby receiver locations.

In addition, this analysis demonstrates that the Project will contribute *less than significant* operational noise level contributions to the existing ambient noise environment during the daytime and nighttime hours at all of the sensitive receiver locations. Therefore, the operational noise level impacts associated with the proposed Project activities, such as the roof-top air conditioning units, residential entry gate activity, residential and commercial parking lot vehicle movements, and outdoor pool/spa activity, will be *less than significant*.

CONSTRUCTION NOISE ANALYSIS

Construction-related noise impacts are expected to create temporary and intermittent high-level noise conditions at receivers surrounding the Project site when certain activities occur at the closest point to the nearby receiver locations from primary Project construction activity. Using sample reference noise levels to represent the planned construction activities of the Continental Villages site, this analysis estimates the Project-related construction noise levels at nearby receiver locations. Based on the analysis, the Project-related short-term construction noise levels are shown to satisfy the City of Moreno Valley Municipal Code 60 dBA L_{eq} daytime noise level threshold at noise-sensitive receiver locations with the planned temporary construction noise attenuation measures (Project Design Features). To reduce the Project construction noise levels at the adjacent receiver locations, R2 and R6, the Project Design Features (PDFs) include noise attenuation measures in the form of a minimum 10-foot high temporary noise barrier at the Project site boundary for the future residential uses represented by R6, and a 50-foot buffer for large mobile equipment (greater than 80,000 pounds) for both R2 and R6, as shown on Exhibit ES-B. The construction noise PDFs are outlined below. With the PDFs identified herein, the noise impact due to Project construction is considered a *less than significant* impact.

CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from temporary Project construction activities would cause only intermittent, localized intrusion. The analysis shows that the unmitigated Project-construction vibration levels will remain below the Federal Transit Administration (FTA) 80 VdB threshold at the nearby receiver locations, and are therefore, considered a *less than significant* impact.

Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating at the Project site perimeter.

CONSTRUCTION NOISE PROJECT DESIGN FEATURES

The following PDFs are included in the Project design to reduce construction noise and vibration levels produced by the construction equipment to the nearby sensitive land uses.

- If R6 represents occupied residential use at the time of Project construction, install a minimum 10-foot high temporary construction noise barrier at the Project's site boundary adjacent to sensitive receiver location R6, shown on Exhibit ES-B, for the duration of Project construction. The noise control barriers must have a solid face from top to bottom. The noise control barrier must meet the minimum height and be constructed as follows:
    - The temporary noise barrier shall provide a minimum transmission loss of 20 dBA (Federal Highway Administration, Noise Barrier Design Handbook). The noise barrier shall be constructed using an acoustical blanket (e.g. vinyl acoustic curtains or quilted blankets) attached to the construction site perimeter fence or equivalent temporary fence posts. Example photos are provided in Appendix 11.2.;
    - The noise barrier must be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired;
    - The noise control barrier and associated elements shall be completely removed, and the site appropriately restored upon the conclusion of the construction activity.
- Large mobile equipment (greater than or equal to 80,000 pounds) (5) shall not be used within 50 feet of receiver locations R2 and R6 if occupied at the time of Project construction, as shown on Exhibit ES-B. Instead, smaller, rubber-tired mobile equipment (less than 80,000 pounds) or equivalent alternative equipment shall be used within this area during Project construction.
- Prior to approval of grading plans and/or issuance of building permits, plans shall include a note indicating that Project construction activities shall comply with the City of Moreno Valley Municipal Code requirements. (6)
- During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site during all Project construction (i.e., to the western center).
- The contractor shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.

SUMMARY OF SIGNIFICANCE FINDINGS

The results of this Continental Villages Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report. Table ES-1 shows the findings of significance for each potential noise and/or vibration impact before and after any required mitigation measures.

TABLE ES-1: SUMMARY OF SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Traffic Noise	7	*Less Than Significant*	-
On-Site Traffic Noise	8	*Less Than Significant*	-
Operational Noise	10	*Less Than Significant*	-
Construction Noise	11	*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-

EXHIBIT ES-A: SUMMARY OF ON-SITE RECOMMENDATIONS

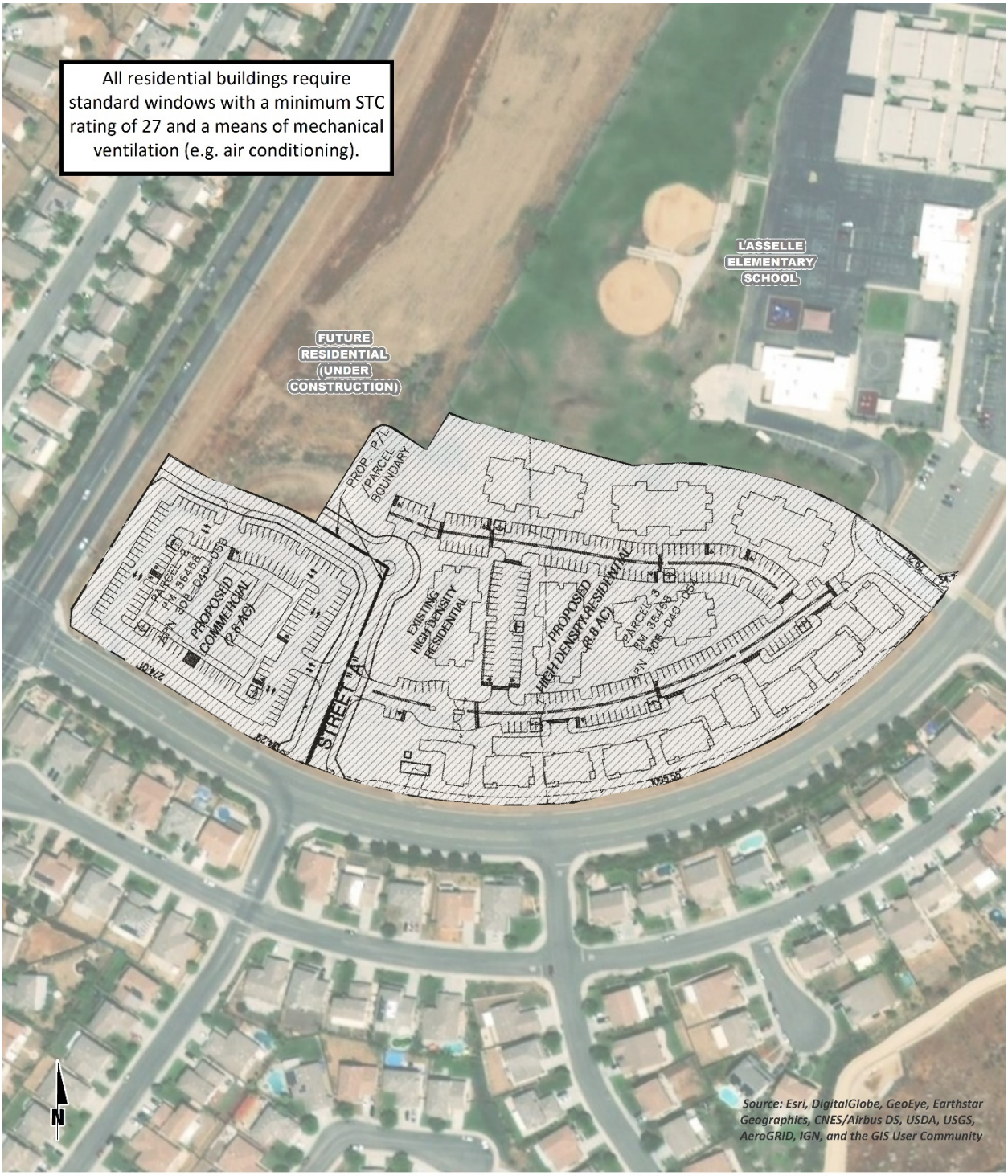

EXHIBIT ES-B: SUMMARY OF CONSTRUCTION NOISE PROJECT DESIGN FEATURES

LEGEND:

- Receiver
- 6' Existing Barrier Height (in Existing)
- Construction
- Distance from receiver to construction activity (in feet)
- 10-foot high (minimum) temporary noise
- 50-foot buffer for large mobile equipment (> 80,000 lbs)

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Continental Villages ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, describes the local regulatory setting, provides the study methods and procedures for traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term operational and short-term construction noise impacts.

1.1 SITE LOCATION

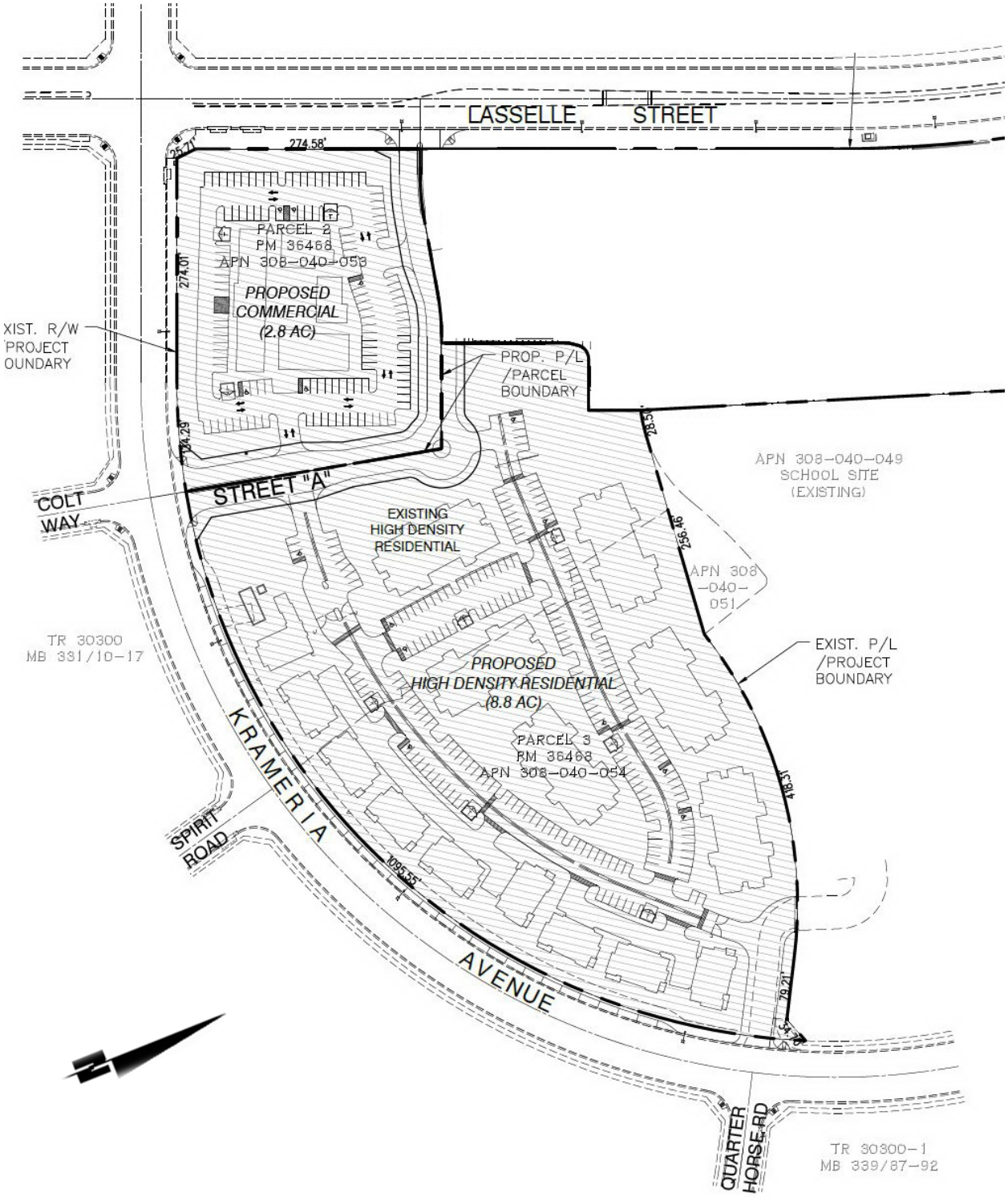
The proposed Continental Villages site is located on the northeast corner of Lasselle Street and Krameria Avenue in the City of Moreno Valley, as shown on Exhibit 1-A. Existing uses in the Project study area include existing residential homes northwest, south, and east of the Project site, the Lasselle Elementary School north of the Project site, and future residential uses, currently under construction, north of the Project site.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of up to 112 apartments/duplexes and 21,000 square feet of commercial retail use, as shown on Exhibit 1-B. The on-site Project-related noise sources are expected to include: roof-top air conditioning units, residential entry gate activity, residential and commercial parking lot vehicle movements, and outdoor pool/spa activity.

EXHIBIT 1-A: LOCATION MAP

EXHIBIT 1-B: SITE PLAN



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2 FUNDAMENTALS

Noise has been simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

EXHIBIT 2-A: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		SPEECH INTERFERENCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	SLEEP DISTURBANCE
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

Source: Environmental Protection Agency Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA/ONAC 550/9-74-004) March 1974.

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (7) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 100 feet, which can cause serious discomfort. (8) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Day-Night Average Noise Level (LDN) and the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The LDN and CNEL are weighted averages of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The LDN time of day corrections include the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. The CNEL time of day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., in addition to the corrections for the LDN. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. LDN and CNEL do not represent the actual sound level heard at any particular time, but rather represent the total sound exposure. The City of Moreno Valley relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources, and therefore, this analysis uses the CNEL noise level to apply the more conservative evening hour corrections to the 24-hour noise levels.

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors.

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (7)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receptor is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receptor such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (9)

2.3.3 ATMOSPHERIC EFFECTS

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (7)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby resident. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The FHWA does not consider the planting of vegetation to be a noise abatement measure. (9)

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for a particular observation point or receptor by controlling the noise source, transmission path, receptor, or all three. This concept is known as the source-path-receptor concept. In general, noise control measures can be applied to any and all of these three elements.

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receptor.

Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (9)

2.6 LAND USE COMPATIBILITY WITH NOISE

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (10)

2.7 COMMUNITY RESPONSE TO NOISE

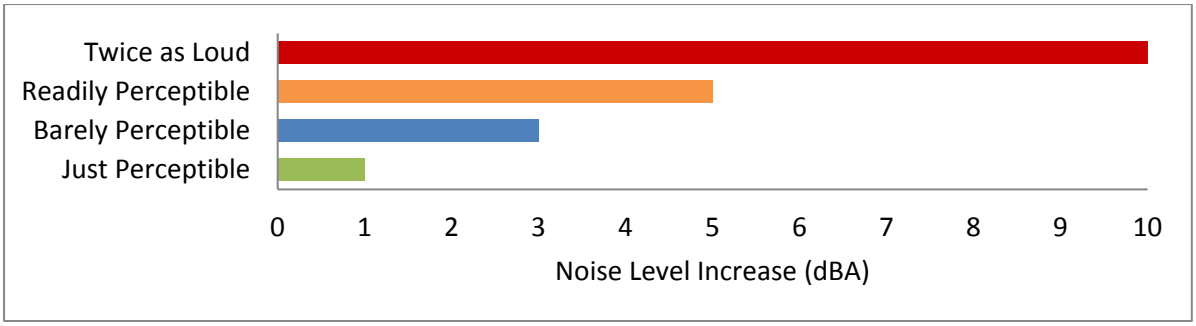
Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon each individual's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

- Fear associated with noise producing activities;
- Socio-economic status and educational level;
- Perception that those affected are being unfairly treated;
- Attitudes regarding the usefulness of the noise-producing activity;
- Belief that the noise source can be controlled.

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (11) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (11)

Despite this variability in behavior on an individual level, the population as a whole can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. An increase or decrease of 1 dBA cannot be perceived except in carefully controlled laboratory experiments, a change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (9)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



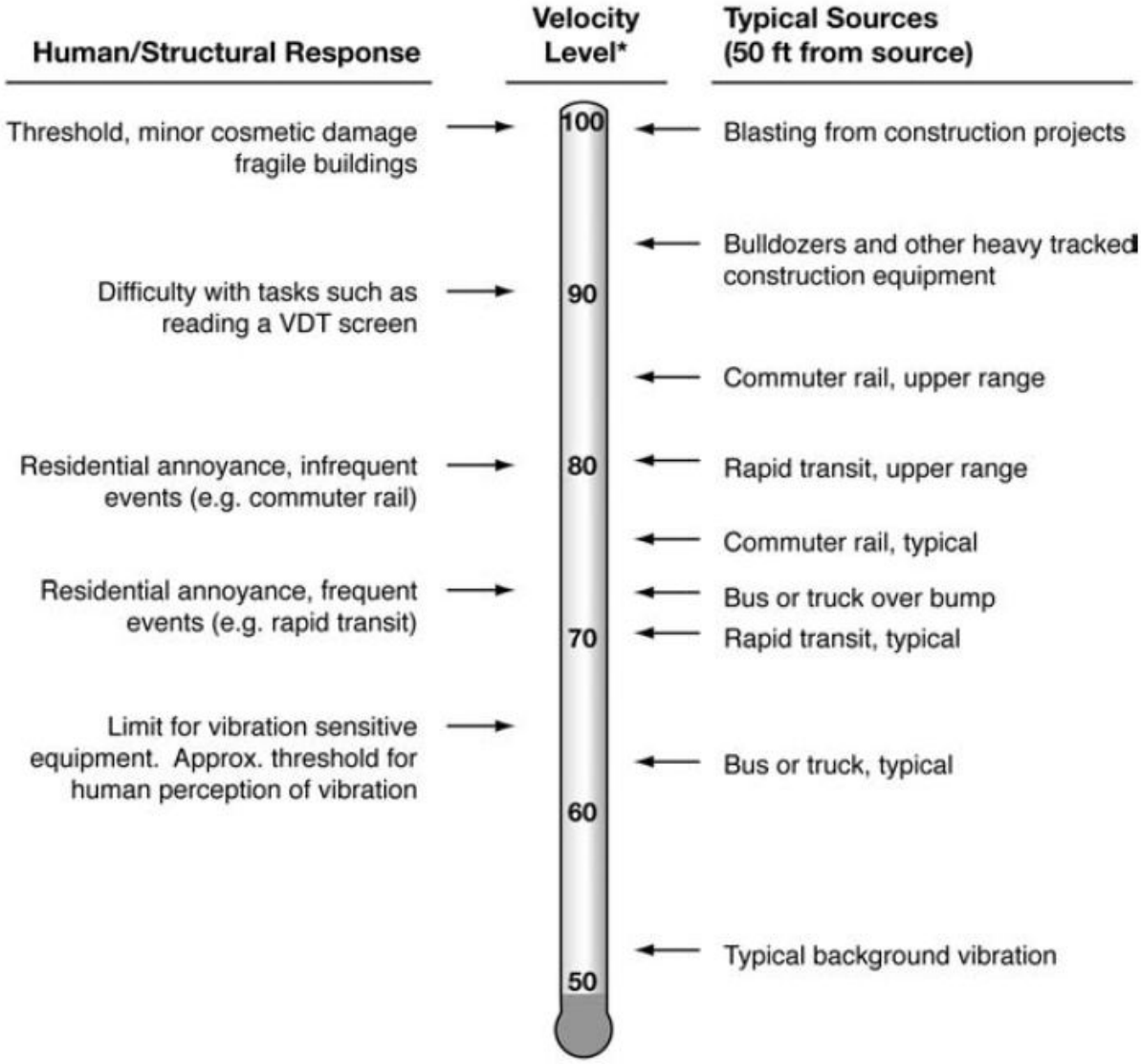
2.8 VIBRATION

According to the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (12), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation (VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment.

The background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.

EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION



** RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second*

Source: Federal Transit Administration (FTA) Transit Noise Impact and Vibration Assessment.

3 REGULATORY SETTING

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains fairly constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared according to guidelines adopted by the Governor's Office of Planning and Research (OPR). (3) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*.

3.2 STATE OF CALIFORNIA GREEN BUILDING STANDARDS CODE

The State of California's noise insulation standards are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2, and the California Building Code. These noise standards are applied to new construction in California for the purpose of controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are developed near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Acoustical studies that accompany building plans for noise-sensitive land uses must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

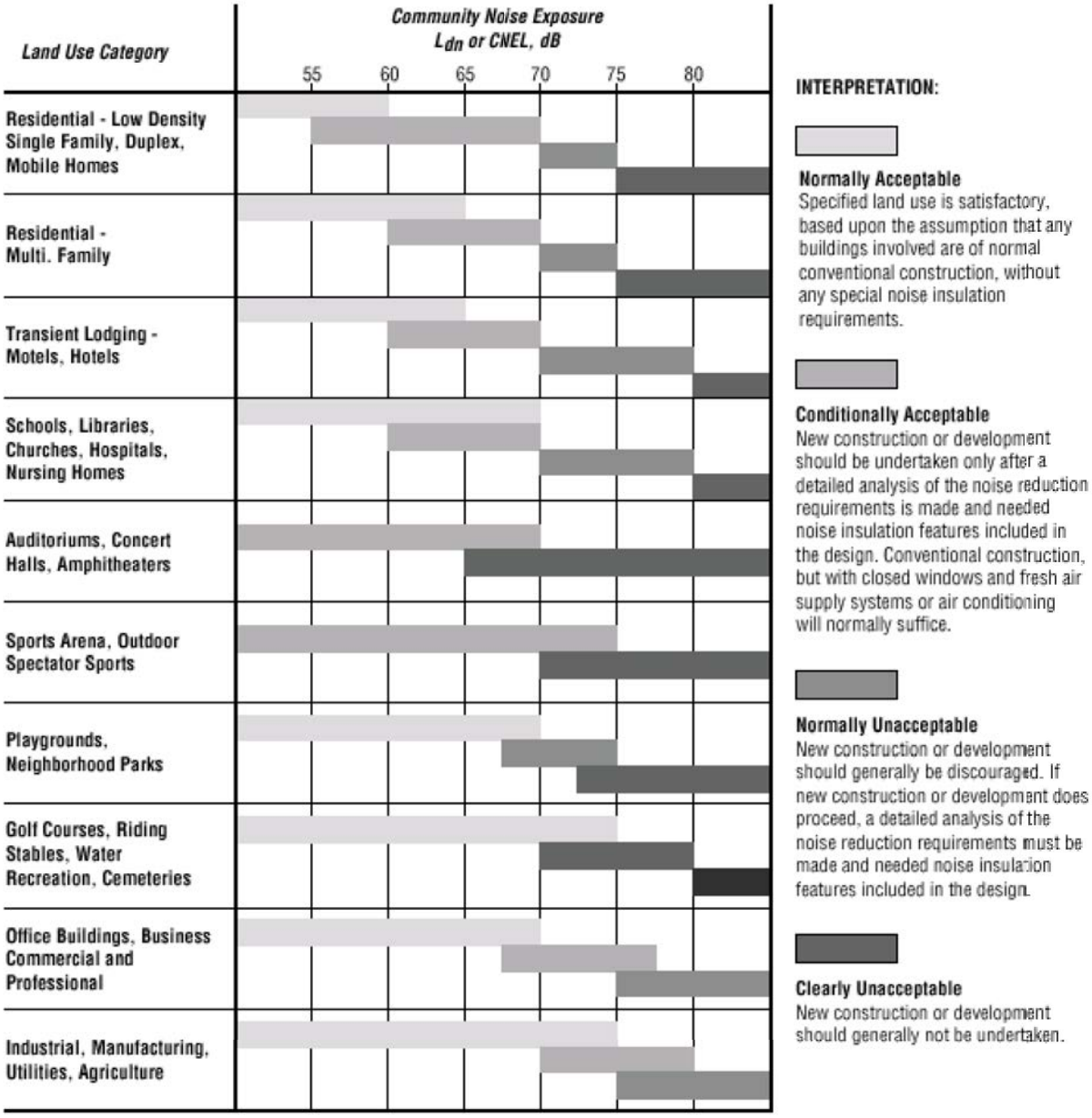
3.3 CITY OF MORENO VALLEY GENERAL PLAN

The City of Moreno Valley Noise Element typically provides the standards for land use compatibility for community noise exposure. However, the City of Moreno Valley General Plan does not include a noise element or specific transportation-related noise standards. Rather, noise is considered in the Environmental Safety section of the General Plan Safety Element. (13) While the General Plan provides background and noise fundamentals, it does not identify criteria to assess the impacts associated with off-site transportation-related noise impacts. Therefore, for this analysis, the transportation noise criteria are derived from standards contained in the California Office of Planning and Research (OPR) *General Plan Guidelines*.

The OPR land use/noise compatibility standards are used by many California cities and counties and specify the maximum noise levels allowable for new developments impacted by transportation noise sources. The OPR land use/noise compatibility criteria, found in Figure 2 of the *General Plan Guidelines, Appendix C: Noise Element Guidelines,* identify the criteria for residential uses such as the Project, as shown on Exhibit 3-A. When the unmitigated exterior noise levels approach 65 dBA CNEL Project land use is considered *normally acceptable*. With exterior noise levels range from 60 to 70 dBA CNEL, residential uses are considered *conditionally acceptable*, and with exterior noise levels greater than 70 dBA CNEL, they are considered *normally unacceptable*. For *normally unacceptable* land use, *new construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.* (3)

The purpose of the transportation noise criteria is to protect, create, and maintain an environment free from noise and vibration that may jeopardize the health or welfare of sensitive receptors, or degrade quality of life. City General Policies (City of Moreno Valley General Plan, pp.9-31, 9-32) act to ensure that when exterior noise levels exceed 65 dBA CNEL at sensitive receptors, mitigation is provided to ensure that interior noise levels of 45 dBA CNEL are maintained. General Plan Policies in this regard are consistent with, and support, the California Building Code interior noise standards.

EXHIBIT 3-A: LAND USE NOISE COMPATIBILITY CRITERIA



Source: OPR General Plan Guidelines, Appendix C: Noise Element Guidelines, Figure 2.

3.4 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Continental Villages Project, stationary-source (operational) noise such as the expected roof-top air conditioning units, residential entry gate activity, residential and commercial parking lot vehicle movements, and outdoor pool/spa activity are typically evaluated against standards established under a City's Municipal Code.

The City of Moreno Valley Municipal Code, Chapter 11.80 *Noise Regulation*, provides performance standards and noise control guidelines for determining and mitigating non-transportation or stationary-source noise impacts from operations at private properties. The City of Moreno Valley Municipal Code defines *Maximum Sound Levels (in dB(A)) for Source Land Uses* in Table 11.80.030-2 for *Residential* and *Commercial* land uses. As defined by the Municipal Code, Section 11.80.020 *Definitions*, *Residential* land use *means all uses of land primarily for dwelling units, as well as hospitals, schools, colleges and universities, and places of religious assembly.* (6) For the purpose of this analysis, the Continental Villages Project is considered *Residential* land use. Based on this standard, the operational noise level limits for residential land use, from Table 11.80.030-2, of 60 dBA L_{eq} during the daytime (8:00 a.m. to 10:00 p.m.) hours and 55 dBA L_{eq} during the nighttime (10:01 p.m. to 7:59 a.m.) hours shall apply to the operational noise from the Project.

Further, Section 11.80.030 (C) *Prohibited Acts*, *Nonimpulsive Sound Decibel Limits*, states: *No person shall maintain, create, operate or cause to be operated on private property any source of sound in such a manner as to create any nonimpulsive sound which exceeds the limits set forth for the source land use category (as defined in Section 11.80.020) in Table 11.80.030-2 when measured at a distance of two hundred (200) feet or more from the real property line of the source of the sound, if the sound occurs on a privately owned property…* (6) Therefore, at a distance of 200 feet from the property line, the Project's operational noise levels shall not exceed the 60 dBA L_{eq} daytime and 50 dBA L_{eq} nighttime noise level standards for residential land uses, as shown on Table 3-1.

The City of Moreno Valley Municipal Code also identifies continuous sound level limits in Table 11.80.030-1 based on the Center for Disease Control and Prevention and the National Institute for Occupational Safety and Health (NIOSH) noise exposure guidelines. A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The City of Moreno Valley noise level threshold starts at 90 dBA for more than eight hours per day, and for every increase, the exposure time is reduced. The City of Moreno Valley identifies noise level thresholds of 92 dBA for more than 6 hours per day, 95 dBA for more than 4 hour per day, 97 dBA for more than 3 hours per day, and up to 100 dBA for more than 2 hours per day. However, this noise study uses the more restrictive City of Moreno Valley noise level limits identified on Table 11.80.030-2 for source land uses in the Municipal Code, shown on Table 3-1 of this report, to evaluate the potential operational noise levels due to the operation of the Project.

TABLE 3-1: OPERATIONAL NOISE STANDARDS AT 200 FEET FROM THE SOURCE

Jurisdiction	Source Land Use	Time Period	Maximum Noise Level for Source Land Uses @ 200' (dBA L_{eq})[2]
City of Moreno Valley[1]	Residential	Daytime (8:00 a.m. - 10:00 p.m.)	60
		Nighttime (10:01 p.m. - 7:59 a.m.)	55

[1] Source: City of Moreno Valley Municipal Code, Chapter 11.80 Noise Regulation, Table 11.80.030-2 Maximum Sound Levels (in dB(A)) for Source Land Uses when measured at a distance of 200 feet from the property line of the source land use (Appendix 3.1).
[2] L_{eq} represents a steady state sound level containing the same total energy as a time varying signal over a given sample period.

3.5 CONSTRUCTION NOISE STANDARDS

To analyze noise impacts originating from the construction of the Continental Villages site, noise from construction activities are typically evaluated against standards established under a City's Municipal Code. The Municipal Code noise standards for construction are described below for the City of Moreno Valley to determine the potential noise impacts at nearby receiver locations. The construction-related noise standards are shown on Table 3-2.

The Municipal Code noise standards for construction are described below for the City of Moreno Valley to determine the potential noise impacts at nearby sensitive receiver locations. As a subset of its stationary-source noise regulations, the City Municipal Code establishes permitted hours of construction activity. More specifically, Municipal Code Section 11.80.030 (D) (7), *Construction and Demolition*, provides the following:

> *No person shall operate, or cause operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between the hours of eight p.m. and seven a.m. the following day such that the sound there from creates a noise disturbance, except for emergency work by public service utilities or for other work approved by the city manager or designee.*

Therefore, based on the Section 11.80.030 (D) (7) construction regulations, a construction-related *noise disturbance* occurs if Project construction activity occurs outside of the permitted hours. However, for this analysis, the stationary-source noise level limits of 60 dBA L_{eq} (daytime) for residential uses, and 65 dBA L_{eq} (daytime) for commercial uses are used as appropriate thresholds for the land uses (e.g. residential homes and office buildings, respectively) in the Project study area. In addition, grading operations shall be limited to the hours identified in Section 8.21.050 (O) of 7:00 a.m. to 6:00 p.m., Monday through Friday, and 8:00 a.m. to 4:00 p.m. on weekends and holidays or as approved by the City Engineer. The City of Moreno Valley construction noise standards are shown on Table 3-2 and included in Appendix 3.1. As previously discussed in Section 3.4, the construction noise level threshold used in this noise study represents a conservative approach, since it is more restrictive than the continuous sound level limits of Table 11.80.030-1 of the City of Moreno Valley Municipal Code.

TABLE 3-2: CONSTRUCTION NOISE STANDARDS FROM THE SOURCE LAND USE

Jurisdiction	Permitted Hours of Construction Activity	Construction Noise Level Standards (dBA L_{eq})[2]	
		Residential	Commercial
City of Moreno Valley[1]	General Activity: 7:00 a.m. to 8:00 p.m. on any day. Grading is limited to 7:00 a.m. to 6:00 p.m. Monday to Friday; 8:00 a.m. to 4:00 p.m. on weekends and holidays.	60	65

[1] Source: City of Moreno Valley Municipal Code, Section 11.80.030 (D) (7) and Section 8.21.050 (O) (Appendix 3.1).
[2] Acceptable threshold for determining the relative significance of short-term Project construction noise levels, based on the City of Moreno Valley stationary noise standards by land use type.
"Daytime" = 8:00 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:59 a.m.

3.6 VIBRATION STANDARDS

The City of Moreno Valley has not identified or adopted specific vibration level standards. However, the United States Department of Transportation Federal Transit Administration (FTA) provides guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines allow 80 VdB for residential uses and buildings where people normally sleep. (12) Operational and construction activities can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. Large bulldozers and loaded trucks can cause perceptible vibration levels proximate receptors. The FTA guidelines of 80 VdB for sensitive land uses provide a substantiated basis for determining the relative significance of potential Project-related vibration impacts due to on-site operational and construction activities.

4 SIGNIFICANCE CRITERIA

The following significance criteria are based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

A. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

B. Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.

C. A substantial permanent increase in ambient noise levels in the Project vicinity above existing levels without the proposed Project; or

D. A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above noise levels existing without the proposed Project.

E. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the Project area to excessive noise levels.

F. For a project within the vicinity of a private airstrip, expose people residing or working in the Project area to excessive noise levels.

While the CEQA Guidelines and the City of Moreno Valley General Plan Guidelines provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts under CEQA Guideline A, they do not define the levels at which increases are considered substantial for use under Guidelines B, C, and D. CEQA Guidelines E and F apply to nearby public and private airports, if any, and the Project's land use compatibility.

The Project site is not located within two miles of a public airport or within an airport land use plan; nor is the Project within the vicinity of a private airstrip. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to Guidelines E and F.

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels and the location of noise-sensitive receivers in order to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (14)

Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. The Federal Interagency Committee on Noise (FICON) (15) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (i.e., CNEL) or energy average noise level (i.e., L_{eq}).

For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, FICON identifies a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the noise criteria for a given land use is exceeded. According to the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. Table 4-1 below provides a summary of the potential noise impact significance criteria, based on guidance from FICON.

TABLE 4-1: SIGNIFICANCE OF NOISE IMPACTS AT NOISE-SENSITIVE RECEIVERS

Without Project Noise Level	Potential Significant Impact
< 60 dBA	5 dBA or more
60 - 65 dBA	3 dBA or more
> 65 dBA	1.5 dBA or more

Federal Interagency Committee on Noise (FICON), 1992.

4.1 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-2 shows the significance criteria summary matrix.

OFF-SITE TRAFFIC NOISE

- When the noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.):
    - are less than 60 dBA CNEL and the Project creates a *readily perceptible* 5 dBA CNEL or greater Project-related noise level increase; or
    - range from 60 to 65 dBA CNEL and the Project creates a *barely perceptible* 3 dBA CNEL or greater Project-related noise level increase; or
    - already exceed 65 dBA CNEL, and the Project creates a community noise level impact of greater than 1.5 dBA CNEL (FICON, 1992).

ON-SITE TRAFFIC NOISE

- If the on-site traffic noise levels exceed the 70 dBA CNEL *normally unacceptable* land use compatibility criteria and interior noise levels exceed 45 dBA CNEL (Figure 2 of the OPR *General Plan Guidelines, Appendix C: Noise Element Guidelines*).

OPERATIONAL NOISE

- If Project-related operational (stationary source) noise levels:
    - exceed the 60 dBA L_{eq} daytime or 55 dBA L_{eq} nighttime noise level standards at 200 feet from the property line of the noise source (City of Moreno Valley Municipal Code, Table 11.80.030-2); or
    - exceed the 60 dBA L_{eq} daytime or 55 dBA L_{eq} nighttime noise level standards at residential receivers in the City of Moreno Valley (City of Moreno Valley Municipal Code, Table 11.80.030-2).
- If the existing ambient noise levels at the nearby noise-sensitive receivers near the Project site:
    - are less than 60 dBA L_{eq} and the Project creates a *readily perceptible* 5 dBA L_{eq} or greater Project-related noise level increase; or
    - range from 60 to 65 dBA L_{eq} and the Project creates a *barely perceptible* 3 dBA L_{eq} or greater Project-related noise level increase; or
    - already exceed 65 dBA L_{eq}, and the Project creates a community noise level increase of greater than 1.5 dBA L_{eq} (FICON, 1992).

CONSTRUCTION NOISE AND VIBRATION

- If Project-related construction activities:
    - create noise levels at sensitive residential receivers in the City of Moreno Valley which exceed the short-term daytime construction noise level threshold of 60 dBA L_{eq} at noise-sensitive residential receiver locations or 65 dBA L_{eq} at non-noise-sensitive commercial receiver locations, or the continuous noise level limit of 90 dBA L_{eq} at any land use (based on the City of Moreno Valley Municipal Code, Table 11.80.030-2 noise level limits, and the Table 11.80.030-1 continuous noise level limits).

- If short-term project generated construction source vibration levels could exceed the FTA maximum acceptable vibration standard of 80 vibration decibels (VdB) at noise-sensitive receiver locations.

TABLE 4-2: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site Traffic	Noise-Sensitive[1]	if ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		if ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		if ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
On-Site Traffic	Noise-Sensitive	Exterior Noise Level Compatibility Criteria	See Exhibit 3-A.	
		Interior Noise Level Standard	45 dBA CNEL	
Operational	Noise-Sensitive	At 200' from the property line of the source[2]	60 dBA L_{eq}	55 dBA L_{eq}
		At residential land use[2]	60 dBA L_{eq}	55 dBA L_{eq}
		if ambient is < 60 dBA L_{eq}[1]	≥ 5 dBA L_{eq} Project increase	
		if ambient is 60 - 65 dBA L_{eq}[1]	≥ 3 dBA L_{eq} Project increase	
		if ambient is > 65 dBA L_{eq}[1]	≥ 1.5 dBA L_{eq} Project increase	
		Vibration Level Threshold[3]	80 VdB	n/a
Construction	Noise-Sensitive	At residential land use[2]	60 dBA L_{eq}	n/a
		At commercial land use[2]	65 dBA L_{eq}	n/a
		At any land use	90 dBA L_{eq}	n/a
		Vibration Level Threshold[3]	80 VdB	n/a

[1] Source: FICON, 1992.
[2] Source: City of Moreno Valley Municipal Code, Chapter 11.80 Noise Regulation (Appendix 3.1).
[3] Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.
"Daytime" = 8:00 a.m. - 10:00 p.m.; "Nighttime" = 10:01 p.m. - 7:59 a.m.

5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, four 24-hour noise level measurements were taken at potential receiver locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, August 15th, 2018. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (16)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (7) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (12)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (12) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby

sensitive receiver locations allows for a comparison of the before and after Project noise levels and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (8:00 a.m. to 10:00 p.m.) and nighttime (10:01 p.m. to 7:59 a.m.) noise levels at each noise level measurement location consistent with the City of Moreno Valley Municipal Code. Appendix 5.2 provides a summary of the existing hourly ambient noise levels described below:

- Location L1 represents the noise levels adjacent to the Project site boundaries on Quarter Horse Road near Lasselle Elementary School. The noise level measurements collected show an overall 24-hour exterior noise level of 58.2 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 53.1 dBA L_{eq} with an average nighttime noise level of 52.5 dBA L_{eq}.
- Location L2 represents the noise levels south of the Project site across Krameria Avenue near existing residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 62.5 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 58.1 dBA L_{eq} with an average nighttime noise level of 57.4 dBA L_{eq}.
- Location L3 represents the noise levels southwest of the Project site on Krameria Avenue, adjacent to existing residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 64.5 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 61.0 dBA L_{eq} with an average nighttime noise level of 58.9 dBA L_{eq}.
- Location L4 represents the noise levels west of the Project site across Lasselle Street near existing residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 72.5 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 68.4 dBA L_{eq} with an average nighttime noise level of 64.9 dBA L_{eq}.

Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods.

The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with the arterial roadway network. This includes the auto and heavy truck activities near the noise level measurement locations. The 24-hour existing noise level measurements are shown on Table 5-1.

TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Distance to Project Boundary (Feet)	Description	Energy Average Noise Level (dBA L_{eq})[2]		CNEL
			Daytime	Nighttime	
L1	0'	Located adjacent to the Project site boundaries on Quarter Horse Road near Lasselle Elementary School.	53.1	52.5	58.2
L2	85'	Located south of the Project site across Krameria Avenue near existing residential homes.	58.1	57.4	62.5
L3	90'	Located southwest of the Project site on Krameria Avenue, adjacent to existing residential homes.	61.0	58.9	64.5
L4	125'	Located west of the Project site across Lasselle Street near existing residential homes.	68.4	64.9	72.5

[1] See Exhibit 5-A for the noise level measurement locations.
[2] Energy (logarithmic) average hourly levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2.
"Daytime" = 8:00 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:59 a.m.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS

6 METHODS AND PROCEDURES

The following section outlines the methods and procedures used to model and analyze the future traffic noise environment.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (17) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (18) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

6.1.1 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the 11 study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Moreno Valley General Plan Circulation Element, and the posted vehicle speeds. For this analysis, soft site conditions are used to analyze the traffic noise impacts within the Project study area. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Caltrans' research has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model as used in this off-site traffic noise analysis. (19)

The Existing, Opening Year 2023, and Horizon Year 2040 average daily traffic volumes used for this study are presented on Table 6-2 and are provided by *Continental Villages Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (2) Table 6-3 presents the time of day vehicle splits and Table 6-4 presents the traffic flow distributions (vehicle mix) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA noise prediction model.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Adjacent Land Use[1]	Distance From Centerline To Nearest Adjacent Land Use (Feet)[2]	Vehicle Speed (mph)[3]
1	Kitching St.	n/o Krameria Av.	Residential	44'	45
2	Lasselle St.	n/o Iris Av.	Residential/Commercial	50'	50
3	Lasselle St.	s/o Iris Av.	Residential	50'	45
4	Lasselle St.	s/o Cahuilla Dr.	Residential	50'	50
5	Lasselle St.	s/o Krameria Av.	Residential	50'	50
6	Iris Av.	w/o Lasselle St.	Residential/Commercial	67'	50
7	Iris Av.	e/o Lasselle St.	Residential/Commercial	67'	50
8	Krameria Av.	w/o Kitching St.	Residential	44'	35
9	Krameria Av.	e/o Kitching St.	Residential	44'	35
10	Krameria Av.	e/o Lasselle St.	Residential	44'	35
11	Krameria Av.	e/o Colt Wy.	Residential	44'	35

[1] Source: Google Earth aerial imagery and the City of Moreno Valley General Plan Land Use Map.
[2] Distance to adjacent land use is based upon the right-of-way distances for each functional roadway classification provided in the General Plan Circulation Element.
[3] Source: Continental Villages Traffic Impact Analysis prepared by Urban Crossroads, Inc.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic (1,000's)[1]					
			Existing		Opening Year 2023		Horizon Year 2040	
			Without Project	With Project	Without Project	With Project	Without Project	With Project
1	Kitching St.	n/o Krameria Av.	6.9	7.1	7.7	7.9	20.0	20.2
2	Lasselle St.	n/o Iris Av.	25.7	26.0	32.1	32.4	35.3	35.7
3	Lasselle St.	s/o Iris Av.	32.1	33.0	37.7	38.6	41.4	42.4
4	Lasselle St.	s/o Cahuilla Dr.	25.4	26.3	29.8	30.6	32.7	33.6
5	Lasselle St.	s/o Krameria Av.	31.9	32.4	36.6	37.1	40.2	40.7
6	Iris Av.	w/o Lasselle St.	26.1	26.4	31.1	31.4	34.2	34.5
7	Iris Av.	e/o Lasselle St.	33.1	33.4	42.1	42.4	46.3	46.6
8	Krameria Av.	w/o Kitching St.	9.8	10.1	12.4	12.6	13.6	13.9
9	Krameria Av.	e/o Kitching St.	9.2	9.9	11.7	12.3	12.9	13.5
10	Krameria Av.	e/o Lasselle St.	5.6	6.8	6.7	7.9	7.3	8.5
11	Krameria Av.	e/o Colt Wy.	4.3	4.5	5.0	5.2	5.5	5.7

[1] Source: Continental Villages Traffic Impact Analysis prepared by Urban Crossroads, Inc.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits[1]			Total of Time of Day Splits
	Daytime	Evening	Nighttime	
Autos	77.50%	12.90%	9.60%	100.00%
Medium Trucks	84.80%	4.90%	10.30%	100.00%
Heavy Trucks	86.50%	2.70%	10.80%	100.00%

[1] Source: Typical Southern California vehicle mix.
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 6-4: DISTRIBUTION OF TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX)

Classification	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
All Roadways[1]	97.42%	1.84%	0.74%	100.00%

[1] Source: Typical Southern California vehicle mix.

6.1.2 ON-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

The on-site roadway parameters including the ADT volumes used for this analysis are presented on Table 6-5. Based on the City of Moreno Valley General Plan Environmental Impact Report, Lasselle Street is classified as a 4-lane Arterial, and Krameria Avenue is classified as a 4-lane Minor Arterial. (20) To predict the future on-site noise environment at the Project site, Horizon Year 2040 with Project ADT volumes were obtained from the *Traffic Impact Analysis*. The traffic volumes shown on Table 6-1 reflect future long-range traffic conditions needed to assess the future on-site traffic noise environment and to identify potential mitigation measures (if any) that address the worst-case future conditions. For the purposes of this analysis, soft site conditions were used to analyze the on-site traffic noise impacts for the Project study area. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (19)

As previously described, Table 6-3 presents the time of day vehicle splits and Table 6-4 presents the traffic flow distributions (vehicle mix) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA noise prediction model.

TABLE 6-5: ON-SITE ROADWAY PARAMETERS

Roadway	Lanes	Classification[1]	Design Capacity Volume[2]	Speed Limit (mph)[2]	Site Conditions
Lasselle St.	4	Arterial	33,800	50	Soft
Krameria Av.	4	Minor Arterial	5,700	35	Soft

[1] Source: City of Moreno Valley General Plan Environmental Impact Report, Section 5.2 Traffic/Circulation, Tables 5.2-5 to 5.2-7.
[2] Horizon Year 2040 with Project Traffic Volumes (Exhibit 7-2) from the Continental Villages Traffic Impact Analysis prepared by Urban Crossroads, Inc.

To predict the future noise environment at the residential buildings within the Project site, coordinate information was collected to identify the noise transmission path between the noise source and receiver. The coordinate information is based on the Project site plan showing the plotting of the building in relationship to Lasselle Street and Krameria Avenue. The exterior noise level impacts at the first-floor building facade were placed five feet above the pad elevation, with second-floor receiver locations at 14 feet.

6.2 VIBRATION ASSESSMENT

This analysis focuses on the potential ground-borne vibration associated with vehicular traffic and construction activities. Ground-borne vibration levels from automobile traffic are generally overshadowed by vibration generated by heavy trucks that roll over the same uneven roadway surfaces. However, due to the rapid drop-off rate of ground-borne vibration and the short duration of the associated events, vehicular traffic-induced ground-borne vibration is rarely perceptible beyond the roadway right-of-way, and rarely results in vibration levels that cause damage to buildings in the vicinity.

However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 6-6. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the human response (annoyance) using the following vibration assessment methods defined by the FTA. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation: $L_{VdB}(D) = L_{VdB}(25\ ft) - 30\log(D/25)$

TABLE 6-6: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	Vibration Decibels (VdB) at 25 feet[1]
Small bulldozer	58
Jackhammer	79
Loaded Trucks	86
Large bulldozer	87

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.

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7 OFF-SITE TRAFFIC NOISE IMPACTS

To assess the off-site transportation CNEL noise level impacts associated with development of the proposed Project, noise contours were developed based on *Continental Villages Traffic Impact Analysis*. (2) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway. Noise contours were developed for the following traffic scenarios:

- Existing Conditions Without / With Project: This scenario refers to the existing present-day noise conditions without and with the proposed Project.
- Opening Year 2023 Without / With Buildout of the Project: This scenario refers to Year 2023 noise conditions without and with Buildout of the proposed Project. This scenario includes all cumulative projects identified in the *Traffic Impact Analysis*.
- Horizon Year 2040 Without / With Project: This scenario refers to the background noise conditions at future Year 2040 without and with the proposed Project. This scenario corresponds to 2040 conditions, and includes all cumulative projects identified in the *Traffic Impact Analysis*.

7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 7-1 and 7-6 present a summary of the exterior traffic noise levels, without barrier attenuation, for the study area roadway segments analyzed from the without Project to the with Project conditions under Existing, Opening Year 2023, and Horizon Year 2040 conditions. Appendix 7.1 includes a summary of the traffic noise level contours for each of the traffic scenarios.

TABLE 7-1: EXISTING WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Kitching St.	n/o Krameria Av.	Residential	66.9	RW	59	127
2	Lasselle St.	n/o Iris Av.	Residential/Commercial	72.5	74	159	343
3	Lasselle St.	s/o Iris Av.	Residential	72.4	72	155	333
4	Lasselle St.	s/o Cahuilla Dr.	Residential	72.5	73	158	340
5	Lasselle St.	s/o Krameria Av.	Residential	73.5	85	184	396
6	Iris Av.	w/o Lasselle St.	Residential/Commercial	71.4	83	179	385
7	Iris Av.	e/o Lasselle St.	Residential/Commercial	72.4	97	209	451
8	Krameria Av.	w/o Kitching St.	Residential	65.7	RW	49	106
9	Krameria Av.	e/o Kitching St.	Residential	65.5	RW	47	102
10	Krameria Av.	e/o Lasselle St.	Residential	63.3	RW	RW	73
11	Krameria Av.	e/o Colt Wy.	Residential	62.2	RW	RW	61

[1] Source: Google Earth aerial imagery and the City of Moreno Valley General Plan Land Use Map.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-2: EXISTING WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Kitching St.	n/o Krameria Av.	Residential	67.0	RW	60	130
2	Lasselle St.	n/o Iris Av.	Residential/Commercial	72.6	74	160	345
3	Lasselle St.	s/o Iris Av.	Residential	72.5	73	158	339
4	Lasselle St.	s/o Cahuilla Dr.	Residential	72.6	75	162	348
5	Lasselle St.	s/o Krameria Av.	Residential	73.5	86	186	400
6	Iris Av.	w/o Lasselle St.	Residential/Commercial	71.4	84	180	388
7	Iris Av.	e/o Lasselle St.	Residential/Commercial	72.5	98	210	453
8	Krameria Av.	w/o Kitching St.	Residential	65.9	RW	50	108
9	Krameria Av.	e/o Kitching St.	Residential	65.8	RW	50	107
10	Krameria Av.	e/o Lasselle St.	Residential	64.2	RW	RW	83
11	Krameria Av.	e/o Colt Wy.	Residential	62.4	RW	RW	63

[1] Source: Google Earth aerial imagery and the City of Moreno Valley General Plan Land Use Map.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-3: OPENING YEAR 2023 WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Kitching St.	n/o Krameria Av.	Residential	67.4	RW	63	137
2	Lasselle St.	n/o Iris Av.	Residential/Commercial	73.5	86	184	397
3	Lasselle St.	s/o Iris Av.	Residential	73.1	80	172	371
4	Lasselle St.	s/o Cahuilla Dr.	Residential	73.2	81	176	378
5	Lasselle St.	s/o Krameria Av.	Residential	74.1	93	201	434
6	Iris Av.	w/o Lasselle St.	Residential/Commercial	72.1	93	201	432
7	Iris Av.	e/o Lasselle St.	Residential/Commercial	73.5	114	246	529
8	Krameria Av.	w/o Kitching St.	Residential	66.8	RW	58	124
9	Krameria Av.	e/o Kitching St.	Residential	66.5	RW	56	120
10	Krameria Av.	e/o Lasselle St.	Residential	64.1	RW	RW	83
11	Krameria Av.	e/o Colt Wy.	Residential	62.8	RW	RW	68

[1] Source: Google Earth aerial imagery and the City of Moreno Valley General Plan Land Use Map.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-4: OPENING YEAR 2023 WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Kitching St.	n/o Krameria Av.	Residential	67.5	RW	65	139
2	Lasselle St.	n/o Iris Av.	Residential/Commercial	73.5	86	186	400
3	Lasselle St.	s/o Iris Av.	Residential	73.2	81	175	377
4	Lasselle St.	s/o Cahuilla Dr.	Residential	73.3	83	179	385
5	Lasselle St.	s/o Krameria Av.	Residential	74.1	94	203	438
6	Iris Av.	w/o Lasselle St.	Residential/Commercial	72.2	94	202	435
7	Iris Av.	e/o Lasselle St.	Residential/Commercial	73.5	115	247	532
8	Krameria Av.	w/o Kitching St.	Residential	66.8	RW	58	126
9	Krameria Av.	e/o Kitching St.	Residential	66.7	RW	57	124
10	Krameria Av.	e/o Lasselle St.	Residential	64.8	RW	RW	92
11	Krameria Av.	e/o Colt Wy.	Residential	63.0	RW	RW	70

[1] Source: Google Earth aerial imagery and the City of Moreno Valley General Plan Land Use Map.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-5: HORIZON YEAR 2040 WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Kitching St.	n/o Krameria Av.	Residential	71.5	56	120	258
2	Lasselle St.	n/o Iris Av.	Residential/Commercial	73.9	91	197	423
3	Lasselle St.	s/o Iris Av.	Residential	73.5	85	183	395
4	Lasselle St.	s/o Cahuilla Dr.	Residential	73.6	87	187	402
5	Lasselle St.	s/o Krameria Av.	Residential	74.5	99	214	462
6	Iris Av.	w/o Lasselle St.	Residential/Commercial	72.6	99	214	461
7	Iris Av.	e/o Lasselle St.	Residential/Commercial	73.9	121	262	564
8	Krameria Av.	w/o Kitching St.	Residential	67.2	RW	61	132
9	Krameria Av.	e/o Kitching St.	Residential	66.9	RW	59	128
10	Krameria Av.	e/o Lasselle St.	Residential	64.5	RW	RW	87
11	Krameria Av.	e/o Colt Wy.	Residential	63.2	RW	RW	72

[1] Source: Google Earth aerial imagery and the City of Moreno Valley General Plan Land Use Map.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-6: HORIZON YEAR 2040 WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Kitching St.	n/o Krameria Av.	Residential	71.6	56	121	260
2	Lasselle St.	n/o Iris Av.	Residential/Commercial	74.0	92	198	427
3	Lasselle St.	s/o Iris Av.	Residential	73.6	86	186	401
4	Lasselle St.	s/o Cahuilla Dr.	Residential	73.7	88	190	410
5	Lasselle St.	s/o Krameria Av.	Residential	74.5	100	216	466
6	Iris Av.	w/o Lasselle St.	Residential/Commercial	72.6	100	215	463
7	Iris Av.	e/o Lasselle St.	Residential/Commercial	73.9	122	263	566
8	Krameria Av.	w/o Kitching St.	Residential	67.3	RW	62	134
9	Krameria Av.	e/o Kitching St.	Residential	67.1	RW	61	132
10	Krameria Av.	e/o Lasselle St.	Residential	65.1	RW	45	97
11	Krameria Av.	e/o Colt Wy.	Residential	63.4	RW	RW	74

[1] Source: Google Earth aerial imagery and the City of Moreno Valley General Plan Land Use Map.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

7.2 EXISTING CONDITION PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-1 presents the Existing without Project conditions CNEL noise levels. The without Project exterior noise levels are expected to range from 62.2 to 73.5 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions will range from 62.4 to 73.5 dBA CNEL. As shown on Table 7-7 the Project will generate a noise level increase of up to 0.8 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under Existing with Project conditions at the land uses adjacent to roadways conveying Project traffic.

TABLE 7-7: EXISTING CONDITION OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Adjacent Land Use[1]	CNEL at Adjacent Land Use (dBA)[2]			Threshold Exceeded?[3]
				No Project	With Project	Project Addition	
1	Kitching St.	n/o Krameria Av.	Residential	66.9	67.0	0.1	No
2	Lasselle St.	n/o Iris Av.	Residential/Commercial	72.5	72.6	0.1	No
3	Lasselle St.	s/o Iris Av.	Residential	72.4	72.5	0.1	No
4	Lasselle St.	s/o Cahuilla Dr.	Residential	72.5	72.6	0.2	No
5	Lasselle St.	s/o Krameria Av.	Residential	73.5	73.5	0.1	No
6	Iris Av.	w/o Lasselle St.	Residential/Commercial	71.4	71.4	0.0	No
7	Iris Av.	e/o Lasselle St.	Residential/Commercial	72.4	72.5	0.0	No
8	Krameria Av.	w/o Kitching St.	Residential	65.7	65.9	0.1	No
9	Krameria Av.	e/o Kitching St.	Residential	65.5	65.8	0.3	No
10	Krameria Av.	e/o Lasselle St.	Residential	63.3	64.2	0.8	No
11	Krameria Av.	e/o Colt Wy.	Residential	62.2	62.4	0.2	No

[1] Source: Google Earth aerial imagery and the City of Moreno Valley General Plan Land Use Map.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
[3] Significance Criteria (Section 4).

7.3 OPENING YEAR 2023 PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-3 presents the Opening Year 2023 without Project conditions CNEL noise levels which are expected to range from 62.8 to 74.1 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows the Opening Year 2023 with Project conditions will range from 63.0 to 74.1 dBA CNEL. As shown on Table 7-8 the Project will generate a noise level increase of up to 0.7 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under Opening Year 2023 with Project conditions at the land uses adjacent to roadways conveying Project traffic.

TABLE 7-8: OPENING YEAR 2023 OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Adjacent Land Use[1]	CNEL at Adjacent Land Use (dBA)[1]			Threshold Exceeded?[2]
				No Project	With Project	Project Addition	
1	Kitching St.	n/o Krameria Av.	Residential	67.4	67.5	0.1	No
2	Lasselle St.	n/o Iris Av.	Residential/Commercial	73.5	73.5	0.0	No
3	Lasselle St.	s/o Iris Av.	Residential	73.1	73.2	0.1	No
4	Lasselle St.	s/o Cahuilla Dr.	Residential	73.2	73.3	0.1	No
5	Lasselle St.	s/o Krameria Av.	Residential	74.1	74.1	0.1	No
6	Iris Av.	w/o Lasselle St.	Residential/Commercial	72.1	72.2	0.0	No
7	Iris Av.	e/o Lasselle St.	Residential/Commercial	73.5	73.5	0.0	No
8	Krameria Av.	w/o Kitching St.	Residential	66.8	66.8	0.1	No
9	Krameria Av.	e/o Kitching St.	Residential	66.5	66.7	0.2	No
10	Krameria Av.	e/o Lasselle St.	Residential	64.1	64.8	0.7	No
11	Krameria Av.	e/o Colt Wy.	Residential	62.8	63.0	0.2	No

[1] Source: Google Earth aerial imagery and the City of Moreno Valley General Plan Land Use Map.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
[3] Significance Criteria (Section 4).

7.4 HORIZON YEAR 2040 PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-5 presents the Horizon Year 2040 without Project conditions CNEL noise levels are expected to range from 63.2 to 74.5 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-6 shows the Horizon Year 2040 with Project conditions will range from 63.4 to 74.5 dBA CNEL. As shown on Table 7-9 the Project will generate a noise level increase of up to 0.7 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under Horizon Year 2040 with Project conditions at the land uses adjacent to roadways conveying Project traffic.

TABLE 7-9: HORIZON YEAR 2040 OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Adjacent Land Use[1]	CNEL at Adjacent Land Use (dBA)[1]			Threshold Exceeded?[2]
				No Project	With Project	Project Addition	
1	Kitching St.	n/o Krameria Av.	Residential	71.5	71.6	0.0	No
2	Lasselle St.	n/o Iris Av.	Residential/Commercial	73.9	74.0	0.0	No
3	Lasselle St.	s/o Iris Av.	Residential	73.5	73.6	0.1	No
4	Lasselle St.	s/o Cahuilla Dr.	Residential	73.6	73.7	0.1	No
5	Lasselle St.	s/o Krameria Av.	Residential	74.5	74.5	0.1	No
6	Iris Av.	w/o Lasselle St.	Residential/Commercial	72.6	72.6	0.0	No
7	Iris Av.	e/o Lasselle St.	Residential/Commercial	73.9	73.9	0.0	No
8	Krameria Av.	w/o Kitching St.	Residential	67.2	67.3	0.1	No
9	Krameria Av.	e/o Kitching St.	Residential	66.9	67.1	0.2	No
10	Krameria Av.	e/o Lasselle St.	Residential	64.5	65.1	0.7	No
11	Krameria Av.	e/o Colt Wy.	Residential	63.2	63.4	0.2	No

[1] Source: Google Earth aerial imagery and the City of Moreno Valley General Plan Land Use Map.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
[3] Significance Criteria (Section 4).

8 ON-SITE TRAFFIC NOISE IMPACTS

A noise impact analysis has been completed to determine the noise exposure levels that would result from off-site traffic noise sources, and to identify potential noise mitigation measures that would achieve acceptable Project exterior and interior noise levels. The primary source of traffic noise affecting the Project site is anticipated to be from Lasselle Street and Krameria Avenue. The Project will also experience some background traffic noise impacts from the Project's internal parking lot, however, due to the lower traffic volume and speeds of vehicles transiting on these roadways, traffic noise from these roadways will not make a significant contribution to the noise environment at the Project site.

8.1 EXTERIOR NOISE ANALYSIS

Using the FHWA traffic noise prediction model, and the parameters outlined in Section 6, the expected future exterior noise levels are calculated at the building façades. Table 8-1 presents a summary of future exterior noise levels at the first-floor receiver locations. The on-site traffic noise level analysis indicates that the unmitigated exterior noise levels will approach 59.8 dBA CNEL. The on-site traffic noise analysis calculations are provided in Appendix 8.1.

As shown on Table 8-1, future unmitigated on-site traffic noise levels are shown to approach 59.8 dBA CNEL and represent *normally acceptable* exterior noise levels for residential land use. (13) Therefore, no exterior noise mitigation is required. Further, Project interior noise levels are analyzed herein to identify the necessary interior noise reduction measures, if any, to satisfy the City of Moreno Valley General Plan Noise Element 45 dBA CNEL interior noise level standard.

TABLE 8-1: UNMITIGATED EXTERIOR TRAFFIC NOISE LEVELS

Building	Roadway	Unmitigated Noise Level (dBA CNEL)	Threshold (dBA CNEL)	Land Use Compatibility
West Buildings	Lasselle St.	58.2	< 65 dBA CNEL	*Normally Acceptable*
South Buildings	Krameria Av.	59.3	< 65 dBA CNEL	*Normally Acceptable*
East Buildings	Krameria Av.	59.8	< 65 dBA CNEL	*Normally Acceptable*

8.2 INTERIOR NOISE ANALYSIS

To ensure that the interior noise levels comply with the City of Moreno Valley interior noise level standards, future noise levels were calculated at the first and second-floor building façades.

8.2.1 NOISE REDUCTION METHODOLOGY

The interior noise level is the difference between the predicted exterior noise level at the building facade and the noise reduction of the structure. Typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed." (9; 21) However, sound leaks, cracks and openings within the window assembly can greatly diminish its effectiveness in reducing noise. Several methods are used to improve interior noise reduction, including: (1) weather-stripped solid core exterior doors; (2) upgraded dual glazed windows; (3) mechanical ventilation/air conditioning; and (4) exterior wall/roof assembles free of cut outs or openings.

8.2.2 INTERIOR NOISE LEVEL ASSESSMENT

Tables 8-2 and 8-3 show that units within the Project buildings will require a windows-closed condition and a means of mechanical ventilation (e.g. air conditioning). Table 8-2 shows that the future exterior noise levels at the first-floor building façade are expected to approach 59.8 dBA CNEL. The first-floor interior noise level analysis shows that the City of Moreno Valley 45 dBA CNEL interior noise level standard can be satisfied using standard windows and sliding glass doors with minimum STC ratings of 27. Table 8-3 shows that the future exterior noise levels at the second-floor building façade are expected to approach 59.7 dBA CNEL. The second-floor interior noise level analysis shows that the City of Moreno Valley 45 dBA CNEL interior noise level standard can be satisfied using standard windows and sliding glass doors with minimum STC ratings of 27.

TABLE 8-2: FIRST-FLOOR INTERIOR NOISE IMPACTS (CNEL)

Building	Roadway	Noise Level at Façade[1]	Required Interior NR[2]	Estimated Interior NR[3]	Upgraded Windows[4]	Interior Noise Level[5]	Threshold	Threshold Exceeded?
West Buildings	Lasselle St.	58.2	13.2	25	No	33.2	45	No
South Buildings	Krameria Av.	59.3	14.3	25	No	34.3	45	No
East Buildings	Krameria Av.	59.8	14.8	25	No	34.8	45	No

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction to satisfy the interior noise standard of 45 dBA CNEL.
[3] Minimum interior noise reduction with standard building construction.
[4] Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.
"NR" = Noise Reduction

TABLE 8-3: SECOND-FLOOR INTERIOR NOISE IMPACTS (CNEL)

Building	Roadway	Noise Level at Façade[1]	Required Interior NR[2]	Estimated Interior NR[3]	Upgraded Windows[4]	Interior Noise Level[5]	Threshold	Threshold Exceeded?
West Buildings	Lasselle St.	58.2	13.2	25	No	33.2	45	No
South Buildings	Krameria Av.	59.2	14.2	25	No	34.2	45	No
East Buildings	Krameria Av.	59.7	14.7	25	No	34.7	45	No

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction to satisfy the interior noise standard of 45 dBA CNEL.
[3] Minimum interior noise reduction with standard building construction.
[4] Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.
"NR" = Noise Reduction

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9 RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following six receiver locations, as shown on Exhibit 9-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include: schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include: multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, natural open space, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Noise-sensitive receivers near the Project site include existing residential homes, Lasselle Elementary School, and future residential homes currently under construction, as described below. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures.

R1: Located approximately 202 feet north of the Project site, R1 represents an existing baseball diamond and bleachers within Lasselle Elementary School. A 24-hour noise level measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents an existing Lasselle Elementary School classroom building at roughly 109 feet north of the Project site. A 24-hour noise level measurement was taken near this location, L1, to describe the existing ambient noise environment.

R3: Location R3 represents the existing residential homes located south of the Project site at approximately 133 feet. A 24-hour noise level measurement was taken near this location, L2, to describe the existing ambient noise environment.

R4: Located approximately 123 feet south of the Project site, R4 represents the existing residential homes south of Krameria Avenue. A 24-hour noise level measurement was taken near this location, L3, to describe the existing ambient noise environment.

R5: Location R5 represents existing residential homes at roughly 148 feet west of the Project site. A 24-hour noise level measurement was taken near this location, L5, to describe the existing ambient noise environment.

R6: Location R6 represents the future residential homes currently under construction northwest of the Project site at approximately 30 feet. A 24-hour noise level measurement, L4, is used to describe the existing ambient noise environment at this location.

EXHIBIT 9-A: RECEIVER LOCATIONS

10 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearby receiver locations, identified in Section 9, resulting from operation of the proposed Continental Villages Project. Exhibit 10-A identifies the representative receiver locations and noise source locations used to assess the operational noise levels.

10.1 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 10-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the roof-top air conditioning units, residential entry gate activity, residential and commercial parking lot vehicle movements, and outdoor pool/spa activity all operating continuously. These noise level impacts will likely vary throughout the day.

10.1.1 ROOF-TOP AIR CONDITIONING UNITS

To assess the noise levels created by the roof-top air conditioning units at the Project site, reference noise levels measurements were taken at the Santee Walmart on July 27th, 2015. Located at 170 Town Center Parkway in the City of Santee, the noise level measurements describe a mechanical roof-top air conditioning unit on the roof of an existing Walmart store, with additional units operating in the background. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. Using a uniform reference distance of 50 feet, the reference noise level is 57.2 dBA L_{eq}. The operating conditions of the reference noise level measurement reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. The noise attenuation provided by a parapet wall is not reflected in this reference noise level measurement.

10.1.2 RESIDENTIAL ENTRY GATE ACTIVITY

A reference noise level measurement was collected on Wednesday, November 29th, 2017, by Urban Crossroads, Inc. at entry gate to the Oak Glen Apartments residential community in the City of Irvine. The reference noise level measurement represents multiple noise sources which produced a reference noise level of 54.0 dBA L_{eq} at the uniform reference distance of 50 feet. The noise sources associated with the reference entry gate activity measurement include residential entry and exit gates opening and closing, cars and trucks driving over the metal gate tracks, keypad code entry, and phone ringing and people talking over the entrance intercom. Entry gate activities are conservatively anticipated to operate for 60 minutes per hour.

10.1.3 Parking Lot Vehicle Movements (Residential)

To determine the noise levels associated with a residential apartment community parking lot, Urban Crossroads collected reference noise level measurements at the Windemere Apartment community in the City of Riverside on August 24th, 2016. The reference 1-hour noise level measurement is based on the peak hour of activity over a total measurement duration of 24-hours and indicates that the parking lot vehicle movements generates noise levels of 40.8 dBA L_{eq} at a normalized distance of 50 feet. The residential parking lot noise levels are mainly due to cars pulling in and out of spaces and residents going to and from their apartment homes, and includes horns honking in the parking lot. Noise associated with parking lot vehicle movements is expected during the typical daytime, and nighttime conditions for the entire hour (60 minutes).

10.1.4 Parking Lot Vehicle Movements (Commercial)

To determine the noise levels associated with commercial parking lot vehicle movements, Urban Crossroads collected reference noise level measurements at the Laguna Niguel Walmart located at 27470 Alicia Parkway on May 30, 2012. The 15-minute noise level measurement indicates that the parking lot vehicle movements generates noise levels of 45.1 dBA L_{eq} at a normalized distance of 50 feet. The parking lot noise levels are mainly due to cars pulling in and out of spaces, car alarms sounding, and customers moving shopping carts. Noise associated with parking lot vehicle movements is expected during the typical daytime, and nighttime conditions for the entire hour (60 minutes).

10.1.5 Outdoor Pool/Spa Activity

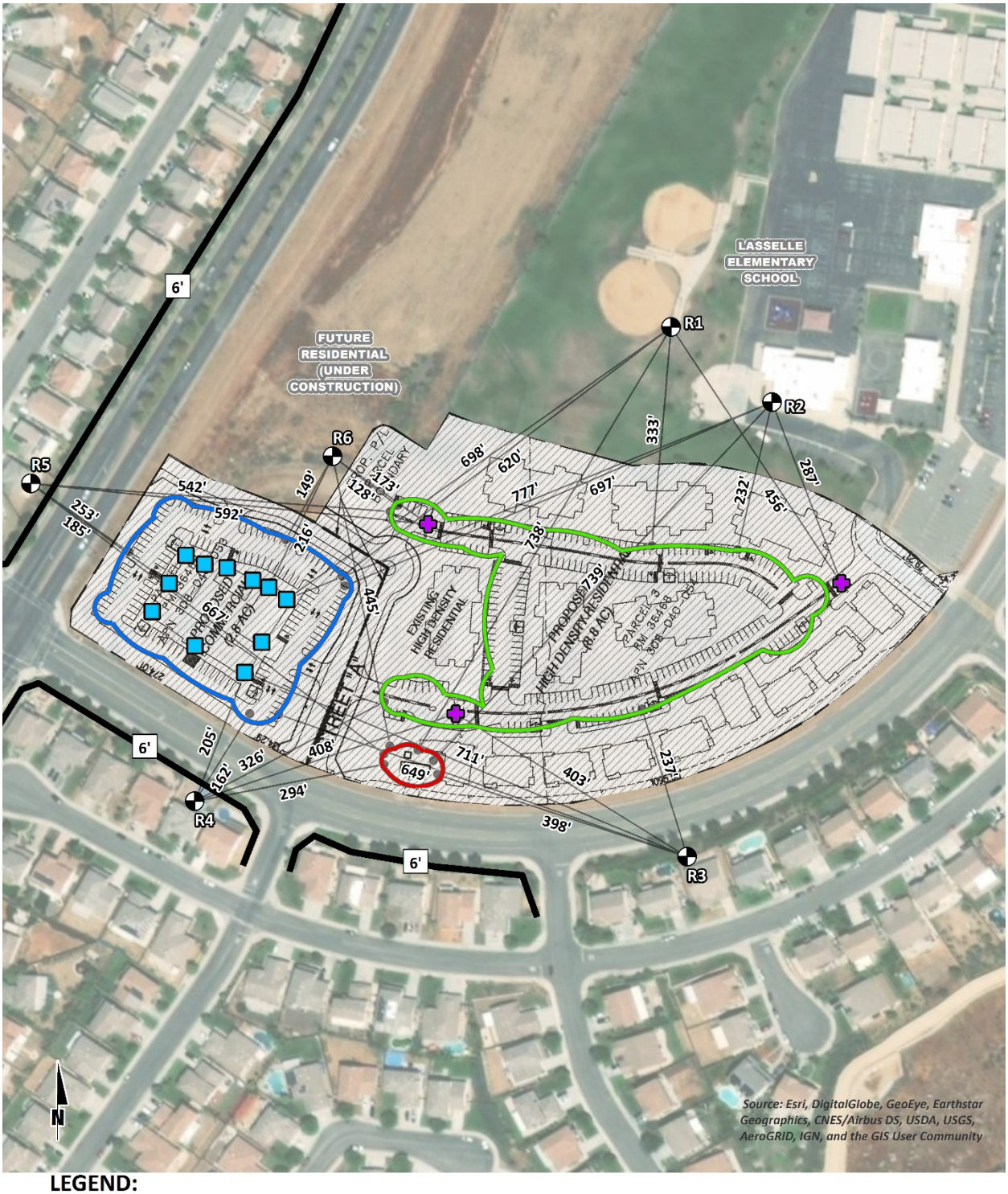
To represent the noise levels associated with pool activities, Urban Crossroads collected a reference noise level measurement on July 5th, 2017 at the Covenant Hill Clubhouse Pool in the unincorporated community of Ladera Ranch in the County of Orange. The measured reference noise level at the uniform 50-foot reference distance is 51.0 dBA L_{eq} for pool activity. The pool activity noise levels include kids playing, running, screaming, splashing, playing with a ball, and parents talking. Noise associated with pool activities is expected to occur for the entire hour (60 minutes).

TABLE 10-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source	Duration (hh:mm:ss)	Ref. Distance (Feet)	Noise Source Height (Feet)	Hourly Activity (Mins)[6]	Reference Noise Level (dBA L_{eq})	
					@ Ref. Dist.	@ 50 Feet
Roof-Top Air Conditioning Unit[1]	96:00:00	5'	5'	39	77.2	57.2
Residential Entry Gate Activity[2]	00:04:00	40'	5'	60	55.9	54.0
Residential Parking Lot Vehicle Movements[3]	01:00:00	10'	5'	60	51.3	40.8
Commercial Parking Lot Vehicle Movements[4]	00:15:00	5'	5'	60	60.1	45.1
Outdoor Pool/Spa Activity[5]	00:10:00	5'	4'	60	71.0	51.0

[1] As measured by Urban Crossroads, Inc. on 7/27/2015 at the Santee Walmart located at 170 Town Center Parkway.
[2] As measured by Urban Crossroads, Inc. on 11/29/2017 at the entry gate to the Oak Glen Apartment community in the City of Irvine.
[3] As measured by Urban Crossroads, Inc. on 8/24/2016 in the parking lot of the Windemere Apartment community in the City of Riverside.
[4] As measured by Urban Crossroads, Inc. on 5/30/2012 at the Laguna Niguel Walmart located at 27470 Alicia Parkway.
[5] As measured by Urban Crossroads, Inc. on 7/5/2017 at the Covenant Hill Clubhouse pool in the unincorporated community of Ladera Ranch in the County of Orange.
[6] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site based on the reference noise level measurement activity.

EXHIBIT 10-A: OPERATIONAL NOISE SOURCE LOCATIONS



LEGEND:

- Receiver Locations
- 6' Existing Barrier Height (in feet)
- Existing Barrier
- Roof-Top Air Conditioning Unit
- Residential Entry Gate
- Commercial Parking Lot Vehicle Movements
- Outdoor Pool/Spa Activity
- Residential Parking Lot Vehicle Movements
- Distance from receiver to noise source (in feet)

10.2 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include roof-top air conditioning units, residential entry gate activity, residential and commercial parking lot vehicle movements, and outdoor pool/spa activity, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Table 10-2 presents the combined total operational noise level projections at 200 feet consistent with the City of Moreno Valley Municipal Code. The Project operational noise levels at 200 feet are estimated at 47.0 dBA L_{eq}. Based on the results of this analysis, the Project operational noise levels associated with the Continental Villages will satisfy the City of Moreno Valley Municipal Code 60 dBA L_{eq} daytime and 55 dBA L_{eq} nighttime exterior noise level standards at 200 feet from the source land use.

TABLE 10-2: OPERATIONAL NOISE LEVEL PROJECTIONS AT 200 FEET

Noise Source	Ref. Noise Level (dBA L_{eq})	Ref. Distance (Feet)	Distance Atten. @ 200' (dBA L_{eq})[1]	Hourly Activity (Mins.)[2]	Hourly Activity Adjustment (dBA L_{eq})	Noise Level @ 200' (dBA L_{eq})
Roof-Top Air Conditioning Unit	77.2	5'	-32.0	39	-1.9	43.3
Residential Entry Gate Activity	55.9	40'	-14.0	60	0.0	41.9
Residential Parking Lot Vehicle Movements	51.3	10'	-19.5	60	0.0	31.8
Commercial Parking Lot Vehicle Movements	60.1	5'	-24.0	60	0.0	36.1
Outdoor Pool/Spa Activity	71.0	5'	-32.0	60	0.0	39.0
					Combined Noise Level:	47.0

[1] Drop off rate of 6 dBA per doubling of distance from point sources and 4.5 dBA per doubling of distance from line sources.
[2] Anticipated duration (minutes within the hour) of noise activity during peak hourly conditions expected at the Project site.

Table 10-3 indicates that the unmitigated hourly noise levels associated with the Continental Villages Project at the nearby sensitive receiver locations are expected to range from 38.3 to 47.0 dBA L_{eq}. The Project-related operational noise levels, as shown on Table 10-3, will satisfy the City of Moreno Valley 60 dBA L_{eq} daytime and 55 dBA L_{eq} nighttime exterior noise level standards at all nearby sensitive receiver locations. The operational noise level calculations are included in Appendix 10.1.

TABLE 10-3: UNMITIGATED OPERATIONAL NOISE LEVEL PROJECTIONS AT RECEIVER LOCATIONS

Receiver Location[1]	Land Use	Noise Levels by Noise Source (dBA L_{eq})[2]					Combined Operational Noise Levels (dBA L_{eq})[3]	Threshold Exceeded?[4]	
		Roof-Top Air Conditioning Unit	Residential Entry Gate Activity	Residential Parking Lot Vehicle Movements	Commercial Parking Lot Vehicle Movements	Outdoor Pool/Spa Activity		Daytime (60 dBA L_{eq})	Nighttime (55 dBA L_{eq})
R1	School	32.4	34.8	28.5	28.7	27.6	38.3	No	n/a
R2	School	31.5	38.8	30.8	27.9	27.6	40.6	No	n/a
R3	Residential	32.2	35.8	30.7	28.4	33.0	39.7	No	No
R4	Residential	43.0	35.7	28.6	37.4	35.6	45.3	No	No
R5	Residential	41.2	32.5	25.3	36.6	28.5	43.1	No	No
R6	Future Res.	42.6	43.2	34.7	38.0	32.0	47.0	No	No

[1] See Exhibit 10-A for the receiver and noise source locations.
[2] Reference noise sources as shown on Table 10-1.
[3] Calculations for each noise source are provided in Appendix 10.1.
[4] Do the Project operational noise levels exceed the standards (Table 3-1)?
"n/a" = school uses do not represent sensitive receiver locations during the nighttime hours when they are unoccupied.

10.3 PROJECT OPERATIONAL NOISE CONTRIBUTION

To describe the Project operational noise level contributions, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (7) Instead, they must be logarithmically added using the following base equation:

$$SPL_{Total} = 10\log_{10}[10^{SPL1/10} + 10^{SPL2/10} + \ldots 10^{SPLn/10}]$$

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describe the Project noise level contributions to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the ambient daytime and nighttime conditions are presented on Tables 10-4 and 10-5.

As indicated on Tables 10-4 and 10-5, the Project will contribute a daytime operational noise level increase of up to 0.2 dBA L_{eq} and a nighttime operational noise level increase of up to 0.3 dBA L_{eq} at the sensitive receiver locations. Since the Project-related operational noise level contributions will satisfy the significance criteria discussed in Section 4, the increases at the sensitive receiver locations will be *less than significant*.

TABLE 10-4: PROJECT DAYTIME OPERATIONAL NOISE LEVEL CONTRIBUTIONS

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Threshold[7]	Threshold Exceeded?[7]
R1	38.3	L1	53.1	53.2	0.1	5.0	No
R2	40.6	L1	53.1	53.3	0.2	5.0	No
R3	39.7	L2	58.1	58.2	0.1	5.0	No
R4	45.3	L3	61.0	61.1	0.1	3.0	No
R5	43.1	L4	68.4	68.4	0.0	1.5	No
R6	47.0	L4	68.4	68.4	0.0	1.5	No

[1] See Exhibit 10-A for the sensitive receiver locations.
[2] Total Project operational noise levels as shown on Table 10-3.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance Criteria as defined in Section 4.

TABLE 10-5: PROJECT NIGHTTIME OPERATIONAL NOISE LEVEL CONTRIBUTIONS

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Threshold[7]	Threshold Exceeded?[7]
R1	38.3	L1	52.5	52.7	0.2	5.0	No
R2	40.6	L1	52.5	52.8	0.3	5.0	No
R3	39.7	L2	57.4	57.5	0.1	5.0	No
R4	45.3	L3	58.9	59.1	0.2	5.0	No
R5	43.1	L4	64.9	64.9	0.0	3.0	No
R6	47.0	L4	64.9	65.0	0.1	3.0	No

[1] See Exhibit 10-A for the sensitive receiver locations.
[2] Total Project operational noise levels as shown on Table 10-3.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed nighttime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance Criteria as defined in Section 4.
[8] Office and school uses do not represent sensitive receiver locations during the nighttime hours when they are unoccupied.

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11 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 11-A shows the construction noise source locations in relation to the nearby receiver locations previously described in Section 9.

11.1 CONSTRUCTION NOISE LEVELS

Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers and portable generators that when combined can reach high levels. The number and mix of construction equipment is expected to occur in the following stages:

- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to in excess of 80 dBA when measured at 50 feet. However, these noise levels diminish with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver and would be further reduced to 68 dBA at 200 feet from the source to the receiver. The construction stages are based on the *Continental Villages Air Quality Impact Analysis* prepared by Urban Crossroads, Inc. (22)

EXHIBIT 11-A: CONSTRUCTION NOISE SOURCE LOCATIONS

LEGEND:

- Receiver
- 6' Existing Barrier Height (in Existing)
- Construction
- Distance from receiver to construction activity (in feet)
- 10-foot high (minimum) temporary noise
- 50-foot buffer for large mobile equipment (> 80,000 lbs)

11.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe the Project construction noise levels, measurements were collected for similar activities at several construction sites. Table 11-1 provides a summary of the construction reference noise level measurements. Since the reference noise levels were collected at varying distances of 30 feet and 50 feet, all construction noise level measurements presented on Table 11-1 have been adjusted for consistency to describe a common reference distance of 50 feet.

TABLE 11-1: CONSTRUCTION REFERENCE NOISE LEVELS

ID	Noise Source	Duration (h:mm:ss)	Reference Distance From Source (Feet)	Reference Noise Levels @ Reference Distance (dBA L_{eq})	Reference Noise Levels @ 50 Feet (dBA L_{eq})[4]
1	Truck Pass-Bys & Dozer Activity[1]	0:01:15	30'	63.6	59.2
2	Dozer Activity[1]	0:01:00	30'	68.6	64.2
3	Construction Vehicle Maintenance Activities[2]	0:01:00	30'	71.9	67.5
4	Foundation Trenching[2]	0:01:01	30'	72.6	68.2
5	Rough Grading Activities[2]	0:05:00	30'	77.9	73.5
6	Framing[2]	0:02:00	30'	66.7	62.3
7	Concrete Mixer Truck Movements[3]	0:01:00	50'	71.2	71.2
8	Concrete Paver Activities[3]	0:01:00	30'	70.0	65.6
9	Concrete Mixer Pour & Paving Activities[3]	0:01:00	30'	70.3	65.9
10	Concrete Mixer Backup Alarms & Air Brakes[3]	0:00:20	50'	71.6	71.6
11	Concrete Mixer Pour Activities[3]	1:00:00	50'	67.7	67.7

[1] As measured by Urban Crossroads, Inc. on 10/14/15 at a business park construction site located at the northwest corner of Barranca Parkway and Alton Parkway in the City of Irvine.
[2] As measured by Urban Crossroads, Inc. on 10/20/15 at a construction site located in Rancho Mission Viejo.
[3] Reference noise level measurements were collected from a nighttime concrete pour at an industrial construction site, located at 27334 San Bernardino Avenue in the City of Redlands, between 1:00 a.m. to 2:00 a.m. on 7/1/15.
[4] Reference noise levels are calculated at 50 feet using a drop off rate of 6 dBA per doubling of distance (point source).

11.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels, calculations of the Project construction noise level impacts at the nearby receiver locations were completed. Tables 11-2 to 11-6 present the short-term construction noise levels for each stage of construction, without accounting for the noise attenuation measures included in the Project Design Features (PDFs). Table 11-7 provides a summary of the construction noise levels by stage at the noise receiver locations. Based on the stages of construction, the noise levels associated with the proposed Project are expected to create temporarily high noise levels at the nearby receiver locations. To assess the peak construction noise levels, this analysis shows the highest noise impacts when the equipment with the highest reference noise level is operating at the closest point from the primary construction activity to each receiver location.

TABLE 11-2: SITE PREPARATION EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	64.2

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Calculated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	222'	-12.9	-5.7	45.5
R2	129'	-8.2	-5.2	50.7
R3	133'	-8.5	-10.5	45.2
R4	133'	-8.5	-5.6	50.1
R5	153'	-9.7	-4.9	49.5
R6	50'	0.0	0.0	64.2

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Calculated barrier attenuation (if any) from existing barriers in the Project study area (Appendix 11.1).

TABLE 11-3: GRADING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Rough Grading Activities	73.5
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	73.5

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Calculated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	222'	-12.9	-5.7	54.8
R2	129'	-8.2	-5.2	60.0
R3	133'	-8.5	-10.5	54.5
R4	133'	-8.5	-5.6	59.4
R5	153'	-9.7	-4.9	58.8
R6	50'	0.0	0.0	73.5

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Calculated barrier attenuation (if any) from existing barriers in the Project study area (Appendix 11.1).

TABLE 11-4: BUILDING CONSTRUCTION EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Construction Vehicle Maintenance Activities	67.5
Foundation Trenching	68.2
Framing	62.3
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	68.2

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Calculated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	222'	-12.9	-5.7	49.5
R2	129'	-8.2	-5.2	54.7
R3	133'	-8.5	-10.5	49.2
R4	133'	-8.5	-5.6	54.1
R5	153'	-9.7	-4.9	53.5
R6	50'	0.0	0.0	68.2

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Calculated barrier attenuation (if any) from existing barriers in the Project study area (Appendix 11.1).

TABLE 11-5: PAVING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Concrete Mixer Truck Movements	71.2
Concrete Paver Activities	65.6
Concrete Mixer Pour & Paving Activities	65.9
Concrete Mixer Backup Alarms & Air Brakes	71.6
Concrete Mixer Pour Activities	67.7
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	71.6

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Calculated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	222'	-12.9	-5.7	53.0
R2	129'	-8.2	-5.2	58.2
R3	133'	-8.5	-10.5	52.6
R4	133'	-8.5	-5.6	57.5
R5	153'	-9.7	-4.9	57.0
R6	50'	0.0	0.0	71.6

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Calculated barrier attenuation (if any) from existing barriers in the Project study area (Appendix 11.1).

TABLE 11-6: ARCHITECTURAL COATING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Framing	62.3
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	62.3

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Calculated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	222'	-12.9	-5.7	43.6
R2	129'	-8.2	-5.2	48.8
R3	133'	-8.5	-10.5	43.3
R4	133'	-8.5	-5.6	48.2
R5	153'	-9.7	-4.9	47.6
R6	50'	0.0	0.0	62.3

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Calculated barrier attenuation (if any) from existing barriers in the Project study area (Appendix 11.1).

11.4 CONSTRUCTION NOISE THRESHOLDS OF SIGNIFICANCE

The construction noise analysis shows that the highest construction noise levels will occur when equipment is operating at the closest point from primary construction activity to each sensitive receiver location. As shown on Table 11-7, the construction noise levels without Project Design Features are expected to range from 43.3 to 73.5 dBA L_{eq} at the nearby receiver locations.

With the planned temporary construction noise attenuation measures as a part of the Project Design Features (PDFs), the construction noise levels at the potentially impacted receiver locations to will approach 59.4 dBA L_{eq} which will satisfy the 60 dBA L_{eq} threshold for noise-sensitive receiver locations, as shown on Table 11-7. Therefore, the noise impact due to Project construction is considered a *less than significant* impact with the planned PDFs. The PDFs include a minimum 10-foot high temporary noise barrier at the Project site boundary for the future residential uses represented by R6, and a 50-foot buffer for large mobile equipment (greater than 80,000 pounds) for both R2 and R6, as shown on Exhibit 11-A.

The construction noise analysis presents a conservative approach with the highest noise-level-producing equipment for each stage of Project construction operating at the closest point from primary construction activity to the nearby sensitive receiver locations. This scenario is unlikely to occur during typical construction activities and likely overstates the construction noise levels which will be experienced at each receiver location. With the construction noise PDFs identified in this noise study, shown on Exhibit 11-A, the worst-case construction noise levels at the nearby residential receivers would be reduced.

The noise attenuation provided through temporary noise barriers depends on many factors including cost, wind loading, the location of the receiver, and the ability to place barriers such that the line-of-sight of the receiver is blocked to the noise source, among others. This analysis assumes a temporary noise barrier constructed using frame-mounted materials such as vinyl acoustic curtains or quilted blankets attached to the construction site perimeter fence. Appendix 11.1 includes the construction noise level calculations without and with the temporary noise barriers. Sample temporary noise barrier photos are provided in Appendix 11.2 for reference.

TABLE 11-7: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY WITH PDFS (DBA L_{EQ})

Receiver Location	Distance to Receiver (Feet)	Land Use	Threshold	Highest Const. Noise Levels Without PDFs	Attenuation from PDFs[1]		Const. Noise Levels With PDFs[2]	Threshold Exceeded?[3]
					Temporary Noise Barriers	50-Foot Buffer		
R1	222'	School	60	54.8	-	-1.8	53.1	No
R2	129'	School	60	60.0	-	-2.8	57.2	No
R3	133'	Residential	60	54.5	-	-	54.5	No
R4	133'	Residential	60	59.4	-	-	59.4	No
R5	153'	Residential	60	58.8	-	-	58.8	No
R6	50'	Future Res.	60	73.5	-8.0	-6.0	59.4	No

[1] Temporary noise barrier attenuation calculations provided in Appendix 11.1. Additional distance attenuation provided by the 50-foot buffer zone.
[2] Construction noise levels with Project Design Features for each receiver location, based on the highest construction noise levels shown on Table 11-7.
[3] Do the construction noise levels exceed the applicable construction noise level threshold?
"PDFs" = Project Design Features

11.5 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. The proposed Project's construction activities most likely to cause vibration impacts are:

- Heavy Construction Equipment: Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration while operating close to buildings, the vibration is usually short-term and is not of sufficient magnitude to cause building damage.
- Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration. Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site include grading. Using the vibration source level of construction equipment provided on Table 6-6 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 11-8 presents the expected Project related vibration levels at the nearby receiver locations.

Based on the reference vibration levels provided by the FTA, a large bulldozer represents the peak source of vibration with a reference level of 87 VdB at 25 feet. At distances ranging from 50 to 222 feet from primary Project construction activities, construction vibration levels are expected to range from 29.5 to 78.0 VdB, as shown on Table 11-8. Using the construction vibration assessment methods provided by the FTA, Project construction vibration levels are shown to remain below the FTA 80 VdB threshold the nearby sensitive receiver locations, and therefore, is considered a *less than significant* impact.

Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating at the Project site perimeter.

TABLE 11-8: UNMITIGATED CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver Location[1]	Distance to Construction Activity (Feet)	Receiver Vibration Levels (VdB)[2]					Threshold Exceeded?[3]
		Small Bulldozer	Jackhammer	Loaded Trucks	Large Bulldozer	Highest Vibration Level	
R1	222'	29.5	50.5	57.5	58.5	58.5	No
R2	129'	36.6	57.6	64.6	65.6	65.6	No
R3	133'	36.2	57.2	64.2	65.2	65.2	No
R4	133'	36.2	57.2	64.2	65.2	65.2	No
R5	153'	34.4	55.4	62.4	63.4	63.4	No
R6	50'	49.0	70.0	77.0	78.0	78.0	No

[1] Noise receiver locations are shown on Exhibit 11-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 6-6.
[3] Does the peak vibration exceed the FTA maximum acceptable vibration standard of 80 VdB?

11 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2018.
2. **Urban Crossroads, Inc.** *Continental Villages Traffic Impact Analysis.* November 2018.
3. **Office of Planning and Research.** *State of California General Plan Guidelines.* 2017.
4. **Harris, Cyril M.** *Noise Control in Buildings.* s.l. : McGraw-Hill, Inc., 1994.
5. **Caterpillar.** *Caterpillar Perfomance Handbook.* January 2017.
6. **City of Moreno Valley.** *Municipal Code, Chapter 11.80 Noise Regulation.*
7. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
8. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
9. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* June, 1995.
10. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
11. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
12. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment.* May 2006. FTA-VA-90-1003-06.
13. **City of Moreno Valley.** *General Plan Safety Element.* October 2006.
14. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
15. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
16. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
17. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
18. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.
19. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
20. **City of Moreno Valley.** *General Plan Environmental Impact Report.* July 2006.
21. **California Department of Transportation.** *Traffic Noise Analysis Protocol.* May 2011.
22. **Urban Crossroads, Inc.** *Continental Villages Air Quality Impact Analysis.* October 2018.

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12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Continental Villages Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5979.

Bill Lawson, P.E., INCE
Principal
URBAN CROSSROADS, INC.
260 E. Baker St., Suite 200
Costa Mesa, CA 92626
(949) 336-5979
blawson@urbanxroads.com

EDUCATION

Master of Science in Civil and Environmental Engineering
California Polytechnic State University, San Luis Obispo • December, 1993

Bachelor of Science in City and Regional Planning
California Polytechnic State University, San Luis Obispo • June, 1992

PROFESSIONAL REGISTRATIONS

PE – Registered Professional Traffic Engineer – TR 2537 • January, 2009
AICP – American Institute of Certified Planners – 013011 • June, 1997–January 1, 2012
PTP – Professional Transportation Planner • May, 2007 – May, 2013
INCE – Institute of Noise Control Engineering • March, 2004

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
ITE – Institute of Transportation Engineers

PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of Orange • February, 2011
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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APPENDIX 3.1:

CITY OF MORENO VALLEY MUNICIPAL CODE

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Chapter 11. 80 N OISE REGULATION

11. 80. 010 Legislative findings.

It is found and declared that:

A. Excessive sound within the limits of the city is a condition which has existed for some time, and the amount and intensity of such sound is increasing.

B. Such excessive sound is a detriment to the public health, safety, and welfare and quality of life of the residents of the city.

C. The necessity in the public interest for the provisions and prohibitions hereinafter contained and enacted is declared as a matter of legislative determination and public policy, and it is further declared that the provisions and prohibitions hereinafter contained and enacted are in pursuance of and for the purpose of securing and promoting the public health, safety, welfare and quality of life of the city and its inhabitants. (Ord. 740 § 1.2, 2007)

11. 80. 020 Definitions.

For purposes of this chapter, certain words and phrases used herein are defined as follows:

“A-weighted sound level” means the sound pressure level in decibels as measured with a sound level meter using the A-weighting network. The unit of measurement is the dB(A).

“Commercial” means all uses of land not otherwise classified as residential, as defined in this section.

“Construction” means any site preparation, and/or any assembly, erection, repair, or alteration, excluding demolition, of any structure, or improvements to real property.

“Continuous airborne sound” means sound that is measured by the slow-response setting of a meter manufactured to the specifications of ANSI Section 1.4-1983 (R2006) “Specification for Sound Level Meters,” or its successor.

“Daytime” means eight a.m. to ten p.m. the same day.

“Decibel” (dB) means a unit for measuring the amplitude of sound, equal to twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of the sound measured to the reference pressure, which is twenty (20) microPascals (twenty (20) microNewtons per square meter.)

“Demolition” means any dismantling, intentional destruction or removal of structures or other improvements to real property.

“Disturb” means to interrupt, interfere with, or hinder the enjoyment of peace or quiet or the normal listening activities or the sleep, rest or mental concentration of the hearer.

“Emergency” means any occurrence or set of circumstances involving actual or imminent physical trauma or significant property damage which necessitates immediate action. Economic loss alone shall not constitute an emergency. It shall be the burden of an alleged violator to prove an “emergency.”

“Emergency work” means any work made necessary to restore property to a safe condition following an emergency, or to protect persons or property threatened by an imminent emergency, to the extent such work is, in fact, necessary to protect persons or property from exposure to imminent danger or damage.

“Frequency” means the number of complete oscillation cycles per unit of time.

“Impulsive sound” means sound of short duration, usually less than one second, with an abrupt onset and rapid decay. Examples of sources of impulsive sound include explosions, drop forge impacts, and discharge of firearms.

“Nighttime” means 10:01 p.m. to 7:59 a.m. the following day.

“Noise disturbance” means any sound which:

1. Disturbs a reasonable person of normal sensitivities;

2. Exceeds the sound level limits set forth in this chapter; or

3. Is plainly audible as defined in this section. Where no specific distance is set forth for the determination of audibility, references to noise disturbance shall be deemed to mean plainly audible at a distance of two hundred (200) feet from the real property line of the source of the sound, if the sound occurs on privately owned property, or from the source of the sound, if the sound occurs on public right of way, public space or other publicly owned property.

“Person” means any person, person’s firm, association, copartnership, joint venture, corporation, or any entity public or private in nature.

“Plainly audible” means that the sound or noise produced or reproduced by any particular source, can be clearly distinguished from ambient noise by a person using his/her normal hearing faculties.

“Public right-of-way” means any street, avenue, boulevard, sidewalk, bike path or alley, or similar place normally accessible to the public which is owned or controlled by a governmental entity.

“Public space” means any park, recreational or community facility, or lot which contains at least one building that is open to the general public during its hours of operation.

“Residential” means all uses of land primarily for dwelling units, as well as hospitals, schools, colleges and universities, and places of religious assembly.

“Sound” means an oscillation in pressure, particle displacement, particle velocity or other physical parameter, in a medium with internal forces that causes compression and rarefaction of that medium capable of producing an auditory impression. The description of sound may include any characteristic of such sound, including duration, intensity and frequency.

“Sound level” means the weighted sound pressure level as measured in dB(A) by a sound level meter and as specified in American National Standards Institute (ANSI) specifications for sound-level meters (ANSI Section 1.4-1971 (R1976)). If the frequency weighting employed is not indicated, the A-weighting shall apply.

“Sound level meter” means an instrument, demonstrably capable of accurately measuring sound levels as defined above.

All technical definitions not defined above shall be in accordance with applicable publications and standards of the American National Standards Institute (ANSI). (Ord. 740 § 1.2, 2007)

11. 80. 030 Prohibited acts.

A. General Prohibition. It is unlawful and a violation of this chapter to maintain, make, cause, or allow the making of any sound that causes a noise disturbance, as defined in Section 11.80.020.

B. Sound causing permanent hearing loss.

1. Sound level limits. Based on statistics from the Center for Disease Control and Prevention and the National Institute for Occupational Safety and Health, Table 1 and Table 1-A specify sound level limits which, if exceeded, will have a high probability of producing permanent hearing loss in anyone in the area where the sound levels are being exceeded. No sound shall be permitted within the city which exceeds the parameters set forth in Tables 11.80.030-1 and 11.80.030-1-A of this chapter:

Table 11.80.030-1

MAXIMUM CONTINUOUS SOUND LEVELS*

Duration per Day Continuous Hours	Sound level [db(A)]
8	90
6	92

4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25	115

* When the daily sound exposure is composed of two or more periods of sound exposure at different levels, the combined effect of all such periods shall constitute a violation of this section if the sum of the percent of allowed period of sound exposure at each level exceeds 100 percent

Table 11.80.030-1A

MAXIMUM IMPULSIVE SOUND LEVELS

Number of Repetitions per 24-Hour Period	Sound level [dB(A)]
1	145
10	135
100	125

2. Exemptions. No violation shall exist if the only persons exposed to sound levels in excess of those listed in Tables 11.80.030-1 and 11.80.030-1A are exposed as a result of:

a. Trespass;

b. Invitation upon private property by the person causing or permitting the sound; or

c. Employment by the person or a contractor of the person causing or permitting the sound.

C. Nonimpulsive Sound Decibel Limits. No person shall maintain, create, operate or cause to be operated on private property any source of sound in such a manner as to create any nonimplusive sound which exceeds the limits set forth for the source land use category (as defined in Section 11.80.020) in Table 11.80.030-2 when measured at a distance of two hundred (200) feet or more from the real property line of the source of the sound, if the sound occurs on privately owned property, or from the source of the sound, if the sound occurs on public right-of-way, public space or other publicly owned property. Any source of sound in violation of this subsection shall be deemed prima facie to be a noise disturbance.

Table 11.80.030-2

MAXIMUM SOUND LEVELS (IN dB(A)) FOR SOURCE LAND USES

Residential		Commer cial	
Daytime	Nighttime	Daytime	Nighttime
60	55	65	60

D. Specific Prohibitions. In addition to the general prohibitions set out in subsection A of this section, and unless otherwise exempted by this chapter, the following specific acts, or the causing or permitting thereof, are regulated as follows:

1. Motor Vehicles. No person shall operate or cause to be operated a public or private motor vehicle, or combination of vehicles towed by a motor vehicle, that creates a sound exceeding the sound level limits in Table 11.80.030-2 when the vehicle(s) are not otherwise subject to noise regulations provided for by the California Vehicle Code.

2. Radios, Televisions, Electronic Audio Equipment, Musical Instruments or Similar Devices from a Stationary Source. No person shall operate, play or permit the operation or playing of any radio, tape player, television, electronic audio equipment, musical instrument, sound amplifier or other mechanical or electronic sound making device that produces, reproduces or amplifies sound in such a manner as to create a noise disturbance. However, this subsection shall not apply to any use or activity exempted in subsection E of this section and any use or activity for which a special permit has been issued pursuant to Section 11.80.040.

3. Radios, Electronic Audio Equipment, or Similar Devices from a Mobile Source Such as a Motor Vehicle. Sound amplification or reproduction equipment on or in a motor vehicle is subject to regulation in accordance with the California Vehicle Code when upon the public right-of-way. When upon public space or publicly owned property other than the public right-of-way or upon private property open to the public, sound amplification or reproduction equipment shall not be operated in such a manner that it is plainly audible at a distance of fifty (50) feet in any direction from the vehicle.

4. Portable, Hand-Held Music or Sound Amplification or Reproduction Equipment. Such equipment shall not be operated on a public right-of-way, public space or other publicly owned property in such a manner as to be plainly audible at a distance of fifty (50) feet in any direction from the operator.

5. Loudspeakers and Public Address Systems.

a. Except as permitted by Section 11.80.040, no person shall operate, or permit the operation of, any loudspeaker, public address system or similar device, for any commercial purpose:

1. Which produces, reproduces or amplifies sound in such a manner as to create a noise disturbance; or

2. During nighttime hours on a public right-of-way, public space or other publicly owned property.

b. No person shall operate, or permit the operation of, any loudspeaker, public address system or similar device, for any noncommercial purpose, during nighttime hours in such a manner as to create a noise disturbance.

6. Animals. No person shall own, possess or harbor an animal or bird that howls, barks, meows, squawks, or makes other sounds that:

a. Create a noise disturbance;

b. Are of frequent or continued duration for ten (10) or more consecutive minutes and are plainly audible at a distance of fifty (50) feet from the real property line of the source of the sound; or

c. Are intermittent for a period of thirty (30) or more minutes and are plainly audible at a distance of fifty (50) feet from the real property line of the source of the sound.

7. Construction and Demolition. No person shall operate or cause the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between the hours of eight p.m. and seven a.m. the following day such that the sound there from creates a noise disturbance, except for emergency work by public service utilities or for other work approved by the city manager or designee. This section shall not apply to the use of power tools as provided in subsection (D)(9) of this section.

8. Emergency Signaling Devices. No person shall intentionally sound or permit the sounding outdoors of any fire, burglar or civil defense alarm, siren or whistle, or similar stationary emergency signaling device, except for emergency purposes or for testing as follows:

a. Testing of a stationary emergency signaling device shall not occur between seven p.m. and seven a.m. the following day;

b. Testing of a stationary emergency signaling device shall use only the minimum cycle test time, in no case to exceed sixty (60) seconds;

c. Testing of a complete emergency signaling system, including the functioning of the signaling device and the personnel response to the signaling device, shall not occur more than once in each calendar month. Such testing shall only occur only on weekdays between seven a.m. and seven p.m. and shall be exempt from the time limit specified in subsection (D)(8)(2) of this

section.

9. Power Tools. No person shall operate or permit the operation of any mechanically, electrically or gasoline motor-driven tool during nighttime hours so as to cause a noise disturbance across a residential real property boundary.

10. Pumps, Air Conditioners, Air-Handling Equipment and Other Continuously Operating Equipment. Notwithstanding the general prohibitions of subsection a of this section, no person shall operate or permit the operation of any pump, air conditioning, air-handling or other continuously operating motorized equipment in a state of disrepair or in a manner which otherwise creates a noise disturbance distinguishable from normal operating sounds.

E. Exemptions. The following uses and activities shall be exempt from the sound level regulations except the maximum sound levels provided in Tables 11.80.030-1 and 11.80.030-1A:

1. Sounds resulting from any authorized emergency vehicle when responding to an emergency call or acting in time of an emergency.

2. Sounds resulting from emergency work as defined in Section 11.80.020

3. Any aircraft operated in conformity with, or pursuant to, federal law, federal air regulations and air traffic control instruction used pursuant to and within the duly adopted federal air regulations; and any aircraft operating under technical difficulties in any kind of distress, under emergency orders of air traffic control, or being operated pursuant to and subsequent to the declaration of an emergency under federal air regulations.

4. All sounds coming from the normal operations of interstate motor and rail carriers, to the extent that local regulation of sound levels of such vehicles has been preempted by the Noise Control Act of 1972 (42 U.S.C. § 4901 et seq.) or other applicable federal laws or regulations

5. Sounds from the operation of motor vehicles, to the extent they are regulated by the California Vehicle Code.

6. Any constitutionally protected noncommercial speech or expression conducted within or upon a any public right-of-way, public space or other publicly owned property constituting an open or a designated public forum in compliance with any applicable reasonable time, place and manner restrictions on such speech or expression or otherwise pursuant to legal authority.

7. Sounds produced at otherwise lawful and permitted city-sponsored events, organized sporting events, school assemblies, school playground activities, by permitted fireworks, and by permitted parades on public right-of-way, public space or other publicly owned property.

8. An event for which a temporary use permit or special event permit has been issued under other provisions of this code, where the provisions of Section 11.80.040 are met, the permit granted expressly grants an exemption from specific standards contained in this chapter, and the permittee and all persons under the permittee's reasonable control actually comply with all conditions of such permit. Violation of any condition of such a permit related to sound or sound equipment shall be a violation of this chapter and punishable as such.

F. Nothing in this chapter shall be construed to limit, modify or repeal any other regulation elsewhere in this code relating to the regulation of noise sources, nor shall any such other regulation be read to permit the emission of noise in violation of any provision of this chapter. (Ord. 740 § 1.2, 2007)

11. 80. 040 Special provisions for t emporary use and special event permits.

The exemption by permit set forth in Section 11.80.030(E)(8) shall be subject to the following requirements and conditions:

A. The permit application shall include the name, address and telephone number of the permit applicant; the date, hours and location for which the permit is requested; and the nature of the event or activity. It shall also specify the types of sounds and/or sound equipment to be permitted, the proposed duration of such sound, the specific standards from which the sound is to be exempted, and the reasons for each requested exemption.

B. The permit shall be issued provided the proposed activity meets the requirements of this section and the issuing official determines that the sound to be emitted at the event as proposed would not be detrimental to the public health, safety or welfare, that the event cannot reasonably achieve its legitimate aims and purposes without the exemption and that the sound levels proposed will not unreasonably damage the peace and quiet enjoyment of the lawful users of surrounding properties, nor constitute a public nuisance.

C. The official issuing the permit may prescribe any reasonable conditions or requirements he/she deems necessary to minimize noise disturbances upon the community or the surrounding neighborhood, and/or to protect the health, safety or welfare of the public, including participants in the permitted event, including use of mufflers, screens or other sound-attenuating devices.

D. Any permit granted must be in writing and shall contain all conditions upon which the permit shall be effective.

E. No more than six events requiring a sound limit exemption may be held at any particular location upon privately owned or controlled property per calendar year, provided further that the number of events shall not exceed the number permitted under the regulations for the type of permit issued. For purposes of this subsection, "location" means a legal parcel of real property or a complete shopping or commercial center or mall sharing common parking and access even if comprised of multiple legal parcels.

F. The exemption from sound limits under such permit shall not exceed maximum period of four hours in one twenty-four (24) hour day.

G. The permit will only be granted for hours between nine a.m. and ten p.m. on all days other than Friday and Saturday; and, on Friday and Saturday, between the hours of nine a.m. and one a.m. of the following day, except in the following circumstances:

1. A permit may be granted for hours between nine a.m. on New Year's Eve and one a.m. the following day (New Year's Day).

2. A permit may be granted for hours between nine a.m. and two a.m. the following day if there are no residences, hospitals, or nursing homes within a 0.5 mile radius of the property where the function is taking place.

H. Functions for which the permits are issued shall be limited to a continuous airborne sound level not to exceed seventy (70) dB(A), as measured two hundred (200) feet from the real property boundary of the source property if on private property, or from the source if on public right of way, public space or other publicly owned property. (Ord. 740 § 1.2, 2007)

11. 80. 050 Measurement or assessment of sound.

A. Measurement With Sound Meter.

1. The measurement of sound shall be made with a sound level meter meeting the standards prescribed by ANSI Section 1.4-1983 (R2006). The instruments shall be maintained in calibration and good working order. A calibration check shall be made of the system at the time of any sound level measurement. Measurements recorded shall be taken so as to provide a proper representation of the source of the sound. The microphone during measurement shall be positioned so as not to create any unnatural enhancement or diminution of the measured sound. A windscreen for the microphone shall be used at all times. However, a violation of this chapter may occur without the occasion of the measurements being made as otherwise provided.

2. The slow meter response of the sound level meter shall be used in order to best determine the average amplitude.

3. The measurement shall be made at any point on the property into which the sound is being transmitted and shall be made at least three feet away from any ground, wall, floor, ceiling, roof and other plane surface.

4. In case of multiple occupancy of a property, the measurement may be made at any point inside the premises to which any complainant has right of legal private occupancy; provided that the measurement shall not be made within three feet of any ground, wall, floor, ceiling, roof or other plane surface.

5. All measurements of sound provided for in this chapter will be made by qualified officials of the city who are designated by the city manger or designee to operate the apparatus used to make the measurements.

B. Assessment Without Sound Level Meter. Any police officer, code enforcement officer, or other official designated by the city manager or designee who hears a noise or sound that is plainly audible, as defined in Section 11.80.020, in violation of this chapter, may enforce this chapter and shall assess the noise or sound according to the following standards:

1. The primary means of detection shall be by means of the official's normal hearing faculties, not artificially enhanced.

2. The official shall first attempt to have a direct line of sight and hearing to the vehicle or real property from which the sound or noise emanates so that the official can readily identify the offending source of the sound or noise and the distance involved. If the official is unable to have a direct line of sight and hearing to the vehicle or real property from which the sound or noise emanates, then the official shall confirm the source of the sound or noise by approaching the suspected vehicle or real property until the official is able to obtain a direct line of sight and hearing, and confirm the source of the sound or noise that was heard at the place of the original assessment of the sound or noise.

3. The official need not be required to identify song titles, artists, or lyrics in order to establish a violation. (Ord. 740 § 1.2, 2007)

11. 80. 060 Violation.

A. Violation of Sound Level Limits. Any person violating any of the provisions of this chapter shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punishable by a fine not to exceed one thousand dollars ($1,000.00) and/or six months in the county jail, or both. Notwithstanding the foregoing, any violation of the provisions of this chapter may, in the discretion of the citing officer or the city attorney, be cited and/or prosecuted as an infraction or be subject to civil citation pursuant to Chapter 1.10.

B. Joint and Several Responsibility. In addition to the person causing the offending sound, the owner, tenant or lessee of property, or a manager, overseer or agent, or any other person lawfully entitled to possess the property from which the offending sound is emitted at the time the offending sound is emitted, shall be responsible for compliance with this chapter if the additionally responsible party knows or should have known of the offending noise disturbance. It shall not be a lawful defense to assert that some other person caused the sound. The lawful possessor or operator of the premises shall be responsible for operating or maintaining the premises in compliance with this chapter and may be cited regardless of whether or not the person actually causing the sound is also cited.

C. Violation May be Declared a Public Nuisance. The operation or maintenance of any device, equipment, instrument, vehicle or machinery in violation of any provisions of this chapter which endangers the public health, safety and quality of life of residents in the area is declared to be a public nuisance, and may be subject to abatement summarily or by a restraining order or injunction issued

by a court of competent jurisdiction. (Ord. 824 § 1.2, 2011; Ord. 740 § 1.2, 2007)

View the mobile version.

APPENDIX 5.1:

STUDY AREA PHOTOS

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JN:11577 Study Area Photos

L1 East
33, 52' 57.150000", 117, 12' 10.480000"

L1 West
33, 52' 56.940000", 117, 12' 10.400000"

L2 North
33, 52' 53.190000", 117, 12' 14.770000"

L2 Northeast
33, 52' 53.210000", 117, 12' 14.710000"

L3 East
33, 52' 54.090000", 117, 12' 23.530000"

L3 Northwest
33, 52' 53.950000", 117, 12' 23.280000"

JN:11577 Study Area Photos

L3 West
33, 52' 53.950000", 117, 12' 23.170000"

L4 East
33, 52' 58.210000", 117, 12' 26.080000"

L4 North
33, 52' 58.210000", 117, 12' 26.050000"

L4 Northeast
33, 52' 58.210000", 117, 12' 26.050000"

L4 South
33, 52' 58.210000", 117, 12' 26.080000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

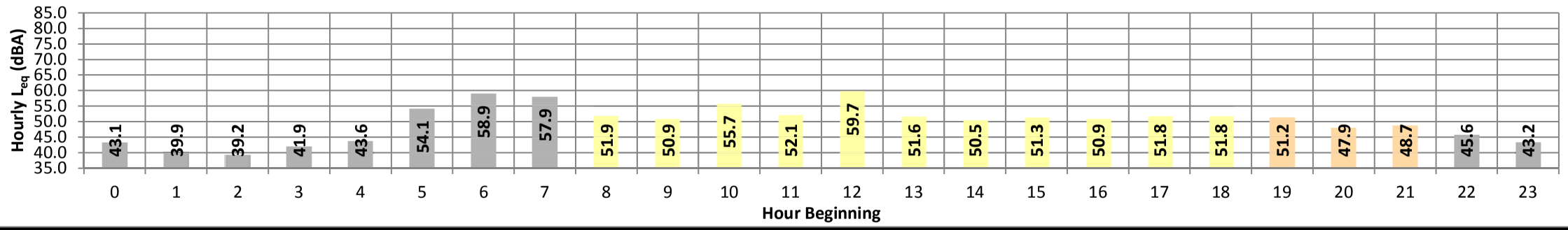
Date: Wednesday, August 15, 2018
Project: Continental Villages

Location: L1 - Located adjacent to the Project site boundaries on Quarter Horse Road near Lasselle Elementary School.

Meter: Piccolo I

JN: 11577
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	43.1	62.1	38.2	55.0	52.0	45.0	43.0	40.0	40.0	38.0	38.0	38.0	43.1	10.0	53.1
	1	39.9	59.6	38.2	46.0	43.0	41.0	40.0	39.0	38.0	38.0	38.0	38.0	39.9	10.0	49.9
	2	39.2	55.8	38.2	42.0	41.0	40.0	40.0	39.0	38.0	38.0	38.0	38.0	39.2	10.0	49.2
	3	41.9	63.2	38.2	51.0	47.0	43.0	41.0	40.0	38.0	38.0	38.0	38.0	41.9	10.0	51.9
	4	43.6	64.1	39.2	54.0	50.0	46.0	44.0	41.0	40.0	40.0	40.0	39.0	43.6	10.0	53.6
	5	54.1	76.0	42.2	67.0	62.0	55.0	52.0	47.0	45.0	43.0	43.0	43.0	54.1	10.0	64.1
	6	58.9	85.2	41.2	68.0	64.0	62.0	61.0	55.0	49.0	43.0	43.0	42.0	58.9	10.0	68.9
	7	57.9	80.1	44.8	68.0	65.0	62.0	60.0	57.0	54.0	49.0	48.0	46.0	57.9	0.0	57.9
Day	8	51.9	71.5	39.7	62.0	60.0	57.0	55.0	50.0	45.0	41.0	41.0	40.0	51.9	0.0	51.9
	9	50.9	69.7	39.9	61.0	59.0	57.0	55.0	49.0	45.0	42.0	41.0	40.0	50.9	0.0	50.9
	10	55.7	77.9	39.9	67.0	64.0	61.0	58.0	53.0	48.0	41.0	41.0	40.0	55.7	0.0	55.7
	11	52.1	65.9	41.0	60.0	59.0	57.0	56.0	52.0	50.0	43.0	42.0	41.0	52.1	0.0	52.1
	12	59.7	75.3	42.6	67.0	65.0	63.0	63.0	61.0	57.0	48.0	45.0	43.0	59.7	0.0	59.7
	13	51.6	72.5	41.6	61.0	60.0	56.0	54.0	48.0	45.0	43.0	43.0	42.0	51.6	0.0	51.6
	14	50.5	67.0	44.0	59.0	57.0	55.0	53.0	49.0	47.0	45.0	45.0	44.0	50.5	0.0	50.5
	15	51.3	71.2	43.2	61.0	59.0	56.0	54.0	49.0	47.0	45.0	44.0	44.0	51.3	0.0	51.3
	16	50.9	72.4	43.7	60.0	58.0	55.0	53.0	49.0	48.0	46.0	45.0	44.0	50.9	0.0	50.9
	17	51.8	64.2	45.2	60.0	59.0	57.0	55.0	51.0	49.0	47.0	46.0	46.0	51.8	0.0	51.8
	18	51.8	71.9	42.2	63.0	60.0	55.0	53.0	49.0	48.0	45.0	45.0	44.0	51.8	0.0	51.8
Evening	19	51.2	68.1	42.3	61.0	60.0	57.0	54.0	49.0	47.0	44.0	43.0	43.0	51.2	5.0	56.2
	20	47.9	62.5	42.2	55.0	54.0	52.0	51.0	47.0	45.0	43.0	43.0	42.0	47.9	5.0	52.9
	21	48.7	73.2	40.0	59.0	55.0	50.0	48.0	44.0	43.0	41.0	41.0	40.0	48.7	5.0	53.7
Night	22	45.6	62.7	39.8	56.0	53.0	49.0	47.0	44.0	42.0	40.0	40.0	40.0	45.6	10.0	55.6
	23	43.2	60.1	38.3	51.0	49.0	46.0	44.0	42.0	41.0	40.0	39.0	38.0	43.2	10.0	53.2

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	50.5	64.2	39.7	59.0	57.0	55.0	53.0	48.0	45.0	41.0	41.0	40.0
	Max	59.7	77.9	45.2	67.0	65.0	63.0	63.0	61.0	57.0	48.0	46.0	46.0
Energy Average		53.7	Average:		61.9	60.0	57.2	55.4	50.9	48.1	44.2	43.5	42.5
Evening	Min	47.9	62.5	40.0	55.0	54.0	50.0	48.0	44.0	43.0	41.0	41.0	40.0
	Max	51.2	73.2	42.3	61.0	60.0	57.0	54.0	49.0	47.0	44.0	43.0	43.0
Energy Average		49.5	Average:		58.3	56.3	53.0	51.0	46.7	45.0	42.7	42.3	41.7
Night	Min	39.2	55.8	38.2	42.0	41.0	40.0	40.0	39.0	38.0	38.0	38.0	38.0
	Max	58.9	85.2	44.8	68.0	65.0	62.0	61.0	57.0	54.0	49.0	48.0	46.0
Energy Average		52.5	Average:		55.8	52.6	48.9	47.2	44.4	42.5	40.7	40.5	40.0

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
52.8	53.1	52.5

24-Hour CNEL (dBA)
58.2

24-Hour Noise Level Measurement Summary

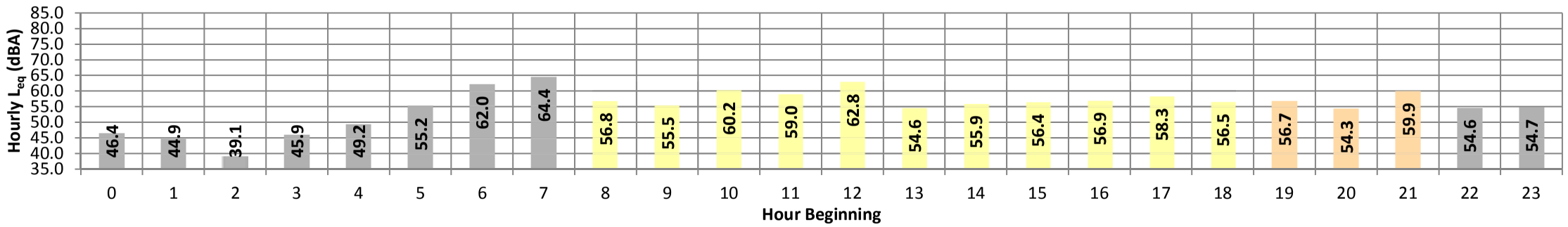
Date: Wednesday, August 15, 2018
Project: Continental Villages

Location: L2 - Located south of the Project site across Krameria Avenue near existing residential homes.

Meter: Piccolo I

JN: 11577
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	46.4	73.3	36.5	57.0	54.0	47.0	44.0	39.0	39.0	36.0	36.0	36.0	46.4	10.0	56.4
	1	44.9	71.9	36.5	52.0	46.0	42.0	41.0	39.0	39.0	36.0	36.0	36.0	44.9	10.0	54.9
	2	39.1	49.2	36.5	44.0	42.0	41.0	40.0	39.0	39.0	36.0	36.0	36.0	39.1	10.0	49.1
	3	45.9	70.8	36.5	58.0	53.0	46.0	45.0	42.0	39.0	38.0	37.0	36.0	45.9	10.0	55.9
	4	49.2	74.3	39.0	62.0	58.0	51.0	47.0	42.0	41.0	39.0	39.0	39.0	49.2	10.0	59.2
	5	55.2	78.4	39.4	68.0	65.0	59.0	56.0	47.0	44.0	41.0	41.0	39.0	55.2	10.0	65.2
	6	62.0	85.7	41.3	72.0	70.0	68.0	66.0	60.0	52.0	44.0	44.0	42.0	62.0	10.0	72.0
	7	64.4	81.9	41.1	72.0	71.0	69.0	68.0	65.0	61.0	48.0	46.0	43.0	64.4	0.0	64.4
Day	8	56.8	75.0	39.3	68.0	66.0	63.0	61.0	54.0	47.0	41.0	41.0	39.0	56.8	0.0	56.8
	9	55.5	76.2	39.3	68.0	65.0	61.0	58.0	51.0	46.0	41.0	41.0	39.0	55.5	0.0	55.5
	10	60.2	86.8	39.3	71.0	68.0	65.0	62.0	54.0	47.0	41.0	41.0	39.0	60.2	0.0	60.2
	11	59.0	76.8	39.5	70.0	68.0	66.0	64.0	56.0	48.0	42.0	41.0	40.0	59.0	0.0	59.0
	12	62.8	84.3	41.0	72.0	70.0	68.0	67.0	62.0	57.0	46.0	44.0	42.0	62.8	0.0	62.8
	13	54.6	76.3	41.2	67.0	64.0	60.0	57.0	50.0	46.0	43.0	42.0	42.0	54.6	0.0	54.6
	14	55.9	78.9	43.3	68.0	65.0	61.0	58.0	51.0	48.0	45.0	45.0	44.0	55.9	0.0	55.9
	15	56.4	79.0	42.3	69.0	66.0	61.0	59.0	52.0	48.0	45.0	44.0	43.0	56.4	0.0	56.4
	16	56.9	77.8	46.0	69.0	67.0	62.0	59.0	53.0	50.0	48.0	47.0	46.0	56.9	0.0	56.9
	17	58.3	77.3	47.1	70.0	68.0	64.0	61.0	54.0	51.0	49.0	48.0	48.0	58.3	0.0	58.3
	18	56.5	78.0	44.6	69.0	66.0	60.0	57.0	51.0	49.0	47.0	46.0	45.0	56.5	0.0	56.5
Evening	19	56.7	77.2	43.4	69.0	67.0	62.0	59.0	52.0	48.0	45.0	44.0	44.0	56.7	5.0	61.7
	20	54.3	77.8	41.1	67.0	63.0	58.0	55.0	49.0	46.0	43.0	42.0	42.0	54.3	5.0	59.3
	21	59.9	90.6	39.4	67.0	63.0	56.0	52.0	46.0	44.0	41.0	41.0	39.0	59.9	5.0	64.9
Night	22	54.6	76.2	42.3	67.0	64.0	59.0	58.0	48.0	45.0	43.0	42.0	42.0	54.6	10.0	64.6
	23	54.7	75.1	36.5	64.0	60.0	58.0	58.0	54.0	51.0	39.0	39.0	36.0	54.7	10.0	64.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	54.6	75.0	39.3	67.0	64.0	60.0	57.0	50.0	46.0	41.0	41.0	39.0
	Max	62.8	86.8	47.1	72.0	70.0	68.0	67.0	62.0	57.0	49.0	48.0	48.0
Energy Average		58.2	Average:		69.2	66.6	62.8	60.3	53.5	48.8	44.4	43.6	42.5
Evening	Min	54.3	77.2	39.4	67.0	63.0	56.0	52.0	46.0	44.0	41.0	41.0	39.0
	Max	59.9	90.6	43.4	69.0	67.0	62.0	59.0	52.0	48.0	45.0	44.0	44.0
Energy Average		57.6	Average:		67.7	64.3	58.7	55.3	49.0	46.0	43.0	42.3	41.7
Night	Min	39.1	49.2	36.5	44.0	42.0	41.0	40.0	39.0	39.0	36.0	36.0	36.0
	Max	64.4	85.7	42.3	72.0	71.0	69.0	68.0	65.0	61.0	48.0	46.0	43.0
Energy Average		57.4	Average:		61.6	58.3	54.0	52.3	47.5	45.0	40.0	39.6	38.5

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
57.8	58.1	57.4

24-Hour CNEL (dBA)
62.5

24-Hour Noise Level Measurement Summary

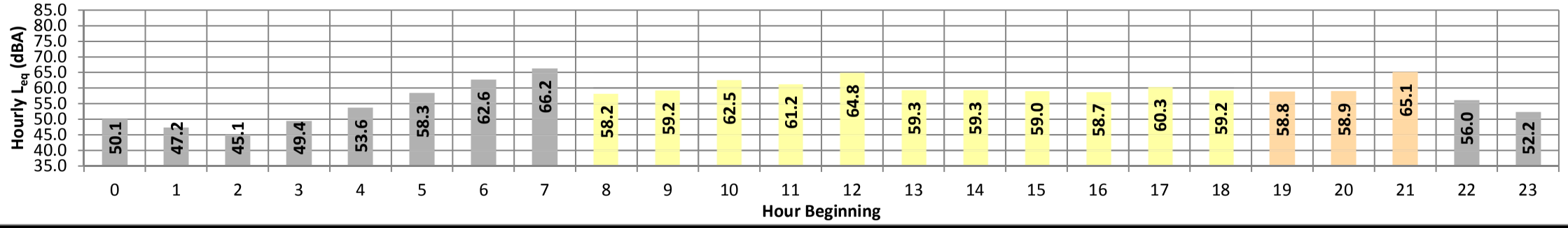
Date: Wednesday, August 15, 2018
Project: Continental Villages

Location: L3 - Located southwest of the Project site on Krameria Avenue, adjacent to existing residential homes.

Meter: Piccolo I

JN: 11577
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	50.1	72.0	38.1	63.0	59.0	55.0	51.0	43.0	41.0	39.0	38.0	38.0	50.1	10.0	60.1
	1	47.2	70.7	38.0	58.0	54.0	48.0	45.0	41.0	39.0	38.0	38.0	38.0	47.2	10.0	57.2
	2	45.1	66.0	38.1	56.0	53.0	49.0	46.0	41.0	39.0	38.0	38.0	38.0	45.1	10.0	55.1
	3	49.4	71.2	38.1	62.0	59.0	54.0	51.0	45.0	41.0	39.0	39.0	39.0	49.4	10.0	59.4
	4	53.6	72.5	39.7	65.0	63.0	60.0	58.0	49.0	45.0	41.0	41.0	39.0	53.6	10.0	63.6
	5	58.3	79.9	40.7	71.0	67.0	63.0	61.0	53.0	49.0	43.0	42.0	41.0	58.3	10.0	68.3
	6	62.6	82.9	40.7	72.0	70.0	68.0	67.0	61.0	56.0	48.0	47.0	42.0	62.6	10.0	72.6
	7	66.2	86.1	41.9	77.0	73.0	70.0	69.0	65.0	60.0	50.0	48.0	45.0	66.2	0.0	66.2
Day	8	58.2	75.8	39.7	69.0	67.0	64.0	62.0	57.0	50.0	43.0	42.0	40.0	58.2	0.0	58.2
	9	59.2	86.4	38.0	70.0	67.0	64.0	62.0	55.0	49.0	43.0	42.0	40.0	59.2	0.0	59.2
	10	62.5	91.3	38.0	72.0	69.0	65.0	63.0	57.0	50.0	43.0	41.0	39.0	62.5	0.0	62.5
	11	61.2	87.3	40.7	70.0	68.0	66.0	64.1	58.0	52.0	44.0	43.0	41.0	61.2	0.0	61.2
	12	64.8	89.0	41.6	75.0	71.0	68.0	67.0	63.0	57.0	47.0	46.0	43.0	64.8	0.0	64.8
	13	59.3	85.5	41.0	69.0	66.0	63.0	61.0	54.2	49.0	44.0	43.0	42.0	59.3	0.0	59.3
	14	59.3	80.5	43.8	69.0	67.0	65.0	63.0	57.0	52.0	47.0	46.0	44.0	59.3	0.0	59.3
	15	59.0	82.1	41.2	69.0	67.0	64.0	62.0	56.0	50.0	45.0	44.0	42.0	59.0	0.0	59.0
	16	58.7	79.7	43.4	69.0	67.0	65.0	63.0	56.0	52.0	46.0	45.0	44.0	58.7	0.0	58.7
	17	60.3	79.1	45.4	70.0	68.0	66.0	65.0	59.0	53.0	48.0	47.0	46.0	60.3	0.0	60.3
	18	59.2	81.9	42.7	69.0	68.0	65.0	63.0	56.0	51.0	46.0	45.0	44.0	59.2	0.0	59.2
Evening	19	58.8	79.2	39.9	69.0	67.0	65.0	63.0	56.0	50.0	45.0	44.0	42.0	58.8	5.0	63.8
	20	58.9	82.7	39.4	69.0	67.0	64.0	62.0	55.0	49.0	43.0	42.0	41.0	58.9	5.0	63.9
	21	65.1	96.0	38.0	68.0	66.0	62.0	59.0	50.0	45.0	40.0	39.0	38.0	65.1	5.0	70.1
Night	22	56.0	79.3	38.0	68.0	66.0	62.0	59.0	50.0	44.0	40.0	39.0	38.0	56.0	10.0	66.0
	23	52.2	73.0	35.1	65.0	63.0	57.0	53.0	44.0	41.0	38.0	37.0	35.0	52.2	10.0	62.2

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	58.2	75.8	38.0	69.0	66.0	63.0	61.0	54.2	49.0	43.0	41.0	39.0
	Max	64.8	91.3	45.4	75.0	71.0	68.0	67.0	63.0	57.0	48.0	47.0	46.0
Energy Average		60.6	Average:		70.1	67.7	65.0	63.2	57.1	51.4	45.1	44.0	42.3
Evening	Min	58.8	79.2	38.0	68.0	66.0	62.0	59.0	50.0	45.0	40.0	39.0	38.0
	Max	65.1	96.0	39.9	69.0	67.0	65.0	63.0	56.0	50.0	45.0	44.0	42.0
Energy Average		62.0	Average:		68.7	66.7	63.7	61.3	53.7	48.0	42.7	41.7	40.3
Night	Min	45.1	66.0	35.1	56.0	53.0	48.0	45.0	41.0	39.0	38.0	37.0	35.0
	Max	66.2	86.1	41.9	77.0	73.0	70.0	69.0	65.0	60.0	50.0	48.0	45.0
Energy Average		58.9	Average:		65.7	62.7	58.6	56.0	49.2	45.5	41.4	40.7	39.3

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
60.2	61.0	58.9

24-Hour CNEL (dBA)
64.5

24-Hour Noise Level Measurement Summary

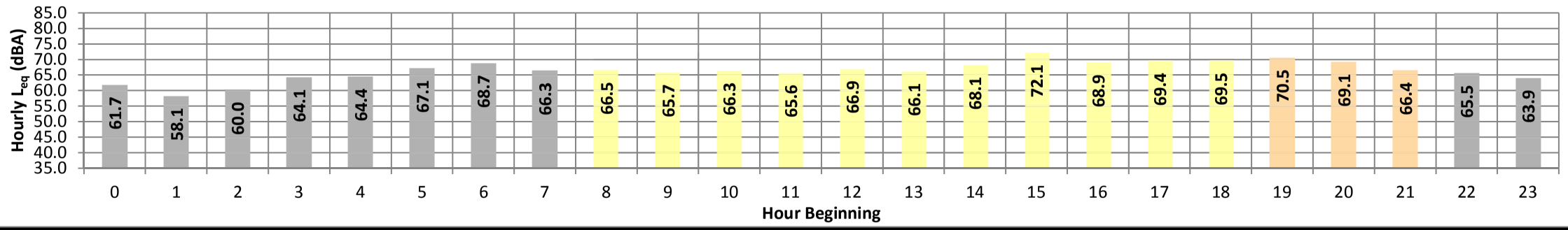
Date: Thursday, August 16, 2018
Project: Continental Villages

Location: L4 - Located west of the Project site across Lasselle Street near existing residential homes.

Meter: Piccolo I

JN: 11577
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	61.7	84.3	36.1	73.0	71.0	67.0	65.0	55.0	45.0	38.0	38.0	37.0	61.7	10.0	71.7
	1	58.1	76.8	35.2	71.0	69.0	65.0	62.0	50.0	41.0	35.0	35.0	35.0	58.1	10.0	68.1
	2	60.0	82.3	35.2	73.0	71.0	66.0	63.0	50.0	40.0	35.0	35.0	35.0	60.0	10.0	70.0
	3	64.1	92.6	35.2	74.0	72.0	69.0	66.0	59.0	49.0	38.0	36.0	35.0	64.1	10.0	74.1
	4	64.4	82.7	37.6	74.0	72.0	70.0	69.0	64.0	58.0	44.0	41.0	38.0	64.4	10.0	74.4
	5	67.1	85.9	38.2	77.0	75.0	72.0	71.0	66.0	61.0	49.0	47.0	43.0	67.1	10.0	77.1
	6	68.7	88.1	45.1	78.0	76.0	73.0	72.0	68.0	64.0	55.0	53.0	49.0	68.7	10.0	78.7
	7	66.3	84.4	44.2	75.0	73.0	71.0	70.0	66.0	63.0	55.0	52.0	48.0	66.3	0.0	66.3
Day	8	66.5	88.8	43.5	76.0	74.0	71.0	70.0	65.0	62.0	52.0	49.0	46.0	66.5	0.0	66.5
	9	65.7	81.5	42.6	75.0	74.0	72.0	70.0	65.0	61.0	49.0	47.0	45.0	65.7	0.0	65.7
	10	66.3	89.6	40.7	75.0	74.0	72.0	70.0	66.0	61.0	50.0	47.0	45.0	66.3	0.0	66.3
	11	65.6	82.1	43.0	75.0	73.0	71.0	69.0	65.0	61.0	51.0	49.0	46.0	65.6	0.0	65.6
	12	66.9	84.9	44.3	77.0	74.0	72.0	70.0	66.0	62.0	54.0	52.0	47.0	66.9	0.0	66.9
	13	66.1	84.1	42.9	74.0	73.0	71.0	70.0	66.0	62.0	51.0	48.0	44.0	66.1	0.0	66.1
	14	68.1	83.8	46.5	78.0	76.0	73.0	71.0	68.0	63.0	56.0	54.0	50.0	68.1	0.0	68.1
	15	72.1	101.8	42.9	80.0	77.0	74.0	72.0	68.0	63.0	54.0	51.0	47.0	72.1	0.0	72.1
	16	68.9	86.4	43.4	78.0	76.0	74.0	73.0	69.0	64.0	54.0	51.0	47.0	68.9	0.0	68.9
	17	69.4	87.8	45.9	80.0	77.0	74.0	73.0	69.0	64.0	56.0	54.0	48.0	69.4	0.0	69.4
	18	69.5	92.9	43.6	79.0	77.0	74.0	73.0	68.0	64.0	54.0	51.0	46.0	69.5	0.0	69.5
Evening	19	70.5	99.1	44.3	78.0	76.0	73.0	72.0	68.0	64.0	53.0	50.0	47.0	70.5	5.0	75.5
	20	69.1	95.7	42.2	79.0	76.0	73.0	72.0	67.0	62.0	51.0	48.0	45.0	69.1	5.0	74.1
	21	66.4	88.3	38.2	76.0	74.0	72.0	70.0	65.0	59.0	47.0	44.0	41.0	66.4	5.0	71.4
Night	22	65.5	86.6	38.2	76.0	74.0	71.0	69.0	63.0	57.0	43.0	41.0	38.0	65.5	10.0	75.5
	23	63.9	88.2	35.2	75.0	73.0	69.0	67.0	59.0	49.0	40.0	38.0	38.0	63.9	10.0	73.9

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	65.6	81.5	40.7	74.0	73.0	71.0	69.0	65.0	61.0	49.0	47.0	44.0
	Max	72.1	101.8	46.5	80.0	77.0	74.0	73.0	69.0	64.0	56.0	54.0	50.0
Energy Average		68.2	Average:		77.0	75.0	72.5	71.0	66.8	62.5	52.8	50.3	46.5
Evening	Min	66.4	88.3	38.2	76.0	74.0	72.0	70.0	65.0	59.0	47.0	44.0	41.0
	Max	70.5	99.1	44.3	79.0	76.0	73.0	72.0	68.0	64.0	53.0	50.0	47.0
Energy Average		69.0	Average:		77.7	75.3	72.7	71.3	66.7	61.7	50.3	47.3	44.3
Night	Min	58.1	76.8	35.2	71.0	69.0	65.0	62.0	50.0	40.0	35.0	35.0	35.0
	Max	68.7	92.6	45.1	78.0	76.0	73.0	72.0	68.0	64.0	55.0	53.0	49.0
Energy Average		64.9	Average:		74.6	72.6	69.3	67.4	60.0	52.7	43.2	41.6	39.6

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
67.3	68.4	64.9

24-Hour CNEL (dBA)
72.5

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE LEVEL CONTOURS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Kitching St.
Road Segment: n/o Krameria Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	690 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.56	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-20.80	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-24.76	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.6	63.7	62.0	55.9	64.5	65.1
Medium Trucks:	59.4	57.9	51.6	50.0	58.5	58.7
Heavy Trucks:	60.3	58.9	49.8	51.1	59.4	59.5
Vehicle Noise:	67.5	65.7	62.6	57.9	66.5	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	26	55	119	255
CNEL:	27	59	127	274

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Lasselle St.
Road Segment: n/o Iris Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,570 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.69	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.55	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.50	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.4	69.5	67.7	61.7	70.3	70.9
Medium Trucks:	65.0	63.5	57.1	55.6	64.0	64.3
Heavy Trucks:	65.4	64.0	55.0	56.2	64.6	64.7
Vehicle Noise:	73.1	71.4	68.3	63.5	72.1	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	148	319	687
CNEL:	74	159	343	738

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Lasselle St.
Road Segment: s/o Iris Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,210 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.11	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-14.12	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-18.08	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.2	67.4	61.4	70.0	70.6
Medium Trucks:	64.9	63.4	57.0	55.4	63.9	64.1
Heavy Trucks:	65.7	64.3	55.2	56.5	64.9	65.0
Vehicle Noise:	72.9	71.2	68.0	63.4	71.9	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	67	144	311	669
CNEL:	72	155	333	718

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Lasselle St.
Road Segment: s/o Cahuilla Dr.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,540 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.64	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.60	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.55	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.4	69.5	67.7	61.6	70.3	70.9
Medium Trucks:	64.9	63.4	57.1	55.5	64.0	64.2
Heavy Trucks:	65.4	63.9	54.9	56.1	64.5	64.6
Vehicle Noise:	73.1	71.3	68.3	63.5	72.0	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	147	317	682
CNEL:	73	158	340	733

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Lasselle St.
Road Segment: s/o Krameria Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,190 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.63	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.61	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-18.56	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.3	70.4	68.7	62.6	71.2	71.8
Medium Trucks:	65.9	64.4	58.1	56.5	65.0	65.2
Heavy Trucks:	66.3	64.9	55.9	57.1	65.5	65.6
Vehicle Noise:	74.0	72.3	69.2	64.5	73.0	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	171	368	794
CNEL:	85	184	396	853

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Iris Av.
Road Segment: w/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,610 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	82 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	53.226
Medium Trucks:	53.059
Heavy Trucks:	53.076

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.76	-0.51	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-15.48	-0.49	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.44	-0.49	-1.20	-5.29	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.6	60.5	69.2	69.8
Medium Trucks:	63.8	62.3	56.0	54.4	62.9	63.1
Heavy Trucks:	64.2	62.8	53.8	55.0	63.4	63.5
Vehicle Noise:	72.0	70.2	67.2	62.4	70.9	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	77	166	358	771
CNEL:	83	179	385	829

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Iris Av.
Road Segment: e/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,310 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	82 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	53.226
Medium Trucks:	53.059
Heavy Trucks:	53.076

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.79	-0.51	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-14.45	-0.49	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.40	-0.49	-1.20	-5.29	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	69.4	67.6	61.6	70.2	70.8
Medium Trucks:	64.9	63.4	57.0	55.4	63.9	64.1
Heavy Trucks:	65.3	63.9	54.8	56.1	64.4	64.6
Vehicle Noise:	73.0	71.2	68.2	63.4	72.0	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	90	195	420	904
CNEL:	97	209	451	971

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Krameria Av.
Road Segment: w/o Kitching St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	980 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.95	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-18.19	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-22.14	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.1	62.2	60.4	54.4	63.0	63.6
Medium Trucks:	58.3	56.8	50.5	48.9	57.4	57.6
Heavy Trucks:	60.2	58.8	49.7	51.0	59.3	59.5
Vehicle Noise:	66.3	64.6	61.2	56.8	65.3	65.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	46	100	214
CNEL:	23	49	106	229

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Krameria Av.
Road Segment: e/o Kitching St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	920 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-1.22	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-18.46	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-22.42	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.8	61.9	60.2	54.1	62.7	63.3
Medium Trucks:	58.1	56.6	50.2	48.7	57.1	57.3
Heavy Trucks:	59.9	58.5	49.5	50.7	59.1	59.2
Vehicle Noise:	66.1	64.3	60.9	56.5	65.0	65.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	44	95	206
CNEL:	22	47	102	220

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Krameria Av.
Road Segment: e/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	560 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-3.38	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-20.62	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-24.57	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.7	59.8	58.0	51.9	60.6	61.2
Medium Trucks:	55.9	54.4	48.0	46.5	55.0	55.2
Heavy Trucks:	57.8	56.4	47.3	48.6	56.9	57.0
Vehicle Noise:	63.9	62.2	58.7	54.4	62.9	63.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	32	69	148
CNEL:	16	34	73	158

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Krameria Av.
Road Segment: e/o Colt Wy.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	430 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-4.52	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-21.76	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-25.72	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.5	58.6	56.8	50.8	59.4	60.0
Medium Trucks:	54.8	53.3	46.9	45.4	53.8	54.0
Heavy Trucks:	56.6	55.2	46.2	47.4	55.8	55.9
Vehicle Noise:	62.8	61.0	57.6	53.2	61.7	62.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	27	57	124
CNEL:	13	28	61	132

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Kitching St.
Road Segment: n/o Krameria Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	710 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.44	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-20.68	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-24.63	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.8	63.9	62.1	56.0	64.7	65.3
Medium Trucks:	59.6	58.0	51.7	50.1	58.6	58.8
Heavy Trucks:	60.4	59.0	49.9	51.2	59.5	59.7
Vehicle Noise:	67.6	65.9	62.7	58.0	66.6	67.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	26	56	121	260
CNEL:	28	60	130	279

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Lasselle St.
Road Segment: n/o Iris Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,600 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.74	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.50	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.45	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.5	69.6	67.8	61.7	70.4	71.0
Medium Trucks:	65.0	63.5	57.2	55.6	64.1	64.3
Heavy Trucks:	65.5	64.0	55.0	56.3	64.6	64.7
Vehicle Noise:	73.2	71.4	68.4	63.6	72.1	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	149	321	693
CNEL:	74	160	345	744

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Lasselle St.
Road Segment: s/o Iris Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,300 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.23	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-14.00	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-17.96	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	69.3	67.5	61.5	70.1	70.7
Medium Trucks:	65.0	63.5	57.1	55.6	64.0	64.3
Heavy Trucks:	65.8	64.4	55.4	56.6	65.0	65.1
Vehicle Noise:	73.0	71.3	68.1	63.5	72.0	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	147	316	682
CNEL:	73	158	339	731

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Lasselle St.
Road Segment: s/o Cahuilla Dr.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,630 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.79	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.45	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.40	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.5	69.6	67.8	61.8	70.4	71.0
Medium Trucks:	65.1	63.6	57.2	55.7	64.1	64.4
Heavy Trucks:	65.5	64.1	55.1	56.3	64.7	64.8
Vehicle Noise:	73.2	71.5	68.4	63.6	72.2	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	150	324	698
CNEL:	75	162	348	750

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Lasselle St.
Road Segment: s/o Krameria Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,240 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.70	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.54	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-18.50	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.4	70.5	68.7	62.7	71.3	71.9
Medium Trucks:	66.0	64.5	58.1	56.6	65.0	65.3
Heavy Trucks:	66.4	65.0	56.0	57.2	65.6	65.7
Vehicle Noise:	74.1	72.4	69.3	64.5	73.1	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	80	173	372	802
CNEL:	86	186	400	862

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Iris Av.
Road Segment: w/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,640 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	82 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	53.226
Medium Trucks:	53.059
Heavy Trucks:	53.076

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.81	-0.51	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-15.43	-0.49	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.39	-0.49	-1.20	-5.29	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.6	60.6	69.2	69.8
Medium Trucks:	63.9	62.4	56.0	54.5	62.9	63.2
Heavy Trucks:	64.3	62.9	53.8	55.1	63.4	63.6
Vehicle Noise:	72.0	70.2	67.2	62.4	71.0	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	78	167	361	777
CNEL:	84	180	388	835

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Iris Av.
Road Segment: e/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,340 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	82 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	53.226
Medium Trucks:	53.059
Heavy Trucks:	53.076

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.83	-0.51	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-14.41	-0.49	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.37	-0.49	-1.20	-5.29	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	69.4	67.7	61.6	70.2	70.8
Medium Trucks:	64.9	63.4	57.0	55.5	63.9	64.2
Heavy Trucks:	65.3	63.9	54.9	56.1	64.5	64.6
Vehicle Noise:	73.0	71.3	68.2	63.4	72.0	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	91	196	422	909
CNEL:	98	210	453	977

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Krameria Av.
Road Segment: w/o Kitching St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,010 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.82	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-18.05	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-22.01	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.2	62.3	60.6	54.5	63.1	63.7
Medium Trucks:	58.5	57.0	50.6	49.1	57.5	57.8
Heavy Trucks:	60.3	58.9	49.9	51.1	59.5	59.6
Vehicle Noise:	66.5	64.7	61.3	56.9	65.4	65.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	22	47	102	219
CNEL:	23	50	108	234

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Krameria Av.
Road Segment: e/o Kitching St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	990 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.90	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-18.14	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-22.10	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.1	62.2	60.5	54.4	63.0	63.6
Medium Trucks:	58.4	56.9	50.5	49.0	57.4	57.7
Heavy Trucks:	60.2	58.8	49.8	51.0	59.4	59.5
Vehicle Noise:	66.4	64.7	61.2	56.8	65.4	65.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	22	47	100	216
CNEL:	23	50	107	231

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Krameria Av.
Road Segment: e/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	680 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.53	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-19.77	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-23.73	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.5	60.6	58.8	52.8	61.4	62.0
Medium Trucks:	56.8	55.2	48.9	47.3	55.8	56.0
Heavy Trucks:	58.6	57.2	48.2	49.4	57.8	57.9
Vehicle Noise:	64.7	63.0	59.6	55.2	63.7	64.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	36	78	168
CNEL:	18	39	83	180

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Krameria Av.
Road Segment: e/o Colt Wy.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	450 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-4.33	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-21.57	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-25.52	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.7	58.8	57.0	51.0	59.6	60.2
Medium Trucks:	55.0	53.5	47.1	45.6	54.0	54.2
Heavy Trucks:	56.8	55.4	46.4	47.6	56.0	56.1
Vehicle Noise:	63.0	61.2	57.8	53.4	61.9	62.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	27	59	128
CNEL:	14	29	63	136

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 Without Project
Road Name: Kitching St.
Road Segment: n/o Krameria Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	770 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.09	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-20.32	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-24.28	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.1	64.2	62.4	56.4	65.0	65.6
Medium Trucks:	59.9	58.4	52.0	50.5	59.0	59.2
Heavy Trucks:	60.7	59.3	50.3	51.5	59.9	60.0
Vehicle Noise:	68.0	66.2	63.1	58.4	66.9	67.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	27	59	128	275
CNEL:	29	63	137	295

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 Without Project
Road Name: Lasselle St.
Road Segment: n/o Iris Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,210 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.66	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.58	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-18.54	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.4	70.5	68.7	62.6	71.3	71.9
Medium Trucks:	66.0	64.4	58.1	56.5	65.0	65.2
Heavy Trucks:	66.4	65.0	55.9	57.2	65.5	65.6
Vehicle Noise:	74.1	72.3	69.3	64.5	73.0	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	80	172	370	797
CNEL:	86	184	397	856

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 Without Project
Road Name: Lasselle St.
Road Segment: s/o Iris Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,770 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.81	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-13.43	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-17.38	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.8	69.9	68.1	62.1	70.7	71.3
Medium Trucks:	65.6	64.1	57.7	56.1	64.6	64.8
Heavy Trucks:	66.4	65.0	55.9	57.2	65.6	65.7
Vehicle Noise:	73.6	71.9	68.7	64.1	72.6	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	74	160	346	745
CNEL:	80	172	371	799

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 Without Project
Road Name: Lasselle St.
Road Segment: s/o Cahuilla Dr.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,980 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.33	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.90	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-18.86	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.0	70.1	68.4	62.3	70.9	71.6
Medium Trucks:	65.6	64.1	57.8	56.2	64.7	64.9
Heavy Trucks:	66.1	64.6	55.6	56.8	65.2	65.3
Vehicle Noise:	73.7	72.0	68.9	64.2	72.7	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	163	352	759
CNEL:	81	176	378	815

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 Without Project
Road Name: Lasselle St.
Road Segment: s/o Krameria Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,660 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.23	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.01	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-17.97	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.9	71.0	69.3	63.2	71.8	72.4
Medium Trucks:	66.5	65.0	58.7	57.1	65.6	65.8
Heavy Trucks:	66.9	65.5	56.5	57.7	66.1	66.2
Vehicle Noise:	74.6	72.9	69.8	65.1	73.6	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	87	187	404	870
CNEL:	93	201	434	935

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 Without Project
Road Name: Iris Av.
Road Segment: w/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,110 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	82 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	53.226
Medium Trucks:	53.059
Heavy Trucks:	53.076

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.52	-0.51	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-14.72	-0.49	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.68	-0.49	-1.20	-5.29	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	69.1	67.3	61.3	69.9	70.5
Medium Trucks:	64.6	63.1	56.7	55.2	63.6	63.9
Heavy Trucks:	65.0	63.6	54.6	55.8	64.2	64.3
Vehicle Noise:	72.7	71.0	67.9	63.1	71.7	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	87	187	402	867
CNEL:	93	201	432	931

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 Without Project
Road Name: Iris Av.
Road Segment: e/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,210 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	82 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	53.226
Medium Trucks:	53.059
Heavy Trucks:	53.076

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.83	-0.51	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-13.40	-0.49	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-17.36	-0.49	-1.20	-5.29	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.3	70.4	68.7	62.6	71.2	71.8
Medium Trucks:	65.9	64.4	58.0	56.5	65.0	65.2
Heavy Trucks:	66.3	64.9	55.9	57.1	65.5	65.6
Vehicle Noise:	74.0	72.3	69.2	64.4	73.0	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	106	229	492	1,061
CNEL:	114	246	529	1,140

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 Without Project
Road Name: Krameria Av.
Road Segment: w/o Kitching St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,240 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	0.07	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-17.16	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-21.12	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.1	63.2	61.4	55.4	64.0	64.6
Medium Trucks:	59.4	57.9	51.5	50.0	58.4	58.6
Heavy Trucks:	61.2	59.8	50.8	52.0	60.4	60.5
Vehicle Noise:	67.4	65.6	62.2	57.8	66.3	66.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	25	54	116	251
CNEL:	27	58	124	268

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 Without Project
Road Name: Krameria Av.
Road Segment: e/o Kitching St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,170 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.18	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-17.42	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-21.37	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.9	63.0	61.2	55.1	63.8	64.4
Medium Trucks:	59.1	57.6	51.2	49.7	58.2	58.4
Heavy Trucks:	61.0	59.6	50.5	51.8	60.1	60.2
Vehicle Noise:	67.1	65.4	61.9	57.6	66.1	66.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	24	52	112	241
CNEL:	26	56	120	258

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 Without Project
Road Name: Krameria Av.
Road Segment: e/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	670 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.60	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-19.84	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-23.79	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.4	60.5	58.8	52.7	61.3	61.9
Medium Trucks:	56.7	55.2	48.8	47.3	55.7	56.0
Heavy Trucks:	58.6	57.1	48.1	49.3	57.7	57.8
Vehicle Noise:	64.7	63.0	59.5	55.1	63.7	64.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	36	77	166
CNEL:	18	38	83	178

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 Without Project
Road Name: Krameria Av.
Road Segment: e/o Colt Wy.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	500 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-3.87	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-21.11	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-25.06	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.2	59.3	57.5	51.5	60.1	60.7
Medium Trucks:	55.4	53.9	47.6	46.0	54.5	54.7
Heavy Trucks:	57.3	55.9	46.8	48.1	56.4	56.6
Vehicle Noise:	63.4	61.7	58.2	53.9	62.4	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	14	29	64	137
CNEL:	15	32	68	146

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 With Project
Road Name: Kitching St.
Road Segment: n/o Krameria Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	790 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-2.97	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-20.21	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-24.17	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.2	64.3	62.6	56.5	65.1	65.7
Medium Trucks:	60.0	58.5	52.1	50.6	59.1	59.3
Heavy Trucks:	60.9	59.4	50.4	51.7	60.0	60.1
Vehicle Noise:	68.1	66.3	63.2	58.5	67.0	67.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	28	60	130	280
CNEL:	30	65	139	300

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 With Project
Road Name: Lasselle St.
Road Segment: n/o Iris Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,240 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.70	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.54	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-18.50	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.4	70.5	68.7	62.7	71.3	71.9
Medium Trucks:	66.0	64.5	58.1	56.6	65.0	65.3
Heavy Trucks:	66.4	65.0	56.0	57.2	65.6	65.7
Vehicle Noise:	74.1	72.4	69.3	64.5	73.1	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	80	173	372	802
CNEL:	86	186	400	862

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 With Project
Road Name: Lasselle St.
Road Segment: s/o Iris Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,860 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.91	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-13.32	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-17.28	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.9	70.0	68.2	62.2	70.8	71.4
Medium Trucks:	65.7	64.2	57.8	56.2	64.7	64.9
Heavy Trucks:	66.5	65.1	56.1	57.3	65.7	65.8
Vehicle Noise:	73.7	72.0	68.8	64.2	72.7	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	163	351	757
CNEL:	81	175	377	812

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 With Project
Road Name: Lasselle St.
Road Segment: s/o Cahuilla Dr.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,060 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.45	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.79	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-18.75	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.2	70.3	68.5	62.4	71.1	71.7
Medium Trucks:	65.7	64.2	57.9	56.3	64.8	65.0
Heavy Trucks:	66.2	64.7	55.7	57.0	65.3	65.4
Vehicle Noise:	73.9	72.1	69.1	64.3	72.8	73.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	77	166	358	772
CNEL:	83	179	385	829

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 With Project
Road Name: Lasselle St.
Road Segment: s/o Krameria Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,710 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.29	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.95	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-17.91	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.0	71.1	69.3	63.3	71.9	72.5
Medium Trucks:	66.6	65.1	58.7	57.2	65.6	65.9
Heavy Trucks:	67.0	65.6	56.5	57.8	66.2	66.3
Vehicle Noise:	74.7	72.9	69.9	65.1	73.7	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	88	189	407	878
CNEL:	94	203	438	943

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 With Project
Road Name: Iris Av.
Road Segment: w/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,140 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	82 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	53.226
Medium Trucks:	53.059
Heavy Trucks:	53.076

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.56	-0.51	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-14.68	-0.49	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.63	-0.49	-1.20	-5.29	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.2	67.4	61.3	70.0	70.6
Medium Trucks:	64.6	63.1	56.8	55.2	63.7	63.9
Heavy Trucks:	65.1	63.6	54.6	55.8	64.2	64.3
Vehicle Noise:	72.8	71.0	68.0	63.2	71.7	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	87	188	405	873
CNEL:	94	202	435	937

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 With Project
Road Name: Iris Av.
Road Segment: e/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,240 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	82 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	53.226
Medium Trucks:	53.059
Heavy Trucks:	53.076

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.87	-0.51	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-13.37	-0.49	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-17.33	-0.49	-1.20	-5.29	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.4	70.5	68.7	62.6	71.3	71.9
Medium Trucks:	65.9	64.4	58.1	56.5	65.0	65.2
Heavy Trucks:	66.4	64.9	55.9	57.1	65.5	65.6
Vehicle Noise:	74.1	72.3	69.3	64.5	73.0	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	107	230	495	1,066
CNEL:	115	247	532	1,145

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 With Project
Road Name: Krameria Av.
Road Segment: w/o Kitching St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,260 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	0.14	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-17.09	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-21.05	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.2	63.3	61.5	55.5	64.1	64.7
Medium Trucks:	59.4	57.9	51.6	50.0	58.5	58.7
Heavy Trucks:	61.3	59.9	50.8	52.1	60.4	60.6
Vehicle Noise:	67.4	65.7	62.3	57.9	66.4	66.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	25	55	118	254
CNEL:	27	58	126	271

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 With Project
Road Name: Krameria Av.
Road Segment: e/o Kitching St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,230 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	0.04	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-17.20	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-21.15	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.1	63.2	61.4	55.4	64.0	64.6
Medium Trucks:	59.3	57.8	51.5	49.9	58.4	58.6
Heavy Trucks:	61.2	59.8	50.7	52.0	60.3	60.5
Vehicle Noise:	67.3	65.6	62.2	57.8	66.3	66.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	25	54	116	250
CNEL:	27	57	124	267

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 With Project
Road Name: Krameria Av.
Road Segment: e/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	790 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-1.88	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-19.12	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-23.08	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.2	61.3	59.5	53.4	62.1	62.7
Medium Trucks:	57.4	55.9	49.5	48.0	56.5	56.7
Heavy Trucks:	59.3	57.8	48.8	50.1	58.4	58.5
Vehicle Noise:	65.4	63.7	60.2	55.9	64.4	64.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	40	86	186
CNEL:	20	43	92	198

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY 2023 With Project
Road Name: Krameria Av.
Road Segment: e/o Colt Wy.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	520 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-3.70	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-20.94	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-24.89	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.3	59.4	57.7	51.6	60.2	60.8
Medium Trucks:	55.6	54.1	47.7	46.2	54.6	54.9
Heavy Trucks:	57.5	56.0	47.0	48.2	56.6	56.7
Vehicle Noise:	63.6	61.9	58.4	54.0	62.6	63.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	14	30	65	141
CNEL:	15	32	70	150

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 Without Project
Road Name: Kitching St.
Road Segment: n/o Krameria Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,000 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.06	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-16.18	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.13	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.6	60.5	69.2	69.8
Medium Trucks:	64.1	62.5	56.2	54.6	63.1	63.3
Heavy Trucks:	64.9	63.5	54.4	55.7	64.0	64.2
Vehicle Noise:	72.1	70.4	67.2	62.5	71.1	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	112	241	519
CNEL:	56	120	258	557

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 Without Project
Road Name: Lasselle St.
Road Segment: n/o Iris Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,530 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.07	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.17	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-18.13	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.8	70.9	69.1	63.1	71.7	72.3
Medium Trucks:	66.4	64.9	58.5	57.0	65.4	65.6
Heavy Trucks:	66.8	65.4	56.3	57.6	65.9	66.1
Vehicle Noise:	74.5	72.7	69.7	64.9	73.5	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	85	183	394	849
CNEL:	91	197	423	912

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 Without Project
Road Name: Lasselle St.
Road Segment: s/o Iris Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,140 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.22	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-13.02	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-16.98	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.2	70.3	68.5	62.5	71.1	71.7
Medium Trucks:	66.0	64.5	58.1	56.6	65.0	65.2
Heavy Trucks:	66.8	65.4	56.4	57.6	66.0	66.1
Vehicle Noise:	74.0	72.3	69.1	64.5	73.0	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	171	368	793
CNEL:	85	183	395	850

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 Without Project
Road Name: Lasselle St.
Road Segment: s/o Cahuilla Dr.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,270 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.74	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.50	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-18.46	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.4	70.5	68.8	62.7	71.4	72.0
Medium Trucks:	66.0	64.5	58.2	56.6	65.1	65.3
Heavy Trucks:	66.5	65.0	56.0	57.2	65.6	65.7
Vehicle Noise:	74.2	72.4	69.4	64.6	73.1	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	81	174	375	807
CNEL:	87	187	402	867

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 Without Project
Road Name: Lasselle St.
Road Segment: s/o Krameria Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,020 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.63	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.60	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-17.56	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.3	71.4	69.7	63.6	72.2	72.9
Medium Trucks:	66.9	65.4	59.1	57.5	66.0	66.2
Heavy Trucks:	67.4	65.9	56.9	58.1	66.5	66.6
Vehicle Noise:	75.0	73.3	70.2	65.5	74.0	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	200	430	926
CNEL:	99	214	462	995

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 Without Project
Road Name: Iris Av.
Road Segment: w/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,420 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	82 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	53.226
Medium Trucks:	53.059
Heavy Trucks:	53.076

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.93	-0.51	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-14.31	-0.49	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.26	-0.49	-1.20	-5.29	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.4	69.5	67.8	61.7	70.3	70.9
Medium Trucks:	65.0	63.5	57.1	55.6	64.1	64.3
Heavy Trucks:	65.4	64.0	55.0	56.2	64.6	64.7
Vehicle Noise:	73.1	71.4	68.3	63.5	72.1	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	92	199	429	924
CNEL:	99	214	461	992

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 Without Project
Road Name: Iris Av.
Road Segment: e/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,630 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	82 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	53.226
Medium Trucks:	53.059
Heavy Trucks:	53.076

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.25	-0.51	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-12.99	-0.49	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-16.95	-0.49	-1.20	-5.29	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.7	70.8	69.1	63.0	71.6	72.2
Medium Trucks:	66.3	64.8	58.4	56.9	65.4	65.6
Heavy Trucks:	66.7	65.3	56.3	57.5	65.9	66.0
Vehicle Noise:	74.4	72.7	69.6	64.9	73.4	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	113	244	525	1,130
CNEL:	121	262	564	1,214

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 Without Project
Road Name: Krameria Av.
Road Segment: w/o Kitching St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,360 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	0.48	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-16.76	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-20.72	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.5	63.6	61.9	55.8	64.4	65.0
Medium Trucks:	59.8	58.3	51.9	50.4	58.8	59.0
Heavy Trucks:	61.6	60.2	51.2	52.4	60.8	60.9
Vehicle Noise:	67.8	66.0	62.6	58.2	66.7	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	27	57	124	267
CNEL:	28	61	132	285

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 Without Project
Road Name: Krameria Av.
Road Segment: e/o Kitching St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,290 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	0.25	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-16.99	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-20.95	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.3	63.4	61.6	55.6	64.2	64.8
Medium Trucks:	59.5	58.0	51.7	50.1	58.6	58.8
Heavy Trucks:	61.4	60.0	50.9	52.2	60.5	60.7
Vehicle Noise:	67.5	65.8	62.4	58.0	66.5	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	26	55	120	258
CNEL:	28	59	128	275

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 Without Project
Road Name: Krameria Av.
Road Segment: e/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	730 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.23	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-19.46	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-23.42	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.8	60.9	59.1	53.1	61.7	62.3
Medium Trucks:	57.1	55.6	49.2	47.7	56.1	56.3
Heavy Trucks:	58.9	57.5	48.5	49.7	58.1	58.2
Vehicle Noise:	65.1	63.3	59.9	55.5	64.0	64.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	38	82	176
CNEL:	19	41	87	188

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 Without Project
Road Name: Krameria Av.
Road Segment: e/o Colt Wy.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	550 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-3.46	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-20.69	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-24.65	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.6	59.7	57.9	51.9	60.5	61.1
Medium Trucks:	55.8	54.3	48.0	46.4	54.9	55.1
Heavy Trucks:	57.7	56.3	47.2	48.5	56.8	57.0
Vehicle Noise:	63.8	62.1	58.7	54.3	62.8	63.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	31	68	146
CNEL:	16	34	72	156

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 With Project
Road Name: Kitching St.
Road Segment: n/o Krameria Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,020 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.10	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-16.14	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.09	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.6	60.6	69.2	69.8
Medium Trucks:	64.1	62.6	56.2	54.7	63.1	63.4
Heavy Trucks:	64.9	63.5	54.5	55.7	64.1	64.2
Vehicle Noise:	72.1	70.4	67.2	62.6	71.1	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	113	243	523
CNEL:	56	121	260	561

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 With Project
Road Name: Lasselle St.
Road Segment: n/o Iris Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,570 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.12	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.12	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-18.08	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.8	70.9	69.2	63.1	71.7	72.3
Medium Trucks:	66.4	64.9	58.5	57.0	65.5	65.7
Heavy Trucks:	66.8	65.4	56.4	57.6	66.0	66.1
Vehicle Noise:	74.5	72.8	69.7	65.0	73.5	74.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	86	184	397	856
CNEL:	92	198	427	919

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 With Project
Road Name: Lasselle St.
Road Segment: s/o Iris Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,240 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.32	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-12.92	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-16.87	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.3	70.4	68.6	62.6	71.2	71.8
Medium Trucks:	66.1	64.6	58.2	56.7	65.1	65.4
Heavy Trucks:	66.9	65.5	56.5	57.7	66.1	66.2
Vehicle Noise:	74.1	72.4	69.2	64.6	73.1	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	81	174	374	806
CNEL:	86	186	401	864

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 With Project
Road Name: Lasselle St.
Road Segment: s/o Cahuilla Dr.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,360 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.85	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.38	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-18.34	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.6	70.7	68.9	62.8	71.5	72.1
Medium Trucks:	66.2	64.6	58.3	56.7	65.2	65.4
Heavy Trucks:	66.6	65.2	56.1	57.4	65.7	65.8
Vehicle Noise:	74.3	72.5	69.5	64.7	73.2	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	82	177	381	822
CNEL:	88	190	410	883

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 With Project
Road Name: Lasselle St.
Road Segment: s/o Krameria Av.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,070 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.69	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.55	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-17.51	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.4	71.5	69.7	63.7	72.3	72.9
Medium Trucks:	67.0	65.5	59.1	57.6	66.0	66.3
Heavy Trucks:	67.4	66.0	56.9	58.2	66.6	66.7
Vehicle Noise:	75.1	73.3	70.3	65.5	74.1	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	201	433	934
CNEL:	100	216	466	1,003

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 With Project
Road Name: Iris Av.
Road Segment: w/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,450 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	82 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	53.226
Medium Trucks:	53.059
Heavy Trucks:	53.076

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.97	-0.51	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-14.27	-0.49	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.22	-0.49	-1.20	-5.29	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.5	69.6	67.8	61.7	70.4	71.0
Medium Trucks:	65.0	63.5	57.2	55.6	64.1	64.3
Heavy Trucks:	65.5	64.0	55.0	56.3	64.6	64.7
Vehicle Noise:	73.2	71.4	68.4	63.6	72.1	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	200	431	929
CNEL:	100	215	463	998

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 With Project
Road Name: Iris Av.
Road Segment: e/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,660 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	82 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	53.226
Medium Trucks:	53.059
Heavy Trucks:	53.076

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.28	-0.51	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-12.96	-0.49	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-16.92	-0.49	-1.20	-5.29	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.8	70.9	69.1	63.0	71.7	72.3
Medium Trucks:	66.3	64.8	58.5	56.9	65.4	65.6
Heavy Trucks:	66.8	65.3	56.3	57.6	65.9	66.0
Vehicle Noise:	74.5	72.7	69.7	64.9	73.4	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	114	245	527	1,135
CNEL:	122	263	566	1,220

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 With Project
Road Name: Krameria Av.
Road Segment: w/o Kitching St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,390 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	0.57	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-16.67	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-20.62	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.6	63.7	61.9	55.9	64.5	65.1
Medium Trucks:	59.9	58.4	52.0	50.4	58.9	59.1
Heavy Trucks:	61.7	60.3	51.3	52.5	60.9	61.0
Vehicle Noise:	67.8	66.1	62.7	58.3	66.8	67.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	27	58	126	271
CNEL:	29	62	134	289

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 With Project
Road Name: Krameria Av.
Road Segment: e/o Kitching St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,350 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	0.44	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-16.79	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-20.75	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.5	63.6	61.8	55.8	64.4	65.0
Medium Trucks:	59.7	58.2	51.9	50.3	58.8	59.0
Heavy Trucks:	61.6	60.2	51.1	52.4	60.7	60.9
Vehicle Noise:	67.7	66.0	62.6	58.2	66.7	67.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	27	57	123	265
CNEL:	28	61	132	284

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 With Project
Road Name: Krameria Av.
Road Segment: e/o Lasselle St.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	850	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	50	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-1.57	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-18.80	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-22.76	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.5	61.6	59.8	53.8	62.4	63.0
Medium Trucks:	57.7	56.2	49.9	48.3	56.8	57.0
Heavy Trucks:	59.6	58.2	49.1	50.4	58.7	58.9
Vehicle Noise:	65.7	64.0	60.6	56.2	64.7	65.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	20	42	91	195
CNEL:	21	45	97	208

Friday, November 16, 2018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 With Project
Road Name: Krameria Av.
Road Segment: e/o Colt Wy.
Project Name: Continental
Job Number: 11577

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	570	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	50	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-3.30	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-20.54	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-24.49	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.7	59.8	58.1	52.0	60.6	61.2
Medium Trucks:	56.0	54.5	48.1	46.6	55.0	55.3
Heavy Trucks:	57.8	56.4	47.4	48.6	57.0	57.1
Vehicle Noise:	64.0	62.3	58.8	54.4	63.0	63.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	32	69	149
CNEL:	16	34	74	160

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APPENDIX 8.1:

ON-SITE TRAFFIC NOISE CALCULATIONS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: First Floor With Wall
Road Name: Lasselle St.
Lot No: West Buildings

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,380	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	490.0	feet
Centerline Dist. to Observer:	490.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	0.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	489.437
Medium Trucks:	489.419
Heavy Trucks:	489.421

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.12	2.88	-14.96	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	78.79	-14.36	-14.96	-1.20	*-4.89*	0.000	0.000
Heavy Trucks:	83.02	-18.31	-14.96	-1.20	*-4.95*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.8	55.9	54.2	48.1	56.7	57.3
Medium Trucks:	48.3	46.8	40.4	38.9	47.3	47.6
Heavy Trucks:	48.5	47.1	38.1	39.3	47.7	47.8
Vehicle Noise:	58.7	56.9	54.5	49.1	57.7	58.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.8	55.9	54.2	48.1	56.7	57.3
Medium Trucks:	48.3	46.8	40.4	38.9	47.3	47.6
Heavy Trucks:	48.5	47.1	38.1	39.3	47.7	47.8
Vehicle Noise:	58.7	56.9	54.5	49.1	57.7	58.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: First Floor With Wall
Road Name: Krameria Av.
Lot No: South Buildings

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	570	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	50	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	74.0	feet
Centerline Dist. to Observer:	74.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	0.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	69.828
Medium Trucks:	69.702
Heavy Trucks:	69.714

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.30	-2.28	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	74.83	-20.54	-2.27	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	80.05	-24.49	-2.27	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.3	56.4	54.7	48.6	57.2	57.8
Medium Trucks:	50.8	49.3	43.0	41.4	49.9	50.1
Heavy Trucks:	52.1	50.7	41.6	42.9	51.2	51.4
Vehicle Noise:	59.8	58.1	55.1	50.2	58.8	59.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.3	56.4	54.7	48.6	57.2	57.8
Medium Trucks:	50.8	49.3	43.0	41.4	49.9	50.1
Heavy Trucks:	52.1	50.7	41.6	42.9	51.2	51.4
Vehicle Noise:	59.8	58.1	55.1	50.2	58.8	59.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: First Floor With Wall
Road Name: Krameria Av.
Lot No: East Buildings

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	570	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	50	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	69.0	feet
Centerline Dist. to Observer:	69.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	0.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	64.506
Medium Trucks:	64.369
Heavy Trucks:	64.382

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.30	-1.76	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	74.83	-20.54	-1.75	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	80.05	-24.49	-1.75	-1.20	*-5.28*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.8	56.9	55.2	49.1	57.7	58.4
Medium Trucks:	51.3	49.8	43.5	41.9	50.4	50.6
Heavy Trucks:	52.6	51.2	42.1	43.4	51.7	51.9
Vehicle Noise:	60.4	58.6	55.7	50.8	59.3	59.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.8	56.9	55.2	49.1	57.7	58.4
Medium Trucks:	51.3	49.8	43.5	41.9	50.4	50.6
Heavy Trucks:	52.6	51.2	42.1	43.4	51.7	51.9
Vehicle Noise:	60.4	58.6	55.7	50.8	59.3	59.8

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Second Floor With Wall
Road Name: Lasselle St.
Lot No: West Buildings

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,380	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	490.0	feet
Centerline Dist. to Observer:	490.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	14.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	0.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	489.612
Medium Trucks:	489.552
Heavy Trucks:	489.449

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.12	2.88	-14.97	-1.20	*-13.50*	0.000	0.000
Medium Trucks:	78.79	-14.36	-14.97	-1.20	*-13.57*	0.000	0.000
Heavy Trucks:	83.02	-18.31	-14.96	-1.20	*-13.73*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.8	55.9	54.2	48.1	56.7	57.3
Medium Trucks:	48.3	46.8	40.4	38.9	47.3	47.5
Heavy Trucks:	48.5	47.1	38.1	39.3	47.7	47.8
Vehicle Noise:	58.7	56.9	54.4	49.1	57.7	58.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.8	55.9	54.2	48.1	56.7	57.3
Medium Trucks:	48.3	46.8	40.4	38.9	47.3	47.5
Heavy Trucks:	48.5	47.1	38.1	39.3	47.7	47.8
Vehicle Noise:	58.7	56.9	54.4	49.1	57.7	58.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Second Floor With Wall
Road Name: Krameria Av.
Lot No: South Buildings

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	570	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	50	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	74.0	feet
Centerline Dist. to Observer:	74.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	14.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	0.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	71.042
Medium Trucks:	70.625
Heavy Trucks:	69.907

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.30	-2.39	-1.20	*-12.41*	0.000	0.000
Medium Trucks:	74.83	-20.54	-2.35	-1.20	*-12.83*	0.000	0.000
Heavy Trucks:	80.05	-24.49	-2.29	-1.20	*-13.88*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.2	56.3	54.6	48.5	57.1	57.7
Medium Trucks:	50.7	49.2	42.9	41.3	49.8	50.0
Heavy Trucks:	52.1	50.6	41.6	42.9	51.2	51.3
Vehicle Noise:	59.7	58.0	55.0	50.2	58.7	59.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.2	56.3	54.6	48.5	57.1	57.7
Medium Trucks:	50.7	49.2	42.9	41.3	49.8	50.0
Heavy Trucks:	52.1	50.6	41.6	42.9	51.2	51.3
Vehicle Noise:	59.7	58.0	55.0	50.2	58.7	59.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Second Floor With Wall
Road Name: Krameria Av.
Lot No: East Buildings

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	570	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	50	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	69.0	feet
Centerline Dist. to Observer:	69.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	14.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	0.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.818
Medium Trucks:	65.368
Heavy Trucks:	64.590

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.30	-1.89	-1.20	*-12.32*	0.000	0.000
Medium Trucks:	74.83	-20.54	-1.85	-1.20	*-12.77*	0.000	0.000
Heavy Trucks:	80.05	-24.49	-1.77	-1.20	*-13.90*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.7	56.8	55.0	49.0	57.6	58.2
Medium Trucks:	51.2	49.7	43.4	41.8	50.3	50.5
Heavy Trucks:	52.6	51.2	42.1	43.4	51.7	51.9
Vehicle Noise:	60.2	58.5	55.5	50.7	59.2	59.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.7	56.8	55.0	49.0	57.6	58.2
Medium Trucks:	51.2	49.7	43.4	41.8	50.3	50.5
Heavy Trucks:	52.6	51.2	42.1	43.4	51.7	51.9
Vehicle Noise:	60.2	58.5	55.5	50.7	59.2	59.7

APPENDIX 10.1:

OPERATIONAL STATIONARY-SOURCE NOISE CALCULATIONS

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STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R1**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	698.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	698.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	10.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	698.0	-42.9	-42.9	-42.9	-42.9	-42.9	-42.9
Shielding (Barrier Attenuation)	698.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		34.3	-42.9	-42.9	-42.9	-42.9	-42.9
39 Minute Hourly Adjustment		**32.4**	**-44.8**	**-44.8**	**-44.8**	**-44.8**	**-44.8**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R1**
Source: Residential Entry Gate & Speaker
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	456.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	456.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	40.0	55.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	456.0	-21.1	-21.1	-21.1	-21.1	-21.1	-21.1
Shielding (Barrier Attenuation)	456.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		34.8	-21.1	-21.1	-21.1	-21.1	-21.1
60 Minute Hourly Adjustment		**34.8**	**-21.1**	**-21.1**	**-21.1**	**-21.1**	**-21.1**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R1**
Source: Residential Parking Lot Veh. Movements
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	333.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	333.0	feet	*Noise Source Height:*	5.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	15.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	51.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	333.0	-22.8	-22.8	-22.8	-22.8	-22.8	-22.8
Shielding (Barrier Attenuation)	333.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		28.5	-22.8	-22.8	-22.8	-22.8	-22.8
60 Minute Hourly Adjustment		**28.5**	**-22.8**	**-22.8**	**-22.8**	**-22.8**	**-22.8**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R1**
Source: Commercial Parking Lot Veh. Movements
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	620.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	620.0	feet	*Noise Source Height:*	5.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	15.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	620.0	-31.4	-31.4	-31.4	-31.4	-31.4	-31.4
Shielding (Barrier Attenuation)	620.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		28.7	-31.4	-31.4	-31.4	-31.4	-31.4
60 Minute Hourly Adjustment		**28.7**	**-31.4**	**-31.4**	**-31.4**	**-31.4**	**-31.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R1**
Source: Outdoor Pool/Spa Activity
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	738.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	738.0	feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	71.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	738.0	-43.4	-43.4	-43.4	-43.4	-43.4	-43.4
Shielding (Barrier Attenuation)	738.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		27.6	-43.4	-43.4	-43.4	-43.4	-43.4
60 Minute Hourly Adjustment		**27.6**	**-43.4**	**-43.4**	**-43.4**	**-43.4**	**-43.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R2**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	777.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	777.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	10.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	777.0	-43.8	-43.8	-43.8	-43.8	-43.8	-43.8
Shielding (Barrier Attenuation)	777.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		33.4	-43.8	-43.8	-43.8	-43.8	-43.8
39 Minute Hourly Adjustment		**31.5**	**-45.7**	**-45.7**	**-45.7**	**-45.7**	**-45.7**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R2**
Source: Residential Entry Gate & Speaker
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	287.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	287.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	40.0	55.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	287.0	-17.1	-17.1	-17.1	-17.1	-17.1	-17.1
Shielding (Barrier Attenuation)	287.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		38.8	-17.1	-17.1	-17.1	-17.1	-17.1
60 Minute Hourly Adjustment		**38.8**	**-17.1**	**-17.1**	**-17.1**	**-17.1**	**-17.1**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R2**
Source: Residential Parking Lot Veh. Movements
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	232.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	232.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	51.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	232.0	-20.5	-20.5	-20.5	-20.5	-20.5	-20.5
Shielding (Barrier Attenuation)	232.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		30.8	-20.5	-20.5	-20.5	-20.5	-20.5
60 Minute Hourly Adjustment		**30.8**	**-20.5**	**-20.5**	**-20.5**	**-20.5**	**-20.5**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R2**
Source: Commercial Parking Lot Veh. Movements
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	697.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	697.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	697.0	-32.2	-32.2	-32.2	-32.2	-32.2	-32.2
Shielding (Barrier Attenuation)	697.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		27.9	-32.2	-32.2	-32.2	-32.2	-32.2
60 Minute Hourly Adjustment		**27.9**	**-32.2**	**-32.2**	**-32.2**	**-32.2**	**-32.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R2**
Source: Outdoor Pool/Spa Activity
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	739.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	739.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	71.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	739.0	-43.4	-43.4	-43.4	-43.4	-43.4	-43.4
Shielding (Barrier Attenuation)	739.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		27.6	-43.4	-43.4	-43.4	-43.4	-43.4
60 Minute Hourly Adjustment		**27.6**	**-43.4**	**-43.4**	**-43.4**	**-43.4**	**-43.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R3**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	711.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	711.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	10.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	711.0	-43.1	-43.1	-43.1	-43.1	-43.1	-43.1
Shielding (Barrier Attenuation)	711.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		34.1	-43.1	-43.1	-43.1	-43.1	-43.1
39 Minute Hourly Adjustment		**32.2**	**-45.0**	**-45.0**	**-45.0**	**-45.0**	**-45.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R3**
Source: Residential Entry Gate & Speaker
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	403.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	403.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	40.0	55.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	403.0	-20.1	-20.1	-20.1	-20.1	-20.1	-20.1
Shielding (Barrier Attenuation)	403.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		35.8	-20.1	-20.1	-20.1	-20.1	-20.1
60 Minute Hourly Adjustment		**35.8**	**-20.1**	**-20.1**	**-20.1**	**-20.1**	**-20.1**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R3**
Source: Residential Parking Lot Veh. Movements
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	237.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	237.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	51.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	237.0	-20.6	-20.6	-20.6	-20.6	-20.6	-20.6
Shielding (Barrier Attenuation)	237.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		30.7	-20.6	-20.6	-20.6	-20.6	-20.6
60 Minute Hourly Adjustment		**30.7**	**-20.6**	**-20.6**	**-20.6**	**-20.6**	**-20.6**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R3**
Source: Commercial Parking Lot Veh. Movements
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	649.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	649.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	649.0	-31.7	-31.7	-31.7	-31.7	-31.7	-31.7
Shielding (Barrier Attenuation)	649.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		28.4	-31.7	-31.7	-31.7	-31.7	-31.7
60 Minute Hourly Adjustment		**28.4**	**-31.7**	**-31.7**	**-31.7**	**-31.7**	**-31.7**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R3**
Source: Outdoor Pool/Spa Activity
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	398.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	398.0	feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	71.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	398.0	-38.0	-38.0	-38.0	-38.0	-38.0	-38.0
Shielding (Barrier Attenuation)	398.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		33.0	-38.0	-38.0	-38.0	-38.0	-38.0
60 Minute Hourly Adjustment		**33.0**	**-38.0**	**-38.0**	**-38.0**	**-38.0**	**-38.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R4**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	205.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	195.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	6
Noise Source Elevation:	10.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	205.0	-32.3	-32.3	-32.3	-32.3	-32.3	-32.3
Shielding (Barrier Attenuation)	195.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		44.9	-32.3	-32.3	-32.3	-32.3	-32.3
39 Minute Hourly Adjustment		**43.0**	**-34.2**	**-34.2**	**-34.2**	**-34.2**	**-34.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R4**
Source: Residential Entry Gate & Speaker
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	408.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	408.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	6
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	40.0	55.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	408.0	-20.2	-20.2	-20.2	-20.2	-20.2	-20.2
Shielding (Barrier Attenuation)	408.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		35.7	-20.2	-20.2	-20.2	-20.2	-20.2
60 Minute Hourly Adjustment		**35.7**	**-20.2**	**-20.2**	**-20.2**	**-20.2**	**-20.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R4**
Source: Residential Parking Lot Veh. Movements
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	326.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	326.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	6
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	51.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	326.0	-22.7	-22.7	-22.7	-22.7	-22.7	-22.7
Shielding (Barrier Attenuation)	326.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		28.6	-22.7	-22.7	-22.7	-22.7	-22.7
60 Minute Hourly Adjustment		**28.6**	**-22.7**	**-22.7**	**-22.7**	**-22.7**	**-22.7**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R4**
Source: Commercial Parking Lot Veh. Movements
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	162.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	162.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	6
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	162.0	-22.7	-22.7	-22.7	-22.7	-22.7	-22.7
Shielding (Barrier Attenuation)	162.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		37.4	-22.7	-22.7	-22.7	-22.7	-22.7
60 Minute Hourly Adjustment		**37.4**	**-22.7**	**-22.7**	**-22.7**	**-22.7**	**-22.7**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R4**
Source: Outdoor Pool/Spa Activity
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	294.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	294.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	6
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	71.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	294.0	-35.4	-35.4	-35.4	-35.4	-35.4	-35.4
Shielding (Barrier Attenuation)	294.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		35.6	-35.4	-35.4	-35.4	-35.4	-35.4
60 Minute Hourly Adjustment		**35.6**	**-35.4**	**-35.4**	**-35.4**	**-35.4**	**-35.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R5**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	253.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	243.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	6
Noise Source Elevation:	10.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	253.0	-34.1	-34.1	-34.1	-34.1	-34.1	-34.1
Shielding (Barrier Attenuation)	243.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		43.1	-34.1	-34.1	-34.1	-34.1	-34.1
39 Minute Hourly Adjustment		**41.2**	**-36.0**	**-36.0**	**-36.0**	**-36.0**	**-36.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R5**
Source: Residential Entry Gate & Speaker
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	592.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	582.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	6
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	40.0	55.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	592.0	-23.4	-23.4	-23.4	-23.4	-23.4	-23.4
Shielding (Barrier Attenuation)	582.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		32.5	-23.4	-23.4	-23.4	-23.4	-23.4
60 Minute Hourly Adjustment		**32.5**	**-23.4**	**-23.4**	**-23.4**	**-23.4**	**-23.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R5**
Source: Residential Parking Lot Veh. Movements
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	542.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	532.0	feet	*Noise Source Height:*	5.0	feet
Barrier Distance to Observer:	10.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	6	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	15.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	51.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	542.0	-26.0	-26.0	-26.0	-26.0	-26.0	-26.0
Shielding (Barrier Attenuation)	532.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		25.3	-26.0	-26.0	-26.0	-26.0	-26.0
60 Minute Hourly Adjustment		**25.3**	**-26.0**	**-26.0**	**-26.0**	**-26.0**	**-26.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R5**
Source: Commercial Parking Lot Veh. Movements
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	185.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	175.0	feet	*Noise Source Height:*	5.0	feet
Barrier Distance to Observer:	10.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	6	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	15.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	185.0	-23.5	-23.5	-23.5	-23.5	-23.5	-23.5
Shielding (Barrier Attenuation)	175.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		36.6	-23.5	-23.5	-23.5	-23.5	-23.5
60 Minute Hourly Adjustment		**36.6**	**-23.5**	**-23.5**	**-23.5**	**-23.5**	**-23.5**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R5**
Source: Outdoor Pool/Spa Activity
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	667.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	657.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	6
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	71.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	667.0	-42.5	-42.5	-42.5	-42.5	-42.5	-42.5
Shielding (Barrier Attenuation)	657.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		28.5	-42.5	-42.5	-42.5	-42.5	-42.5
60 Minute Hourly Adjustment		**28.5**	**-42.5**	**-42.5**	**-42.5**	**-42.5**	**-42.5**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R6**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	216.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	216.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	10.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	216.0	-32.7	-32.7	-32.7	-32.7	-32.7	-32.7
Shielding (Barrier Attenuation)	216.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		44.5	-32.7	-32.7	-32.7	-32.7	-32.7
39 Minute Hourly Adjustment		**42.6**	**-34.6**	**-34.6**	**-34.6**	**-34.6**	**-34.6**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R6**
Source: Residential Entry Gate & Speaker
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	173.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	173.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	40.0	55.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	173.0	-12.7	-12.7	-12.7	-12.7	-12.7	-12.7
Shielding (Barrier Attenuation)	173.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		43.2	-12.7	-12.7	-12.7	-12.7	-12.7
60 Minute Hourly Adjustment		**43.2**	**-12.7**	**-12.7**	**-12.7**	**-12.7**	**-12.7**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R6**
Source: Residential Parking Lot Veh. Movements
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	128.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	128.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	51.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	128.0	-16.6	-16.6	-16.6	-16.6	-16.6	-16.6
Shielding (Barrier Attenuation)	128.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		34.7	-16.6	-16.6	-16.6	-16.6	-16.6
60 Minute Hourly Adjustment		**34.7**	**-16.6**	**-16.6**	**-16.6**	**-16.6**	**-16.6**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R6**
Source: Commercial Parking Lot Veh. Movements
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	149.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	149.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	149.0	-22.1	-22.1	-22.1	-22.1	-22.1	-22.1
Shielding (Barrier Attenuation)	149.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		38.0	-22.1	-22.1	-22.1	-22.1	-22.1
60 Minute Hourly Adjustment		**38.0**	**-22.1**	**-22.1**	**-22.1**	**-22.1**	**-22.1**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R6**
Source: Outdoor Pool/Spa Activity
Condition: Operational

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	445.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	445.0	feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	71.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	445.0	-39.0	-39.0	-39.0	-39.0	-39.0	-39.0
Shielding (Barrier Attenuation)	445.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		32.0	-39.0	-39.0	-39.0	-39.0	-39.0
60 Minute Hourly Adjustment		**32.0**	**-39.0**	**-39.0**	**-39.0**	**-39.0**	**-39.0**

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APPENDIX 11.1:

TEMPORARY CONSTRUCTION NOISE BARRIER ATTENUATION CALCULATIONS

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STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R1**
Source: Highest Reference Const. Activity
Condition: Construction

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	222.0	feet	***Barrier Height:***	**7.0 feet**
Noise Distance to Barrier:	10.0	feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	212.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,555.0	feet	*Barrier Type (0-Wall, 1-Berm):*	1
Noise Source Elevation:	1,548.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,548.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	73.5	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	222.0	-12.9	-12.9	-12.9	-12.9	-12.9	-12.9
Shielding (Barrier Attenuation)	10.0	-5.7	-5.7	-5.7	-5.7	-5.7	-5.7
Raw (Distance + Barrier)		54.9	-18.6	-18.6	-18.6	-18.6	-18.6
60 Minute Hourly Adjustment		**54.9**	**-18.6**	**-18.6**	**-18.6**	**-18.6**	**-18.6**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R2**
Source: Highest Reference Const. Activity
Condition: Construction

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	129.0	feet	***Barrier Height:***	**9.0 feet**
Noise Distance to Barrier:	10.0	feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	119.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,564.0	feet	*Barrier Type (0-Wall, 1-Berm):*	1
Noise Source Elevation:	1,555.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,555.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	73.5	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	129.0	-8.2	-8.2	-8.2	-8.2	-8.2	-8.2
Shielding (Barrier Attenuation)	10.0	-5.2	-5.2	-5.2	-5.2	-5.2	-5.2
Raw (Distance + Barrier)		60.1	-13.4	-13.4	-13.4	-13.4	-13.4
60 Minute Hourly Adjustment		**60.1**	**-13.4**	**-13.4**	**-13.4**	**-13.4**	**-13.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R3**
Source: Highest Reference Const. Activity
Condition: Construction

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	133.0	feet	***Barrier Height:***	**7.0 feet**
Noise Distance to Barrier:	123.0	feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	10.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,560.0	feet	*Barrier Type (0-Wall, 1-Berm):*	1
Noise Source Elevation:	1,553.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,553.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	73.5	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	133.0	-8.5	-8.5	-8.5	-8.5	-8.5	-8.5
Shielding (Barrier Attenuation)	123.0	-10.5	-10.5	-10.5	-10.5	-10.5	-10.5
Raw (Distance + Barrier)		54.5	-19.0	-19.0	-19.0	-19.0	-19.0
60 Minute Hourly Adjustment		**54.5**	**-19.0**	**-19.0**	**-19.0**	**-19.0**	**-19.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R4**
Source: Highest Reference Const. Activity
Condition: Construction

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	133.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	123.0	feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	10.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,527.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,523.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,527.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	73.5	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	133.0	-8.5	-8.5	-8.5	-8.5	-8.5	-8.5
Shielding (Barrier Attenuation)	123.0	-5.6	-5.6	-5.6	-5.6	-5.6	-5.6
Raw (Distance + Barrier)		59.4	-14.1	-14.1	-14.1	-14.1	-14.1
60 Minute Hourly Adjustment		**59.4**	**-14.1**	**-14.1**	**-14.1**	**-14.1**	**-14.1**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R5**
Source: Highest Reference Const. Activity
Condition: Construction

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	153.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	143.0	feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	10.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,510.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,520.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,510.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	73.5	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	153.0	-9.7	-9.7	-9.7	-9.7	-9.7	-9.7
Shielding (Barrier Attenuation)	143.0	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
Raw (Distance + Barrier)		58.9	-14.6	-14.6	-14.6	-14.6	-14.6
60 Minute Hourly Adjustment		**58.9**	**-14.6**	**-14.6**	**-14.6**	**-14.6**	**-14.6**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R6**
Source: Highest Reference Const. Activity
Condition: Construction

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	50.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	10.0	feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	40.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,532.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,532.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,532.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	73.5	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	50.0	0.0	0.0	0.0	0.0	0.0	0.0
Shielding (Barrier Attenuation)	10.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		73.5	0.0	0.0	0.0	0.0	0.0
60 Minute Hourly Adjustment		**73.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/4/2018

Observer Location: **R6**
Source: Highest Reference Const. Activity
Condition: Temporary Noise Barrier

Project Name: Continental
Job Number: 11577
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	50.0	feet	***Barrier Height:***	**10.0 feet**
Noise Distance to Barrier:	10.0	feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	40.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,532.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,532.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,532.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	73.5	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	50.0	0.0	0.0	0.0	0.0	0.0	0.0
Shielding (Barrier Attenuation)	10.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Raw (Distance + Barrier)		65.5	-8.0	-8.0	-8.0	-8.0	-8.0
60 Minute Hourly Adjustment		**65.5**	**-8.0**	**-8.0**	**-8.0**	**-8.0**	**-8.0**

APPENDIX 11.2:

SAMPLE TEMPORARY CONSTRUCTION NOISE BARRIER PHOTOS

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Temporary Construction Noise Barrier Examples

I-Beam & Acoustic Material 01

I-Beam & Acoustic Material 02

I-Beam & Acoustic Material 03

K-Rail Plywood & Acoustic Material

K-Rail Temporary Fence & Acoustic Material

K-Rail-Mounted Acoustic Material 01

Temporary Construction Noise Barrier Examples

Pillar & Acoustic Material

Straw Bales 01

Straw Bales 02

Temporary Fence & Acoustic Material 01

Temporary Fence & Acoustic Material 02

CONTINENTAL VILLAGES
TRAFFIC IMPACT ANALYSIS
CITY OF MORENO VALLEY

PREPARED BY:

Aric Evatt, PTP
aevatt@urbanxroads.com
(949) 660-1994 x204

Charlene So, PE
cso@urbanxroads.com
(949) 660-1994 x222

Laura Cunningham
lcunningham@urbanxroads.com
(949) 660-1994 x234

NOVEMBER 15, 2018

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CA MUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
E+P	Existing Plus Project
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
N/A	Not Applicable
NCHRP	National Cooperative Highway Research Program
NP	No Project (or Without Project)
PHF	Peak Hour Factor
Project	Continental Villages
RCTC	Riverside County Transportation Commission
RivTAM	Riverside County Transportation Analysis Model
RTA	Riverside Transit Authority
RTP	Regional Transportation Plan
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
sf	Square Feet
TIA	Traffic Impact Analysis
TUMF	Transportation Uniform Mitigation Fee
WP	With Project
WRCOG	Western Riverside Council of Governments
V/C	Volume to Capacity

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1 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) for the proposed Continental Villages development ("Project") located on the northeast corner of Lasselle Street and Krameria Avenue in the City of Moreno Valley as shown on Exhibit 1-1.

The purpose of this traffic impact analysis is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and to recommend improvements to achieve acceptable circulation system operational conditions. This traffic study has been prepared in accordance with the City of Moreno Valley Transportation Engineering Division's Traffic Impact Analysis Preparation Guide (August 2007) and consultation with City of Moreno Valley staff during the scoping process. (1) The approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TIA.

1.1 PROJECT OVERVIEW

For the purposes of this analysis, in an effort to conduct a conservative analysis, the Project has been evaluated to consist of up to 112 apartments/duplexes and 21,000 square feet (sf) of commercial retail use. Per the City's traffic study guidelines, the Opening Year Cumulative will have a 5-year minimum time horizon from baseline conditions. As such, the Opening Year Cumulative analysis will assess 2023 traffic conditions.

Vehicular access will be provided via the following driveways (see Exhibit 1-1):

- Lasselle Street & Driveway 1 – Right-in right-out only
- Colt Way & Krameria Avenue/Driveway 2 – Full access driveway
- Krameria Avenue & Driveway 3/Quarter Horse Road – Full-access driveway

Trips generated by the Project's proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017. (2) The Project is estimated to generate a net total of 2,056 trip-ends per day on a typical weekday with approximately 215 net AM peak hour trips and 167 net PM peak hour trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

1.1.1 SITE PLAN DRIVEWAY LOCATIONS

As shown on Exhibit 1-1, each driveway meets the required 100-foot spacing. As such, the location of each Project driveway is acceptable based on the City of Moreno Valley Municipal Code and City staff.

EXHIBIT 1-1: PRELIMINARY SITE PLAN

1.2 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential impacts to traffic and circulation have been assessed for each of the following conditions:

- Existing (2018) (1 scenario)
- Existing plus Project (E+P) (1 scenario)
- Opening Year Cumulative (2023), Without and With Project (2 scenarios)
- Horizon Year (2040), Without and With Project (2 scenarios)

1.2.1 EXISTING (2018) CONDITIONS

Information for Existing (2018) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared.

1.2.2 EXISTING PLUS PROJECT CONDITIONS

The Existing plus Project (E+P) analysis determines circulation system deficiencies that would occur on the existing roadway system in the scenario of the Project being placed upon Existing conditions.

1.2.3 OPENING YEAR CUMULATIVE (2023) CONDITIONS

To account for growth in traffic between Existing Conditions (2018) and the Project Opening Year Cumulative (2023), a compounded annual traffic growth rate of 2.0 percent was assumed (10.41 percent aggregate growth in background traffic for the period from 2018 through 2023).

The 2.0 percent annual growth rate is intended to capture non-specific ambient traffic growth. Conservatively, the TIA estimates area-wide traffic growth, then adds traffic generated by other known or probable related projects. These related projects are at least in part already accounted for in the assumed annual 2.0 percent ambient growth in traffic noted above; and in some instances, these related projects would likely not be implemented and operational within the 2023 Opening Year Cumulative time frame assumed for the Project. The resulting traffic growth rate used in the TIA (2.0 percent compounded annual ambient growth plus traffic generated by related projects) would therefore tend to overstate rather than understate background cumulative traffic impacts under 2023 traffic conditions.

1.2.4 HORIZON YEAR (2040) CONDITIONS

The Horizon Year (2040) Without Project traffic conditions were derived from the Riverside County Transportation Analysis Model (RivTAM) modified to represent Horizon Year conditions for the City of Moreno Valley using accepted procedures for model forecast refinement and smoothing. The traffic forecasts reflect the area-wide growth anticipated between Existing conditions and Horizon Year conditions. The Horizon Year With Project traffic forecasts were determined by adding the Project traffic to the Horizon Year (2040) Without Project traffic forecasts from the RivTAM model. The Horizon Year traffic forecasts used in the traffic analysis were refined with existing peak hour traffic count data collected at intersection analysis locations. The

initial estimate of the future peak hour turning movements have, therefore, been reviewed for reasonableness. The reasonableness checks performed include a review of traffic flow conservation in addition to a comparison with the Existing and Opening Year Cumulative traffic volumes. Where necessary, the Horizon Year volumes have been adjusted to achieve flow conservation, reasonable growth, and reasonable diversion between parallel routes.

The Horizon Year Without and With Project traffic conditions analyses will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the Transportation Uniform Mitigation Fee (TUMF) and Development Impact Fee (DIF) programs, or other approved funding mechanism can accommodate the long-range cumulative traffic at the target Level of Service (LOS) identified in the City of Moreno Valley General Plan. (3) If the "funded" improvements can provide the target LOS, then the Project's payment into TUMF and/or DIF will be considered as long-range cumulative mitigation through the conditions of approval. Other improvements needed beyond the "funded" improvements (such as localized improvements to non-TUMF facilities) are identified as such. Post-processing worksheets for Horizon Year (2040) Without Project traffic conditions are provided in Appendix 4.1.

1.3 STUDY AREA

To ensure that this TIA satisfies the City of Moreno Valley's traffic study requirements, Urban Crossroads, Inc. prepared a project traffic study scoping package for review by City of Moreno Valley staff prior to the preparation of this report. The scoping agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology and is included in Appendix 1.1.

1.3.1 INTERSECTIONS

The 7 study area intersections shown on Exhibit 1-2 and listed in Table 1-1 were selected for this TIA based on the City of Moreno Valley's Traffic Study Guidelines and in consultation with City of Moreno Valley staff. Pursuant to the Traffic Study Guidelines, the City requires analysis of intersections where the Project would contribute 50 or more peak hour trips.[1] In an effort to conduct a conservative analysis, the trip generation for the proposed Project has been utilized to determine if the 50 peak hour trip criteria has been met at the study area intersections.

[1] The "50 or more peak hour trips" intersection analytic protocol stipulated in the City's Traffic Study Guidelines is consistent with standard industry practice. It is noted further that the 50 peak hour trip threshold is employed by other agencies throughout southern California including Caltrans, County of Riverside, County of San Bernardino, and the County of Orange.

EXHIBIT 1-2: LOCATION MAP

LEGEND:

- 0 = EXISTING INTERSECTION ANALYSIS LOCATION
- (0) = FUTURE INTERSECTION ANALYSIS LOCATION
- [00] = ROADWAY SEGMENT ANALYSIS LOCATION

N

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction	CMP?
1	Kitching Street & Krameria Avenue	City of Moreno Valley	No
2	Lasselle Street & Iris Avenue	City of Moreno Valley	No
3	Lasselle Street & Cahuilla Drive	City of Moreno Valley	No
4	Lasselle Street & Driveway 1 – Future Intersection	City of Moreno Valley	No
5	Lasselle Street & Krameria Avenue	City of Moreno Valley	No
6	Driveway 2/Colt Way & Krameria Avenue	City of Moreno Valley	No
7	Krameria Avenue & Driveway 3/Quarter Horse Road	City of Moreno Valley	No

The intent of a Congestion Management Program (CMP) is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related impacts, and improve air quality. Counties within California have developed CMPs with varying methods and strategies to meet the intent of the CMP legislation. The County of Riverside CMP became effective with the passage of Proposition 111 in 1990 and updated most recently in 2011. The Riverside County Transportation Commission (RCTC) adopted the 2011 CMP for the County of Riverside in December 2011. (4) There are no CMP intersections in this study area.

1.3.2 ROADWAY SEGMENTS

The roadway segment study area utilized for this analysis is based on a review of the key roadway segments in which the Project is anticipated to contribute 50 or more peak hour trips. The study area identifies a total of 6 existing/future roadway segments. The roadway segments include the segments on either side of the study area intersections and are listed in Table 1-2.

TABLE 1-2: ROADWAY SEGMENT ANALYSIS LOCATIONS

ID	Roadway Segment	Segment Limits
1	Krameria Avenue	Kitching Street to Lasselle Street
2	Krameria Avenue	Lasselle Street to Colt Way
3	Lasselle Street	Iris Avenue to Cahuilla Drive
4	Lasselle Street	Cahuilla Drive to Driveway 1
5	Lasselle Street	Driveway 1 to Krameria Avenue

1.4 SUMMARY OF INTERSECTION ANALYSIS

This section provides a summary of the analysis results for Existing, E+P, Opening Year Cumulative, and Horizon Year traffic conditions. A summary of intersection LOS by analysis scenario is shown in Exhibit 1-3 and improvement needs to address those deficiencies are summarized in Table 1-3.

Existing (2018) Conditions

Intersection Operations Analysis

As shown on Exhibit 1-3, all of the study area intersections are currently operating at an acceptable LOS during the peak hours. The City is currently in the process of implementing a road diet along Krameria Avenue starting from the intersection at Lasselle Street to the east up to Cahuilla Drive. The road diet is anticipated to reduce the number of travel lanes along Krameria Avenue in order to accommodate a wide shoulder with bike lanes. The intersection of Lasselle Street and Krameria Avenue is anticipated to operate at an unacceptable LOS during the AM peak hour with the road diet improvements in place for Existing (2018) traffic conditions. The road diet improvements would eliminate the existing 2nd eastbound left turn lane and the 2nd through lane in both the eastbound and westbound directions in place of a right turn lane.

Roadway Segment Analysis

The study area roadway segments are currently operating at an acceptable LOS for Existing (2018) traffic conditions.

Peak Hour Queuing Analysis

A queuing analysis was performed at 5 study area intersections in close proximity to the Project in order to determine if the turn pocket lengths can accommodate the 95th percentile queues. The analysis was conducted for the weekday AM and weekday PM peak hours. The intersection of Lasselle Street and Krameria Avenue currently experiences queuing issues during the AM or PM peak hours for the northbound left turn pocket and northbound right turn pocket.

A 180-foot northbound left turn lane and 280-foot right turn lane are recommended in order to accommodate the 95th percentile peak hour queues for Existing (2018) traffic conditions.

E+P Conditions

Intersection Operations Analysis

As shown in Exhibit 1-3, the intersection of Lasselle Street and Krameria Avenue is anticipated to operate at an unacceptable LOS with the implementation of the road diet improvements, consistent with Existing (2018) traffic conditions. The road diet improvements would eliminate the existing 2nd eastbound left turn lane and the 2nd through lane in both the eastbound and westbound directions in place of a right turn lane. However, the intersection is anticipated to operate at an acceptable LOS without the implementation of the road diet along Krameria Avenue.

Roadway Segment Analysis

Consistent with Existing (2018) traffic conditions, the study area roadway segments are anticipated to continue to operate at an acceptable LOS for E+P traffic conditions.

EXHIBIT 1-3: SUMMARY OF DEFICIENT INTERSECTIONS BY ANALYSIS SCENARIO

#	Intersection	Existing (2018)	E+P	Opening Year (2023) Without Project	Opening Year (2023) With Project	Horizon Year (2040) Without Project	Horizon Year (2040) With Project
1	Kitching St. & Krameria Av.						
2	Lasselle St. & Iris Av.						
3	Lasselle St. & Cahuilla Dr.						
4	Lasselle St. & Dwy. 1	NA		NA		NA	
5	Lasselle St. & Krameria Av. (Without Road Diet)						
5	Lasselle St. & Krameria Av. (With Road Diet)						
6	Dwy. 2/Colt Wy. & Krameria Av.(Without Road Diet)						
6	Dwy. 2/Colt Wy. & Krameria Av. (With Road Diet)	NA	NA				
7	Krameria Av. & Quarter Horse Rd.						

LEGEND:

- = AM PEAK HOUR
- = PM PEAK HOUR
- = LOS A-D
- = LOS D-E
- = LOS F

NA = NOT AN ANALYSIS LOCATION FOR THIS SCENARIO

Table 1-3

Summary of Improvements by Analysis Scenario

#	Intersection Location	Jurisdiction	Recommended Improvements			Improvements in DIF, TUMF, etc.[1]	Total Cost[2,3,4]	Project Fair Share[5]	Fair Share Cost[6]
			E+P	2023 With Project	2040 With Project				
1	Kitching St. & Krameria Av.	City of Moreno Valley	- None	- None	- Add an EB right turn lane	No	$74,200	2.7%	$1,985
					- Modify the traffic signal to implement overlap phasing on the EB right turn lane	No	$111,300		$2,977
						Total	**$185,500**		**$4,962**
2	Lasselle St. & Iris Av.	City of Moreno Valley	- None	- Add an EB right turn lane	- Same	No	$74,200	4.8%	$3,560
				- Modify the traffic signal to implement overlap phasing on the EB right turn lane	- Same	No	$111,300		$5,340
						Total	**$185,500**		**$8,900**
5	Lasselle St. & Krameria Av.	City of Moreno Valley	- None	- Add a 2nd NB left turn lane	- Same	No	$74,200	10.5%	$7,811
				- Restripe the EB approach with 2 lefts, 1 through, and 1 right	- Same	No	$37,100		$3,905
				- Modify the traffic signal to implement overlap phasing on the EB right turn lane	- Same	No	$111,300		$11,716
					- EB right turn lane	No	$74,200		$7,811
						Total	**$296,800**		**$31,242**
					Total Project Fair Share Contribution to the City of Moreno Valley[7]		**$667,800**		**$45,103**

[1] Improvements included in Regional TUMF or City of Moreno Valley DIF programs have been identified as such.

[2] Costs have been estimated using the data provided in Appendix "G" of the CMP (2003 Update) for preliminary construction costs.

[3] Appendix "G" costs escalated by a factor of 1.484 except Traffic Signals. This is consistent with the methodology used by other near-by agencies.

[4] Program improvements constructed by project may be eligible for fee credit. In lieu fee payment is at discretion of City. Represents the fair share percentage for the Project during the most impacted peak hour.

[5] Total project fair share contribution consists of the improvements which are not already included in the City-wide DIF/County TUMF for those intersections wholly or partially within the City of Moreno Valley.

[6] Rough order of magnitude cost estimate.

[7] Total project fair share contribution consists of the improvements which are not already included in a fee program for those intersections wholly or partially within the City of Moreno Valley.

Peak Hour Queuing Analysis

A queuing analysis was performed at 5 study area intersections in close proximity to the Project in order to determine if the turn pocket lengths can accommodate the 95th percentile queues. The analysis was conducted for the weekday AM and weekday PM peak hours for E+P traffic conditions. With the addition of Project traffic, there are no additional intersection movements that are anticipated to experience queuing issues during the AM or PM peak hours for E+P conditions, in addition to the movements previously identified under Existing conditions.

Consistent with Existing (2018) traffic conditions, a 180-foot northbound left turn lane and 280-foot right turn lane are recommended in order to accommodate the 95th percentile peak hour queues for E+P traffic conditions. The Project should contribute fair share towards the turn pocket improvements for the northbound left and right turn lanes as they are needed to address Existing queuing deficiencies at the intersection of Lasselle Street and Krameria Avenue.

Opening Year Cumulative (2023) Conditions

Intersection Operations Analysis

As shown on Exhibit 1-3, there are 2 study area intersections that are anticipated to operate at an unacceptable LOS during one or both peak hours for Opening Year Cumulative (2023) Without Project traffic conditions. The addition of Project traffic is not anticipated to result in any additional deficiencies in addition to the locations identified under Opening Year Cumulative (2023) Without Project traffic conditions. The Project should contribute fair share towards the following improvements to address the deficiencies that are anticipated to occur under both Opening Year Cumulative (2023) Without and With Project traffic conditions:

Improvement – Lasselle Street & Iris Avenue (#2)

- Add an eastbound right turn lane and modify the traffic signal to implement overlap phasing on the right turn lane

Improvement – Lasselle Street & Krameria Avenue (#5)

- Add a 2nd northbound left turn lane
- Restripe the eastbound approach with 2 lefts, 1 through, and 1 right turn lane
- Modify the traffic signal to implement overlap phasing on the eastbound right turn lane
- The road diet lanes on the westbound approach can remain

Roadway Segment Analysis

The study area roadway segment of Lasselle Street between Iris Avenue and Cahuilla Drive (#3) is anticipated to operate at an unacceptable LOS for Opening Year Cumulative (2023) Without Project traffic conditions. The addition of Project traffic is not anticipated to result in any additional roadway segment deficiencies from the location identified previously for Opening Year Cumulative (2023) Without Project traffic conditions.

Peak Hour Queuing Analysis

A queuing analysis was performed at 5 study area intersections in close proximity to the Project in order to determine if the turn pocket lengths can accommodate the 95th percentile queues. The analysis was conducted for the weekday AM and weekday PM peak hours for Opening Year Cumulative (2023) traffic conditions. The intersection of Lasselle Street and Krameria Avenue is anticipated to continue to experience queuing issues during the AM or PM peak hours for the northbound left turn pocket and northbound right turn pocket. In addition, the westbound left turn pocket is also anticipated to experience queues during the AM peak hour only for Opening Year Cumulative (2023) Without Project traffic conditions. With the addition of Project traffic, the southbound left turn pocket is anticipated to experience queuing issues during the AM peak hour only.

Consistent with Existing (2018) and E+P traffic conditions, a 180-foot northbound left turn lane and 280-foot right turn lane are recommended in order to accommodate the 95th percentile peak hour queues for Opening Year Cumulative (2023) traffic conditions. Additionally, a 270-foot southbound left turn lane is recommended in order to accommodate the 95th percentile peak hour queues for Opening Year Cumulative (2023) traffic conditions. The Project should contribute fair share towards the turn pocket improvements for the northbound left and right turn lanes and modifications to the existing landscaped median to accommodate a 270-foot southbound left turn lane at the intersection of Lasselle Street and Krameria Avenue.

Horizon Year (2040) Conditions

Intersection Operations Analysis

As shown on Exhibit 1-3, there is 1 additional study area intersection anticipated to operate at an unacceptable LOS for both Horizon Year (2040) Without Project and With Project, beyond those previously identified in Opening Year Cumulative (2023) Without Project traffic conditions. The Project should contribute fair share towards the following improvements to address the deficiencies that are anticipated to occur under both Horizon Year (2040) Without and With Project traffic conditions:

Improvement – Kitching Street & Krameria Avenue (#1)

- Add an eastbound right turn lane
- Modify the traffic signal to implement overlap phasing on the eastbound right turn lane

Improvement – Lasselle Street & Iris Avenue (#2)

- Add an eastbound right turn lane and modify the traffic signal to implement overlap phasing on the right turn lane

Improvement – Lasselle Street & Krameria Avenue (#5)

- Add a 2nd northbound left turn lane
- Add an eastbound right turn lane and modify the traffic signal to implement overlap phasing on the eastbound right turn lane
- The road diet lanes on the westbound approach can remain

Roadway Segment Analysis

The study area roadway segment of Lasselle Street between Iris Avenue and Cahuilla Drive (#3) is anticipated to operate at an unacceptable LOS for Horizon Year (2040) Without Project traffic conditions. The addition of Project traffic is not anticipated to result in any additional roadway segment deficiencies in addition to the location identified previously for Horizon Year (2040) Without Project traffic conditions.

Peak Hour Queuing Analysis

A queuing analysis was performed at 5 study area intersections in close proximity to the Project in order to determine if the turn pocket lengths can accommodate the 95th percentile queues. The analysis was conducted for the weekday AM and weekday PM peak hours for Horizon Year (2040) Without and With Project traffic conditions. The intersection of Lasselle Street and Krameria Avenue is anticipated to continue to experience queuing issues during the AM or PM peak hours for the northbound left turn pocket, northbound right turn pocket, southbound left turn pocket, and westbound left turn pocket for Horizon Year (2040) Without Project traffic conditions. There are no additional turn pockets anticipated to experience peak hour queues with the addition of Project traffic for Horizon Year (2040) With Project traffic conditions.

Consistent with Existing (2018), E+P, and Opening Year Cumulative (2023) traffic conditions, a 180-foot northbound left turn lane and 280-foot northbound right turn lane are recommended in order to accommodate the 95th percentile peak hour queues for Horizon Year (2040) traffic conditions. Consistent with Opening Year Cumulative (2023) traffic conditions, a 270-foot southbound left turn lane is recommended in order to accommodate the 95th percentile peak hour queues for Horizon Year (2040) traffic conditions. The Project should contribute fair share towards the turn pocket improvements for the northbound left and right turn lanes and modifications to the existing landscaped median to accommodate a 270-foot southbound left turn lane at the intersection of Lasselle Street and Krameria Avenue. Although there is an anticipated queue that exceeds the storage length for the westbound left turn lane at Lasselle Street and Krameria Avenue, additional improvements have not been recommended as the existing striped two-way-left-turn lane could accommodate up to an additional vehicle (15-feet) without spilling back to the upstream intersection of Colt Way.

1.5 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements throughout the City of Moreno Valley are funded through a combination of project mitigation, fair share contributions or development impact fee programs, such as TUMF program or the City's DIF program.

1.5.1 TRANSPORTATION UNIFORM MITIGATION FEE (TUMF) PROGRAM

The Western Riverside Council of Governments (WRCOG) is responsible for establishing and updating Transportation Uniform Mitigation Fee (TUMF) rates. The County may grant to developers a credit against the specific components of fees for the dedication of land or the construction of facilities identified in the list of improvements funded by each of these fee programs. Fees are based upon projected land uses and a related transportation need to address growth based upon a 2016 Nexus study.

TUMF is an ambitious regional program created to address cumulative impacts of growth throughout western Riverside County. Program guidelines are being handled on an iterative basis. Exemptions, credits, reimbursements and local administration are being deferred to primary agencies. The County of Riverside serves this function for the proposed Project. Fees submitted to the County are passed on to the WRCOG as the ultimate program administrator.

TUMF guidelines empower a local zone committee to prioritize and arbitrate certain projects. The Project is located in the Central Zone. The zone has developed a 5-year capital improvement program to prioritize public construction of certain roads. TUMF is focused on improvements necessitated by regional growth.

1.5.2 CITY OF MORENO VALLEY DEVELOPMENT IMPACT FEE (DIF) PROGRAM

The City of Moreno Valley has created its own local Development Impact Fee (DIF) program to impose and collect fees from new residential, commercial and industrial development for the purpose of funding roadways and intersections necessary to accommodate City growth as identified in the City's General Plan Circulation Element. The City's DIF program includes facilities that are not part of, or which may exceed improvements identified and covered by the TUMF program. As a result, the pairing of the regional and local fee programs provides a more comprehensive funding and implementation plan to ensure an adequate and interconnected transportation system. Under the City's DIF program, the City may grant to developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the DIF program.

The timing to use the DIF fees is established through periodic capital improvement programs which are overseen by the City's Public Works Department. Periodic traffic counts, review of traffic accidents, and a review of traffic trends throughout the City are also periodically performed by City staff and consultants. The City uses this data to determine the timing of implementing the improvements listed in its facilities list.

The Project Applicant would pay requisite DIF pursuant to incumbent City ordinance requirements. Payment of requisite DIF would satisfy the Applicant's mitigation responsibilities for potentially significant impacts affecting DIF-funded facilities.

1.5.3 FAIR SHARE FEES

The Project Applicant's responsibilities may also be may be fulfilled through payment of fair-share fees. Fair share fees would be paid in instances where required traffic facilities are not otherwise funded by TUMF and/or DIF programs noted above. Fair share calculations are provided in Table 1-4 for each of the study area intersections where the Project is anticipated to contribute cumulatively to a peak hour queuing issue.

Table 1-4

Project Fair Share Calculations

#	Intersection		Existing (2018)	Project	2040 With Project	Total New Traffic	Project Fair Share[1]
1	Kitching St. & Krameria Av.						
		AM:	1,974	62	4,292	2,318	**2.7%**
		PM:	1,007	46	3,159	2,152	2.1%
2	Lasselle St. & Iris Av.						
		AM:	4,314	96	6,315	2,001	**4.8%**
		PM:	4,228	75	6,586	2,358	3.2%
5	Lasselle St. & Krameria Av.						
		AM:	3,656	162	5,195	1,539	**10.5%**
		PM:	2,559	128	3,881	1,322	9.7%

* Highest fair share percentage represented in **BOLD** and shown on Table 1-3.

[1] Fair share based on net new traffic which is calculated from Project traffic volumes divided by the 2040 With Project less Existing (2018) traffic

1.6 SITE ADJACENT ROADWAY AND SITE ACCESS IMPROVEMENTS

This section summarizes Project site access and on-site circulation recommendations. Vehicular access will be provided via the following driveways:

- Lasselle Street & Driveway 1 – Right-in right-out only
- Colt Way & Krameria Avenue/Driveway 2 – Full access driveway
- Krameria Avenue & Driveway 3/Quarter Horse Road – Full-access driveway

1.6.1 SITE ADJACENT ROADWAY IMPROVEMENTS

Since both Lasselle Street and Krameria Avenue are built out to their ultimate cross-section, according to the City of Moreno Valley General Plan along the Project's frontage, there are no roadway improvement recommendations. However, additional curb, gutter, and sidewalk improvements are recommended, as needed for site access along the Project's frontage consistent with the City's standards.

1.6.2 SITE ACCESS IMPROVEMENTS

The recommended site access driveway improvements for the Project are described below. Exhibit 1-4 illustrates the on-site and site adjacent recommended roadway lane improvements. Construction of on-site and site adjacent improvements are recommended to occur in conjunction with adjacent Project development activity or as needed for Project access purposes.

Lasselle Street & Driveway 1 (#5) – Install a stop control on the westbound approach and construct the intersection with the following geometrics:

- Northbound Approach: One through lane and one shared through-right turn lane.
- Southbound Approach: Two through lanes.
- Eastbound Approach: Not Applicable (N/A)
- Westbound Approach: One right turn lane.

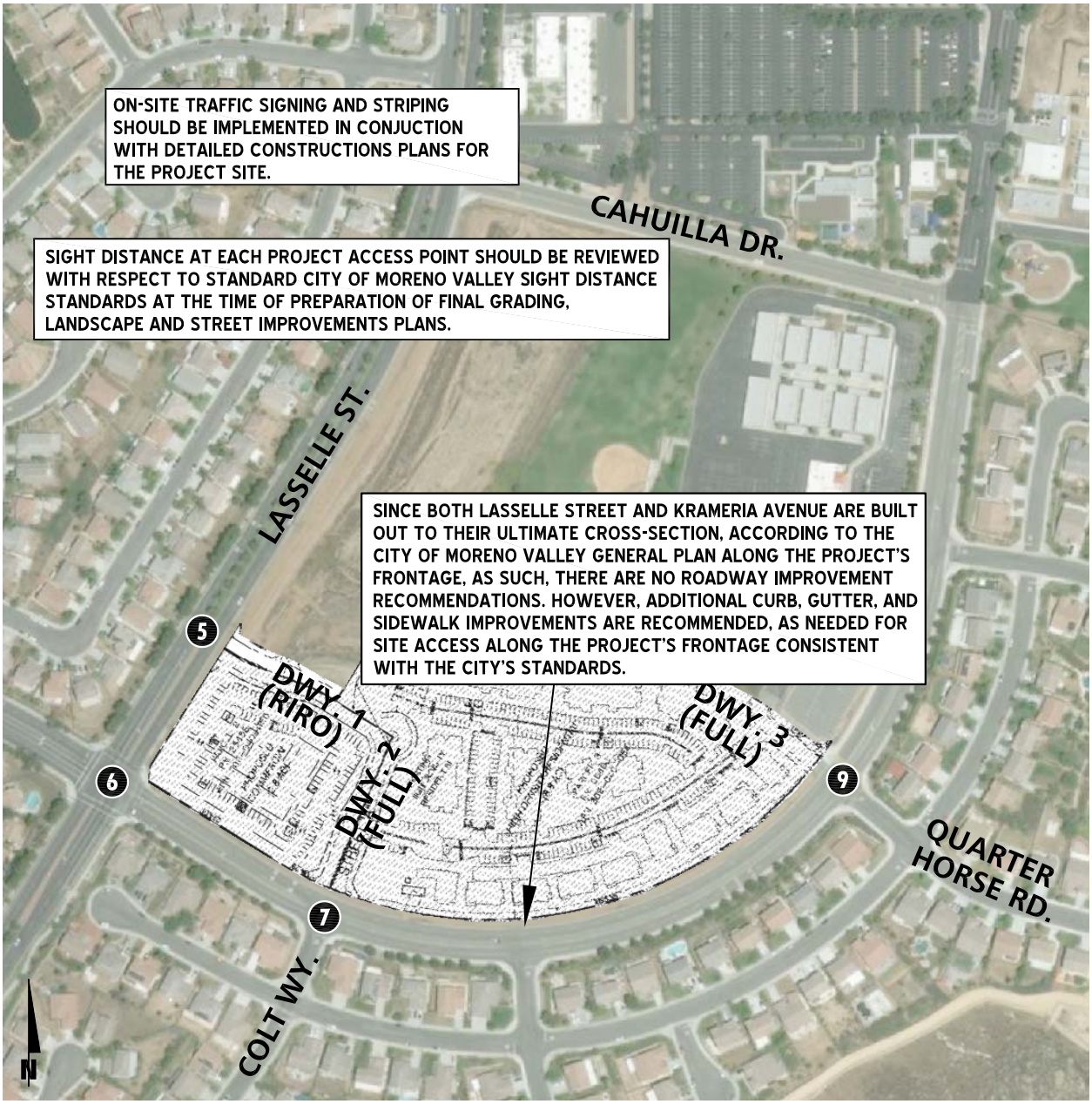
Lasselle Street & Krameria Avenue (#6) – Maintain the existing lane geometrics and modify the southbound left turn lane to accommodate 270-feet of storage.

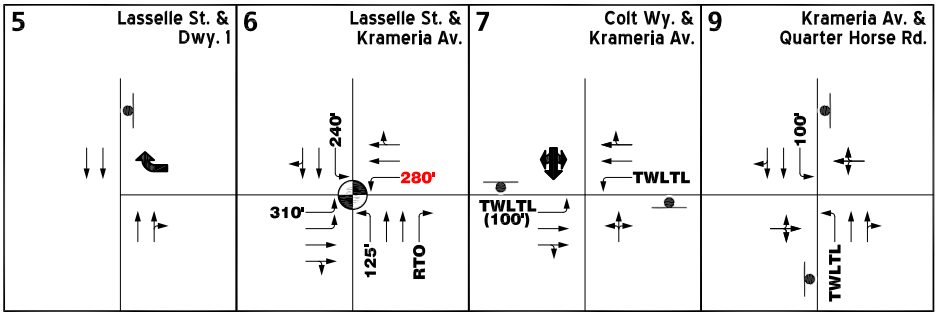
Driveway 2/Colt Way & Krameria Avenue (#7) – Install a stop control on the southbound approach and construct the intersection with the following geometrics:

- Northbound Approach: One shared left-through-right turn lane.
- Southbound Approach: One shared left-through-right turn lane.
- Eastbound Approach: One left turn lane, one through lane, and one shared through-right turn lane.
- Westbound Approach: One left turn lane, one through lane, and one shared through-right turn lane.

Krameria Avenue & Driveway 3/Quarter Horse Road (#8) – Maintain the existing traffic controls and lane geometrics.

EXHIBIT 1-4: SITE ADJACENT ROADWAY AND SITE ACCESS RECOMMENDATIONS





LEGEND:

- = TRAFFIC SIGNAL
- = STOP SIGN
- = EXISTING LANE
- = LANE IMPROVEMENT
- TWLTL = TWO WAY LEFT TURN LANE
- RTO = RIGHT TURN OVERLAP
- 150' = MINIMUM TURN POCKET LENGTH
- 150' = TURN POCKET IMPROVEMENT

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the Project site.

Sight distance at each project access point should be reviewed with respect to standard City of Moreno Valley sight distance standards at the time of preparation of final grading, landscape and street improvement plans.

1.6.3 QUEUING ANALYSIS AT THE PROJECT DRIVEWAYS

A queuing analysis was conducted for the Project driveways for Horizon Year (2040) traffic conditions to determine the turn pocket lengths necessary to accommodate near-term 95th percentile queues. The analysis was conducted for the weekday AM and weekday PM peak hours for all analysis scenarios. Queuing worksheets are included in Appendix 1.2.

2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are consistent with City of Moreno Valley's traffic study guidelines. (1)

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (5) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

City of Moreno Valley and City of Perris

The City of Moreno Valley and City of Perris require signalized intersection operations analysis based on the methodology described in the HCM. (5) Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections, LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 2-1. Study area intersections have been evaluated using the Synchro (Version 10) analysis software package.

Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D	F
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths	80.01 and up	F	F

Source: HCM 6th Edition

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Common practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g. PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per the HCM, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows, while lower PHF values are indicative of greater variability of flow during the peak hour. (5)

2.2.2 UNSIGNALIZED INTERSECTIONS

The unsignalized intersections in the study area are located within the City of Moreno Valley. The City of Moreno Valley requires the operations of unsignalized intersections be evaluated using the methodology described in the HCM. (5) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay Per Vehicle (Seconds)	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Little or no delays.	0 to 10.00	A	F
Short traffic delays.	10.01 to 15.00	B	F
Average traffic delays.	15.01 to 25.00	C	F
Long traffic delays.	25.01 to 35.00	D	F
Very long traffic delays.	35.01 to 50.00	E	F
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F	F

Source: HCM 6th Edition

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled intersections, LOS is computed for the intersection as a whole.

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by the California Department of Transportation (Caltrans) and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TIA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD) for all unsignalized study area intersections. (6)

The signal warrant criteria for Existing study area intersections are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The CA MUTCD indicate that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (6) Specifically, this TIA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing traffic conditions. Warrant 3 is appropriate to use for this TIA because it provides specialized warrant criteria for intersections with urban characteristics (e.g. located in communities with populations of more than 10,000 persons or with adjacent major streets operating below 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

Future unsignalized intersections, that currently do not exist, have been assessed regarding the potential need for new traffic signals based on future average daily traffic (ADT) volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets.

As shown in Table 2-3, traffic signal warrant analyses were performed for the following unsignalized study area intersections during the peak weekday conditions wherein the Project is anticipated to contribute the highest trips:

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction
7	Driveway 2/Colt Way & Krameria Avenue	Moreno Valley
8	Krameria Avenue & Cahuilla Drive	Moreno Valley
9	Krameria Avenue & Quarter Horse Road	Moreno Valley

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Area Conditions* of this report. The traffic signal warrant analyses for future conditions are presented in Section 5 *E+P Traffic Analysis,* Section 6 *Opening Year Cumulative (2023) Traffic Analysis,* and Section 7 *Horizon Year (2040) Traffic Analysis* of this report.

It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.4 ROADWAY SEGMENT CAPACITY ANALYSIS

Roadway segment operations have been evaluated using the City of Moreno Valley Daily Roadway Capacity Values provided in the City of Moreno Valley's Transportation Engineering Division Traffic Impact Analysis (TIA) Preparation Guide. (1) Per the City of Moreno Valley TIA guidelines, roadway segments within the study area should maintain the LOS capacities illustrated on Exhibit 2-1. The daily roadway segment capacities for each type of roadway are summarized in Table 2-4. As noted in both the City of Moreno Valley's traffic study guidelines, these roadway capacities are "rule of thumb" estimates for planning purposes and are affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian bicycle traffic. In other words, while using average daily traffic (ADT) for planning purposes is suitable with regards to evaluating potential volume to capacity with future forecasts, it is not suitable for operational analysis because it does not account for the factors listed previously. As such, where the ADT based roadway segment analysis indicates a deficiency (unacceptable LOS), a review of the more detailed peak hour intersection analysis and progression analysis are undertaken. The more detailed peak hour intersection analysis explicitly accounts for factors that affect roadway capacity. Therefore, roadway segment widening is typically only recommended if the peak hour intersection analysis indicates the need for additional through lanes.

TABLE 2-4: ROADWAY SEGMENT CAPACITY LOS THRESHOLDS[1]

Facility Type	Level of Service Capacity[1]				
	A	B	C	D	E
Six Lane Divided Arterial	33,900	39,400	45,000	50,600	56,300
Four Lane Divided Arterial	22,500	26,300	30,000	33,800	37,500
Four Lane Undivided Arterial	15,000	17,500	20,000	22,500	25,000
Two Lane Industrial Collector	7,500	8,800	10,000	11,300	12,500
Two Lane Undivided Residential	N/A	N/A	N/A	N/A	2,000

[1] These maximum roadway capacities have been extracted from the City of Moreno Valley's Transportation Division's TIA Preparation Guidelines (August 2007). These roadway capacities are "rule of thumb" estimates for planning purposes. The LOS "E" service volumes are estimated maximum daily capacity for respective roadway classifications. Capacity is affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian and bicycle traffic.

2.5 QUEUING ANALYSIS

A queuing analysis was conducted for all study area intersections for E+P, Opening Year Cumulative (2023), and Horizon Year (2040) traffic conditions in an effort to determine the turn pocket lengths necessary to accommodate 95th percentile queues. The analysis was conducted for both the weekday AM and weekday PM peak hours.

The traffic modeling and signal timing optimization software package Synchro (Version 10) has been utilized to assess queues. Synchro is a macroscopic traffic software program that is based on the signalized and unsignalized intersection capacity analyses as specified in the Highway Capacity Manual (HCM). Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length in Synchro. The LOS and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

A vehicle is considered queued whenever it is traveling at less than 10 feet/second. A vehicle will only become queued when it is either at the stop bar or behind another queued vehicle. Although only the 95th percentile queue has been utilized for purposes of determining the necessary turn pocket storage lengths, the 50th percentile queues are also reported. The 50th percentile queue is the maximum back of queue on a typical cycle during the peak hour, while the 95th percentile queue is the maximum back of queue with 95th percentile traffic volumes during the peak hour. The 50th percentile, or average, queue represents the typical queue length for peak hour traffic conditions, while the 95th percentile queue is derived from the average queue plus 1.65 standard deviations. The 95th percentile queue is not necessarily ever observed; it is simply based on statistical calculations. However, many jurisdictions utilize the 95th percentile queues for design purposes.

2.6 MINIMUM LEVEL OF SERVICE (LOS)

The definition of an intersection deficiency in the City of Moreno Valley is based on the City of Moreno Valley General Plan Circulation Element. The City of Moreno Valley General Plan states that target LOS C or LOS D be maintained along City roads (including intersections) wherever possible. Exhibit 2-1 depicts the level of service standards within the City. LOS D is applicable to intersections and roadway segments that are adjacent to freeway on/off ramps and/or adjacent to employment generating land uses. LOS C is applicable to all other intersections and roadway segments. Boundary intersections are assumed to be LOS D.

2.7 THRESHOLDS OF SIGNIFICANCE

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies.

The following types of traffic deficiencies are considered to be significant under the California Environmental Quality Act (CEQA):

- When project traffic, added to existing traffic, will deteriorate the LOS to below the target LOS.
- When cumulative traffic exceeds the target LOS.

Lastly, the City of Moreno Valley also does not have a significance threshold for peak hour queues. For the purposes of this analysis, if the addition of Project traffic is found to have a less than significant impact to the peak hour operations, then a less than significant impact has also been identified for the peak hour queues at the same intersection. However, queuing results have been reported at the City's request.

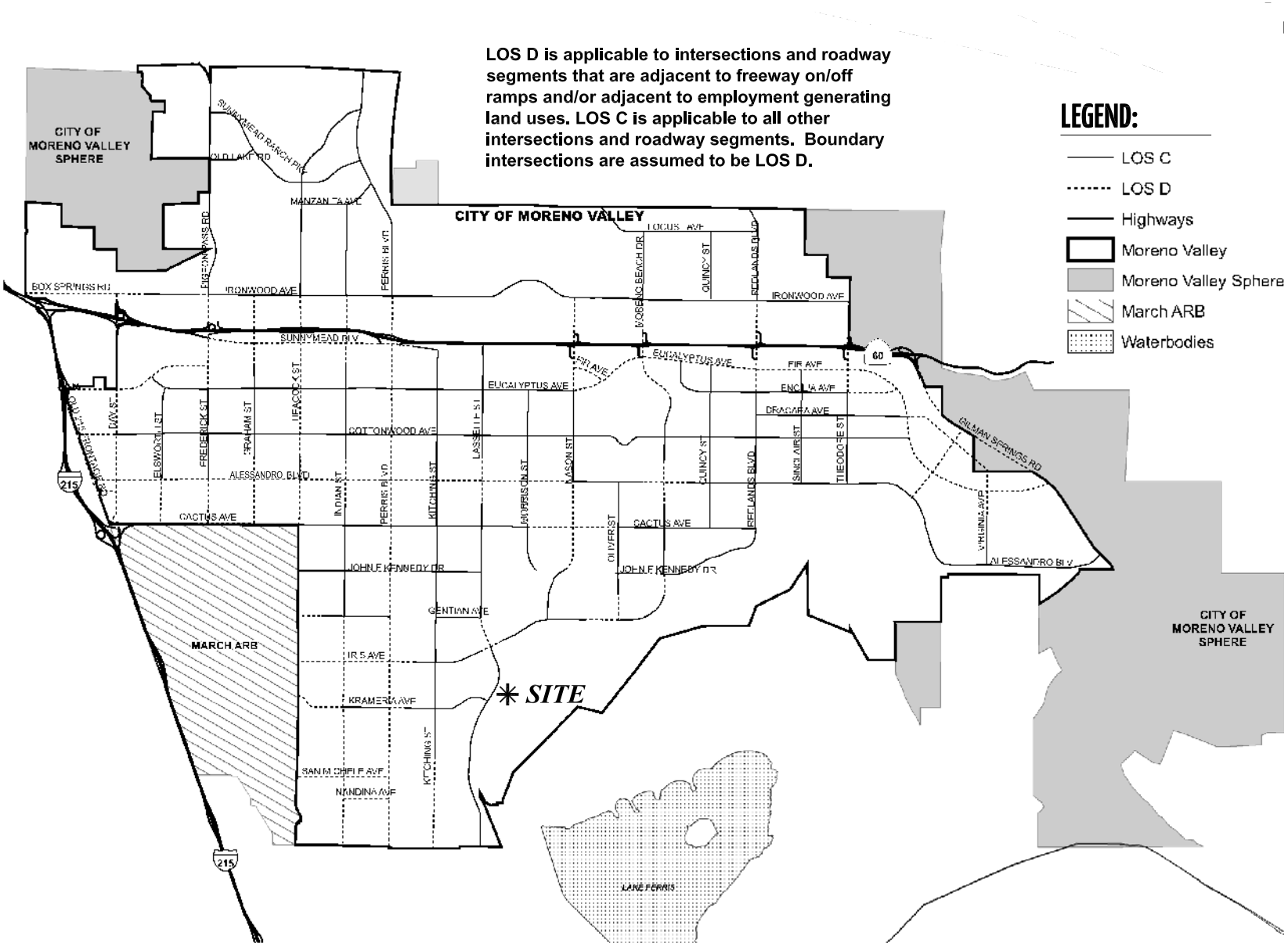
2.8 PROJECT FAIR SHARE CALCULATION METHODOLOGY

In cases where this TIA identifies that the Project would contribute to cumulatively considerable traffic deficiencies, Project fair share costs of improvements necessary to address those deficiencies have been identified. The Project's fair share is determined based on the following equation, which is the ratio of Project traffic to new traffic, where new traffic is total future (Horizon Year) traffic less existing baseline traffic:

Project Fair Share % = Project Traffic / (2040 With Project Total Traffic – Existing Traffic)

The Project fair share contribution calculations are presented in Section 1.5 *Local and Regional Funding Mechanisms* of this TIA.

EXHIBIT 2-1: CITY OF MORENO VALLEY LEVEL OF SERVICE (LOS) STANDARDS



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3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Moreno Valley General Plan Circulation Network, and a review of existing peak hour intersection operations and traffic signal warrant analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the scoping agreement with City of Moreno Valley staff (Appendix 1.1), the study area includes a total of 7 existing and future intersections as shown previously on Exhibit 1-2 have been evaluated at the request of City staff. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

The City is currently in the process of implementing a road diet along Krameria Avenue starting from the intersection at Lasselle Street to the east up to Cahuilla Drive. The road diet is anticipated to reduce the number of travel lanes along Krameria Avenue from four lanes to two lanes (one lane in each direction of travel) in order to accommodate a wide shoulder with bike lanes. The road diet improvements would eliminate the existing 2nd eastbound left turn lane and the 2nd through lane in both the eastbound and westbound directions at Lasselle Street and Krameria Avenue in place of a right turn lane.

3.2 CITY OF MORENO VALLEY GENERAL PLAN CIRCULATION ELEMENT

The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified on the City of Moreno Valley General Plan Circulation Element, are described subsequently. Exhibit 3-2 shows the City of Moreno Valley General Plan Circulation Element, and Exhibit 3-3 illustrates the City of Moreno Valley General Plan roadway cross-sections.

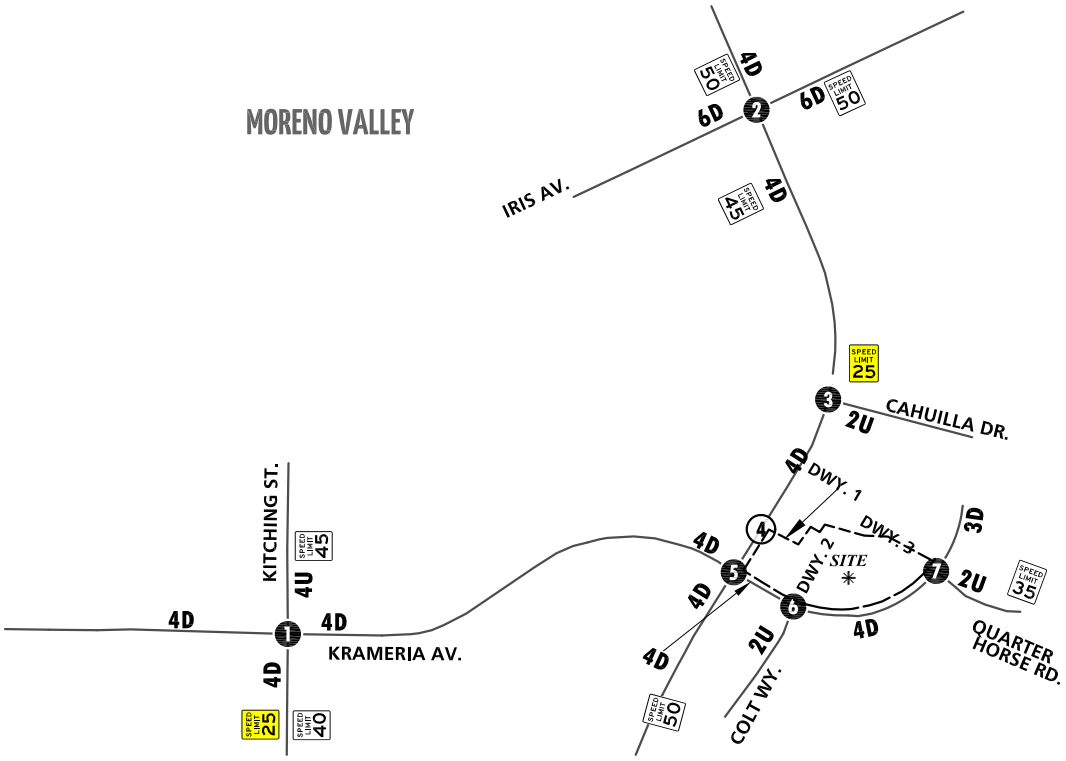
Exhibit 3-4 illustrates the City of Perris General Plan Circulation Element and the City of Perris General Plan roadway cross-sections are shown on Exhibit 3-5.

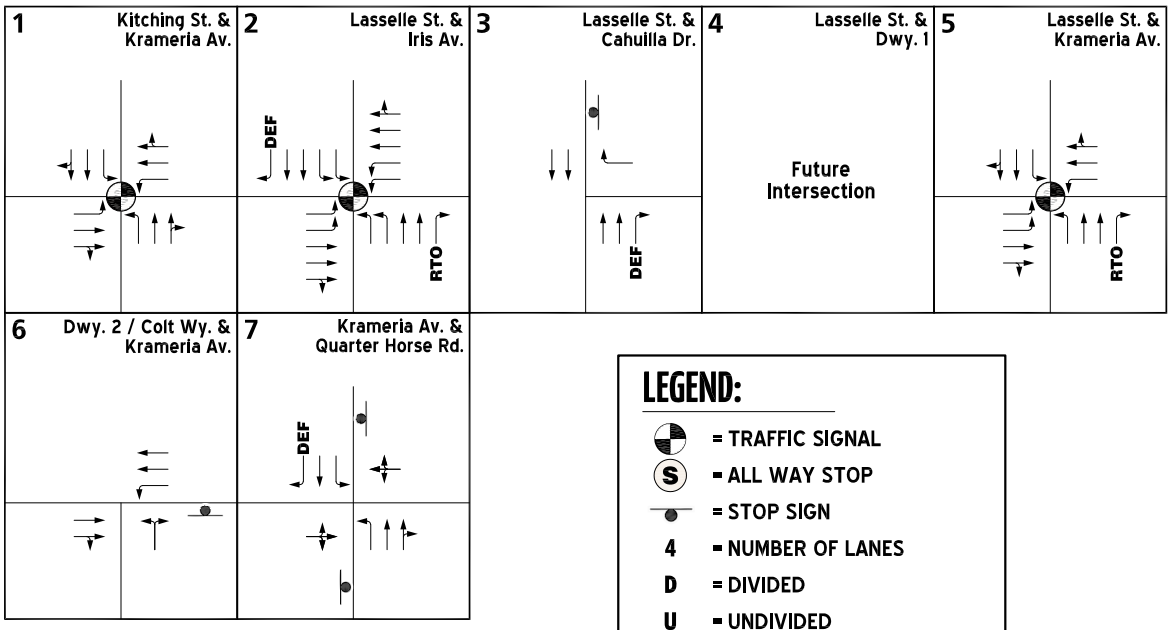
3.3 TRANSIT SERVICE

The study area is currently served by the Riverside Transit Authority (RTA), a public transit agency serving the unincorporated Riverside County region. As shown on Exhibit 3-6, RTA Routes 18, 19, and 20 serves portions of Kitching Street, Iris Avenue, Krameria Avenue, Lasselle Street, and Perris Boulevard. RTA Route 41 serves Lasselle Street/Evans Road and portions of Ramona Expressway within the study area.

Transit service is reviewed and updated by RTA periodically to address ridership, budget, and community demands Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate.

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS





LEGEND:

- = TRAFFIC SIGNAL
- S = ALL WAY STOP
- = STOP SIGN
- 4 = NUMBER OF LANES
- D = DIVIDED
- U = UNDIVIDED
- = CHANNELIZED YIELD
- RTO = RIGHT TURN OVERLAP
- DEF = DEFACTO RIGHT TURN
- SPEED LIMIT 25 = SPEED LIMIT (MPH)
- SPEED LIMIT 25 = SCHOOL SPEED LIMIT (MPH)

N

EXHIBIT 3-2: CITY OF MORENO VALLEY GENERAL PLAN CIRCULATION ELEMENT

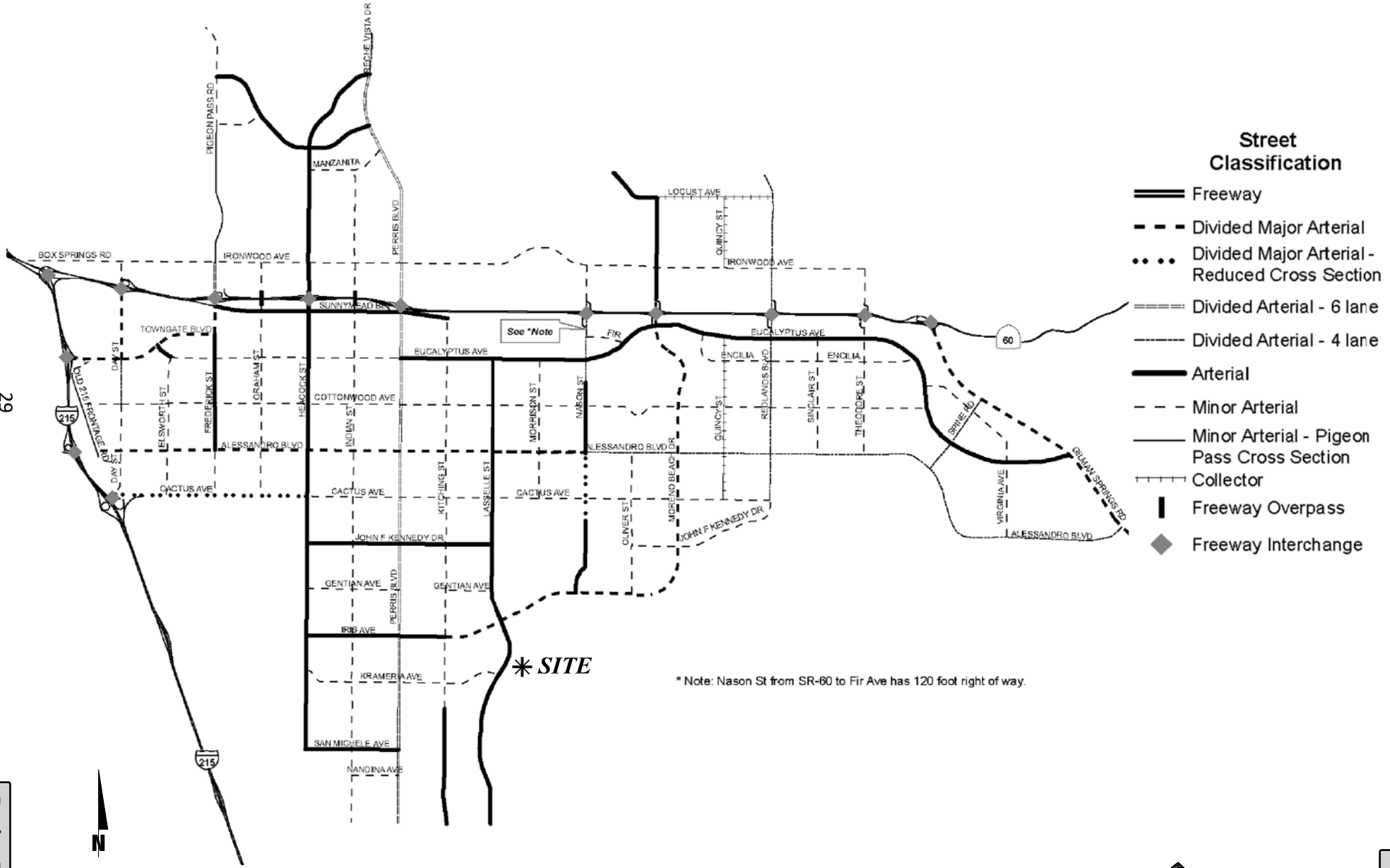


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EXHIBIT 3-3: CITY OF MORENO VALLEY GENERAL PLAN ROADWAY CROSS-SECTIONS

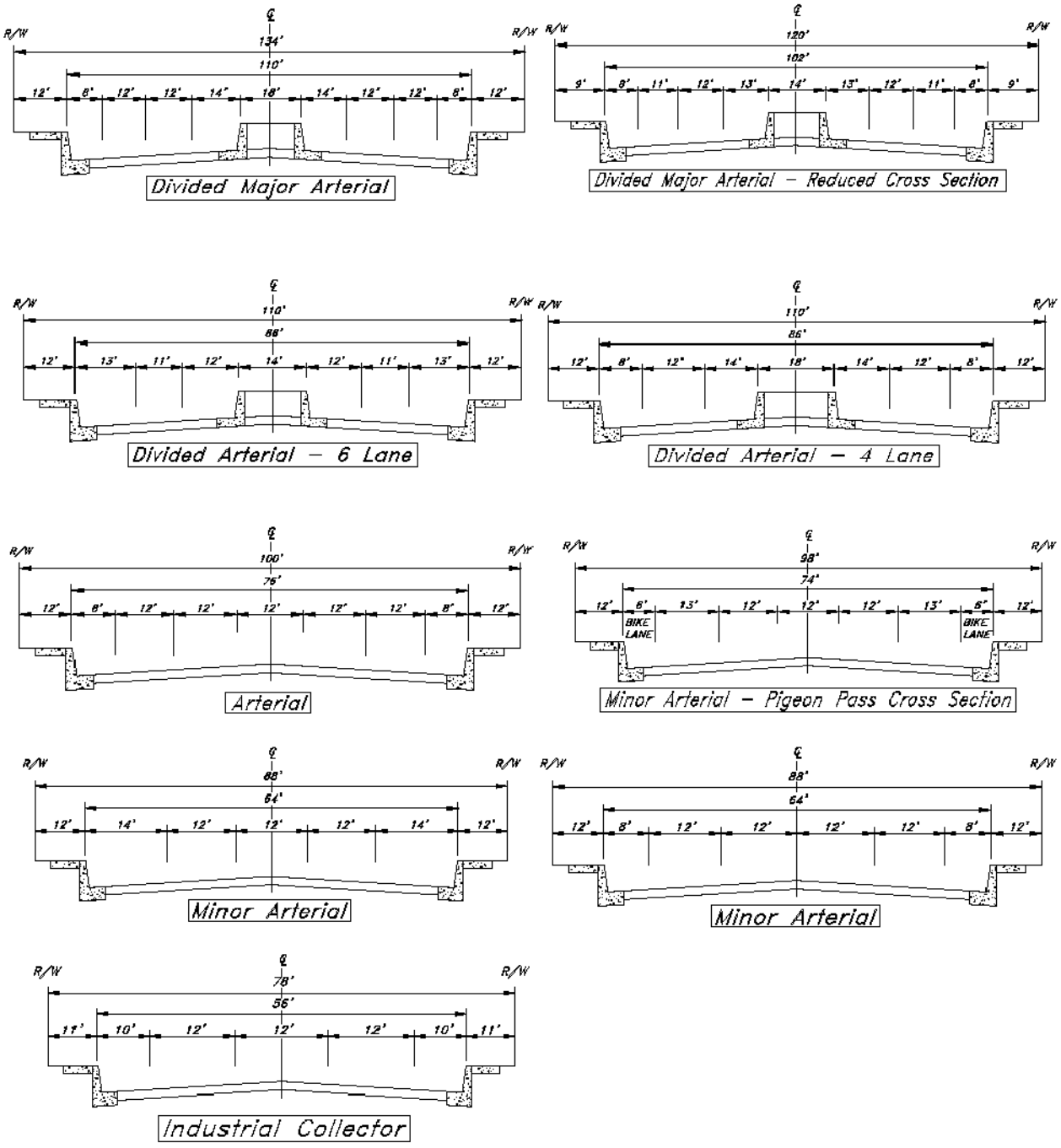
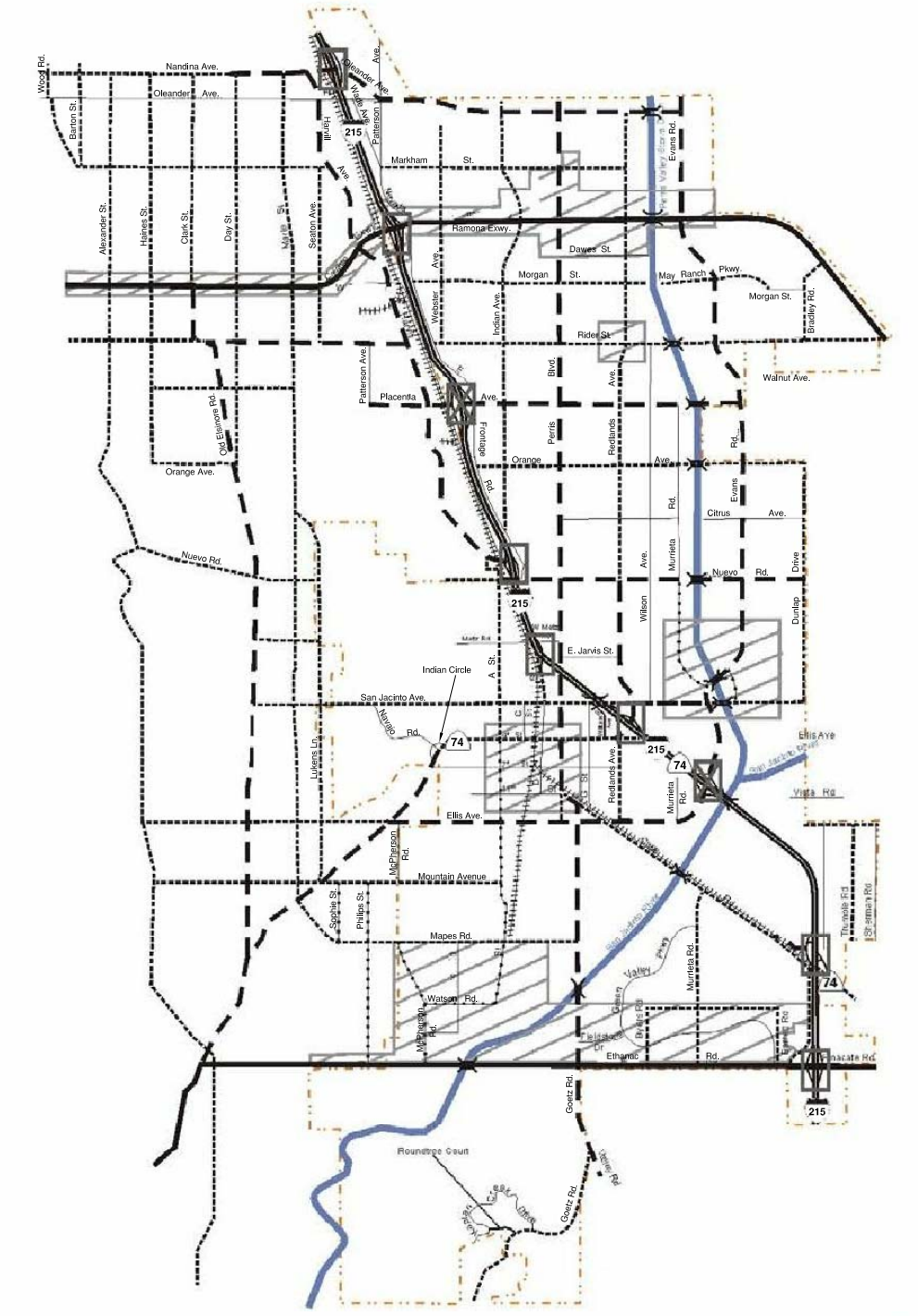


EXHIBIT 3-4: CITY OF PERRIS GENERAL PLAN CIRCULATION ELEMENT



SOURCE: CITY OF PERRIS (June 14, 2005)

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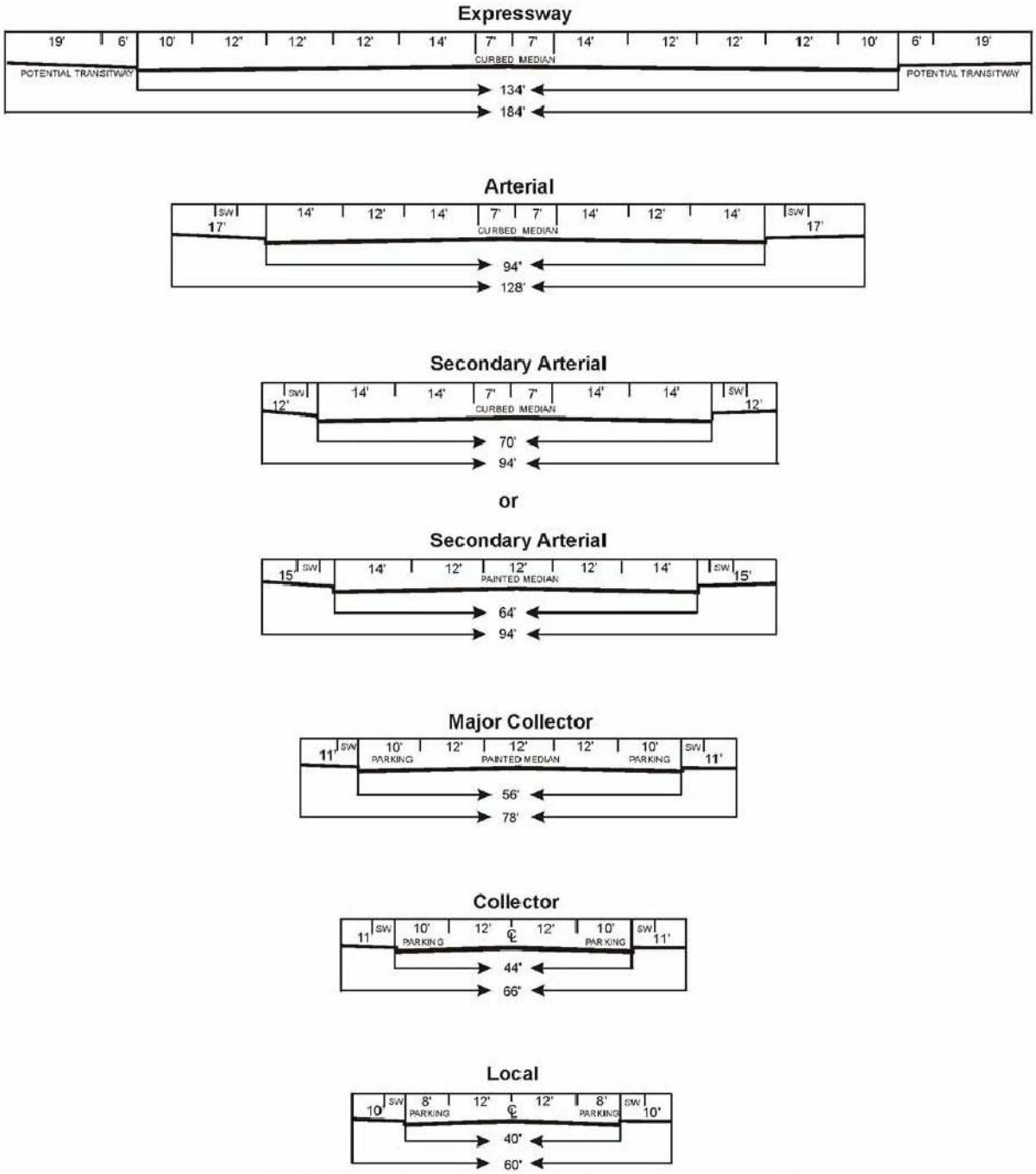
URBAN CROSSROADS

EXHIBIT 3-5: CITY OF PERRIS GENERAL PLAN ROADWAY CROSS-SECTIONS



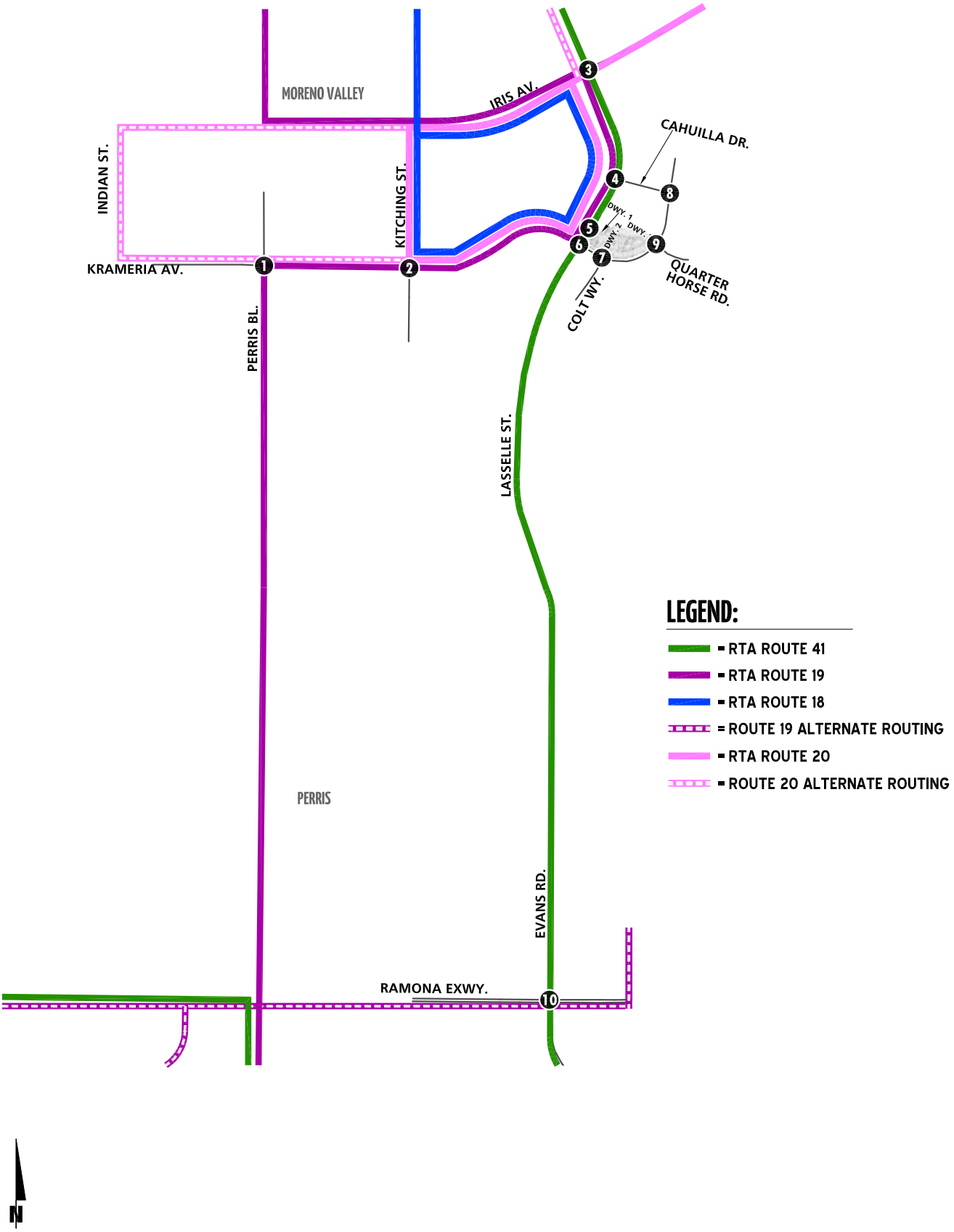
Specific details for each cross-section follow in Figures 4.1 A - 4.1 F

Legend

SW	Sidewalk or Trail (at least 4 feet)	CURBED MEDIAN	Landscaped Center Median
PARKING	Parking or Bike Lane		
PAINTED MEDIAN	Center Median and/or Continuous Left Turning Lane		

Source: City of Perris General Plan

EXHIBIT 3-6: EXISTING TRANSIT ROUTES



3.4 BICYCLE & PEDESTRIAN FACILITIES

In an effort to promote alternative modes of transportation, the City of Moreno Valley General Plan also includes a trails and bikeway system. The City of Moreno Valley trails and bikeway system are shown on Exhibit 3-7 and Exhibit 3-8, respectively. There is an improved trail to the southeast of the proposed Project along the east side of the existing residential area and northwest of the Lake Perris State Recreation Park. This improved trail also serves as a Class I bicycle path. Lasselle Street has Class II bicycle lanes to the south of Krameria Avenue, but has planned future Class II bicycle lanes to the north of Krameria Avenue. Krameria Avenue is also proposed to accommodate Class II bicycle lanes. The City of Perris' proposed bikeways and trail improvements are shown on Exhibit 3-9. Both Evans Road and Ramona Expressway are proposed to accommodate Class II bicycle lanes.

Field observations conducted in September 2018 indicate moderate pedestrian and bicycle activity within the study area at Perris Boulevard and Krameria Avenue, Kitching Street and Krameria Avenue, Lasselle Street and Iris Avenue, and Krameria Avenue near the existing Lasselle Elementary School and Moreno Valley College. Exhibit 3-10 illustrates the existing pedestrian facilities, including sidewalks and crosswalk locations, and the existing Class II bicycle lanes within the study area.

3.5 EXISTING (2018) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in March 2018. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

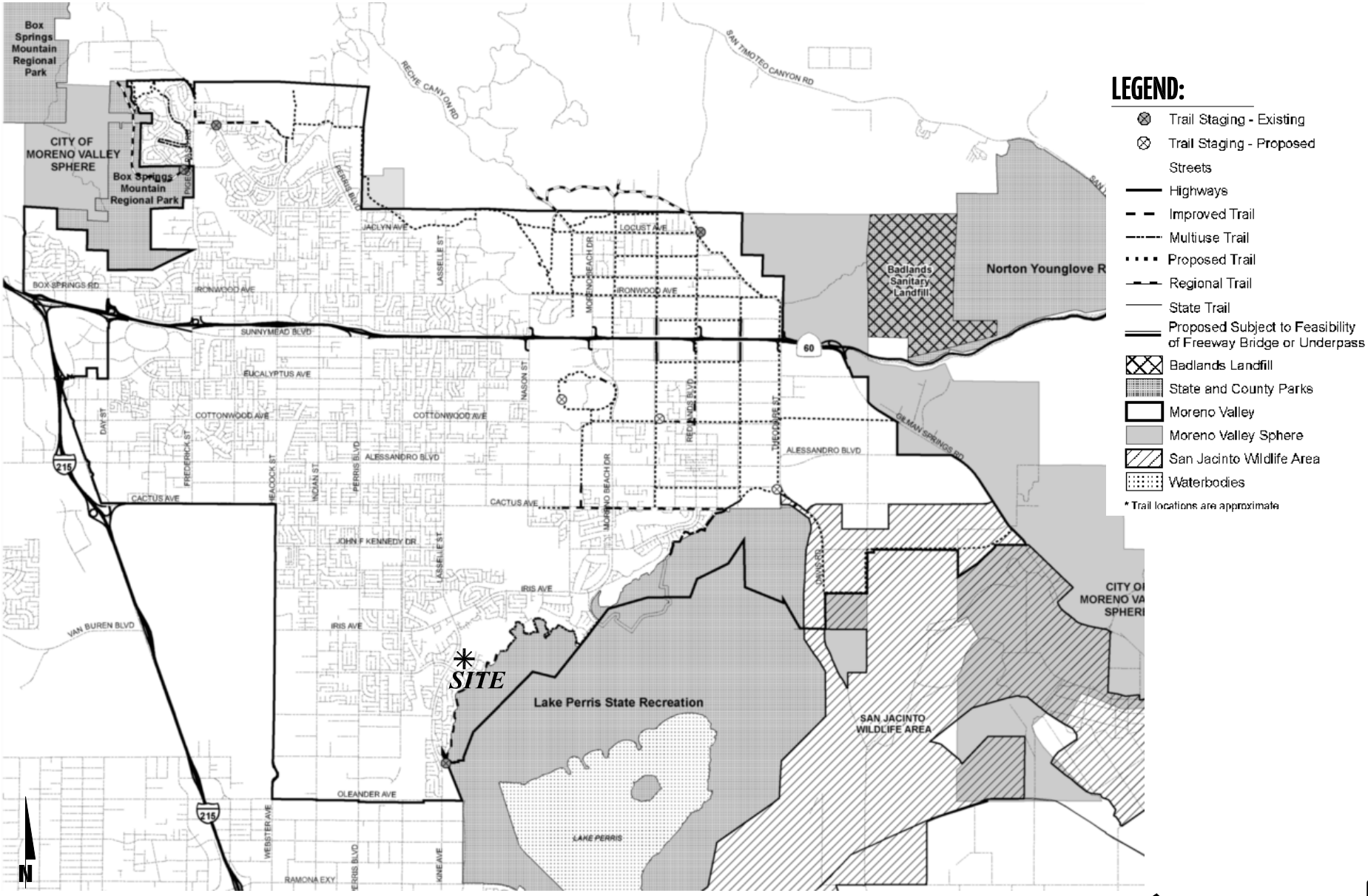
The weekday AM and weekday PM peak hour count data is representative of typical weekday peak hour traffic conditions in the study area. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules.

The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. These raw turning volumes have been flow conserved between intersections with limited access, no access, and where there are currently no uses generating traffic (e.g., between ramp-to-arterial intersections, etc.).

Existing weekday average daily traffic (ADT) volumes on arterial highways throughout the study area are shown on Exhibit 3-11. Where actual 24-hour tube count data was not available, Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 14.8852 = Leg Volume

EXHIBIT 3-7: CITY OF MORENO VALLEY MASTER PLAN OF TRAILS



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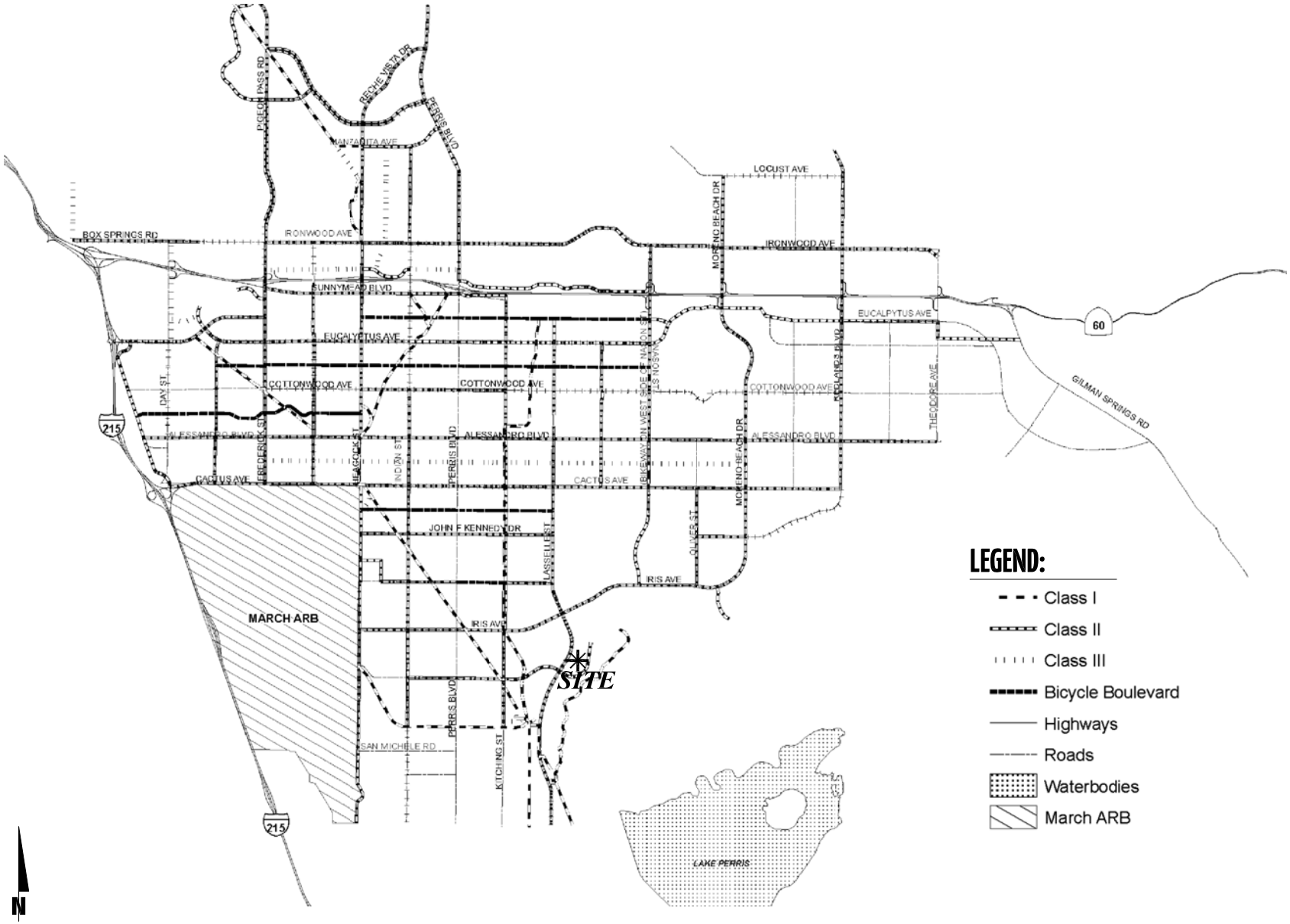
URBAN CROSSROADS

EXHIBIT 3-8: CITY OF MORENO VALLEY BIKE PLAN



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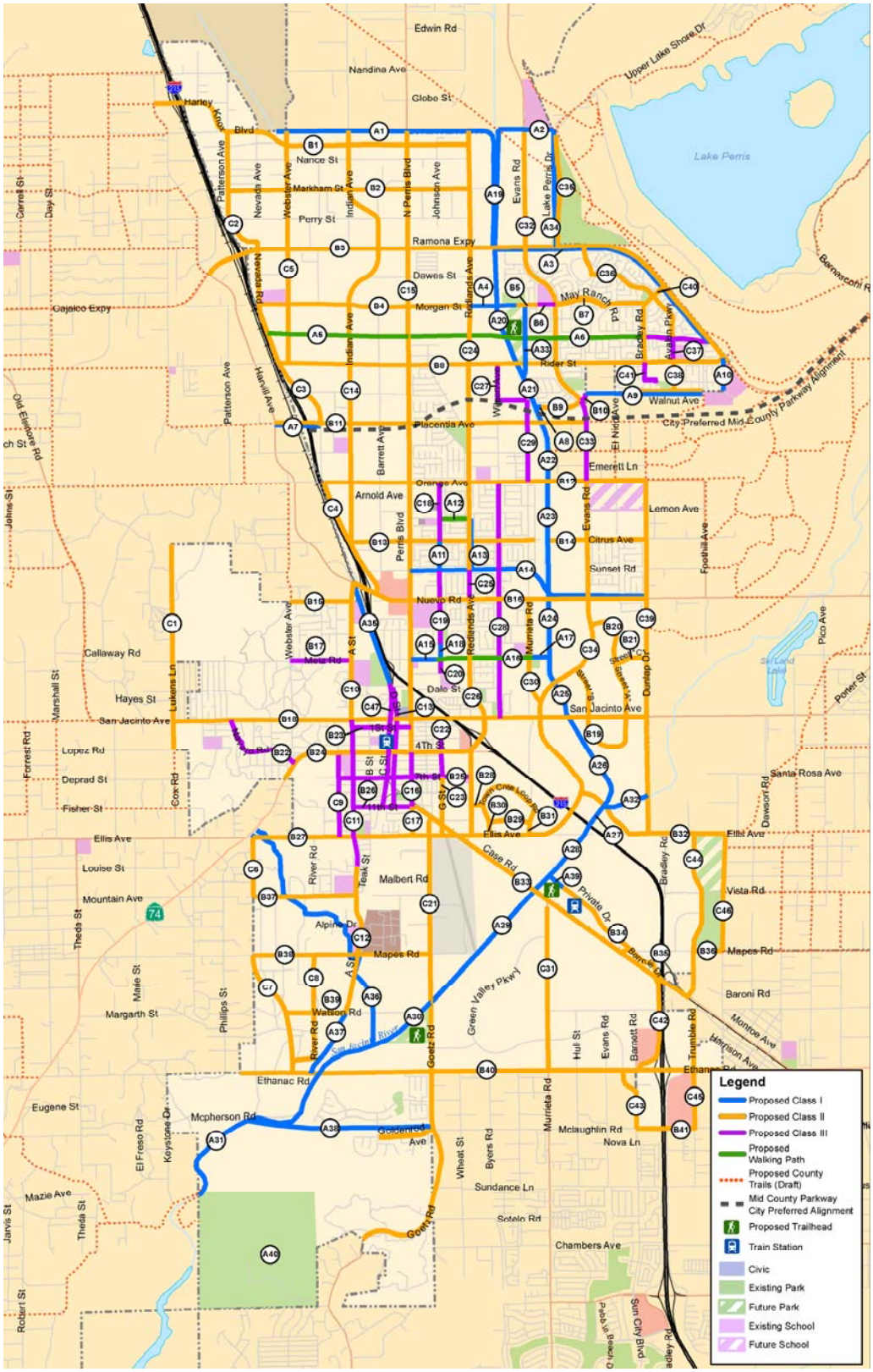
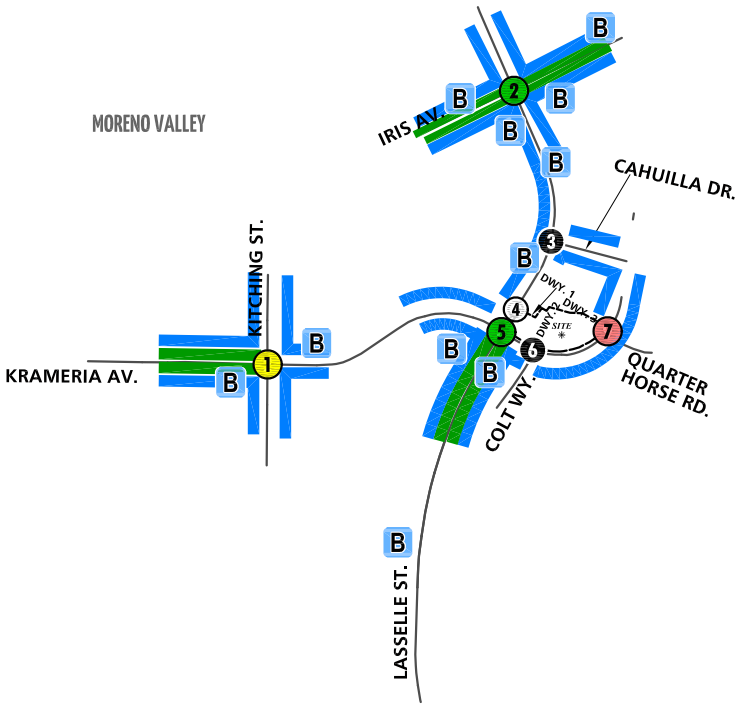
URBAN CROSSROADS

EXHIBIT 3-9: CITY OF PERRIS PROPOSED BIKEWAYS AND TRAIL IMPROVEMENTS



Source: City of Perris General Plan

EXHIBIT 3-10: EXISTING PEDESTRIAN FACILITIES



LEGEND:

- SIDEWALK
- BIKE LANE
- B = BUS STOP
- 0 = NO CROSSWALK
- 0 = FUTURE INTERSECTION
- 0 = CROSSWALK ON ALL APPROACHES
- 0 = SCHOOL CROSSWALK ON TWO APPROACHES
- 0 = SCHOOL CROSSWALK ON FOUR APPROACHES

N

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 6.72 percent. As such, the above equation utilizing a factor of 14.8852 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 6.72 percent (i.e., 1/0.0672 = 14.8852) and was assumed to sufficiently estimate average daily traffic (ADT) volumes for planning-level analyses. Existing weekday AM and weekday PM peak hour intersection volumes are also shown on Exhibit 3-11.

3.6 INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized in Table 3-1 which indicates that the existing study area intersections are currently operating at an acceptable LOS during the peak hours. However, the intersection of Lasselle Street and Krameria Avenue is anticipated to operate at an unacceptable LOS during the AM peak hour with the road diet improvements in place for Existing (2018) traffic conditions. The road diet improvements would serve as a traffic calming measure and provide additional facilities for other modes of transportation (i.e., bicyclists), but would reduce capacity for vehicular traffic. As such, if the City moves forward with the proposed road diet improvements along Krameria Avenue, there may be periods during the morning peak hour when intersections along Krameria Avenue would operate at a deficient LOS.

Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing conditions are shown on Exhibit 3-12. The intersection operations analysis worksheets are included in Appendix 3.2 of this TIA.

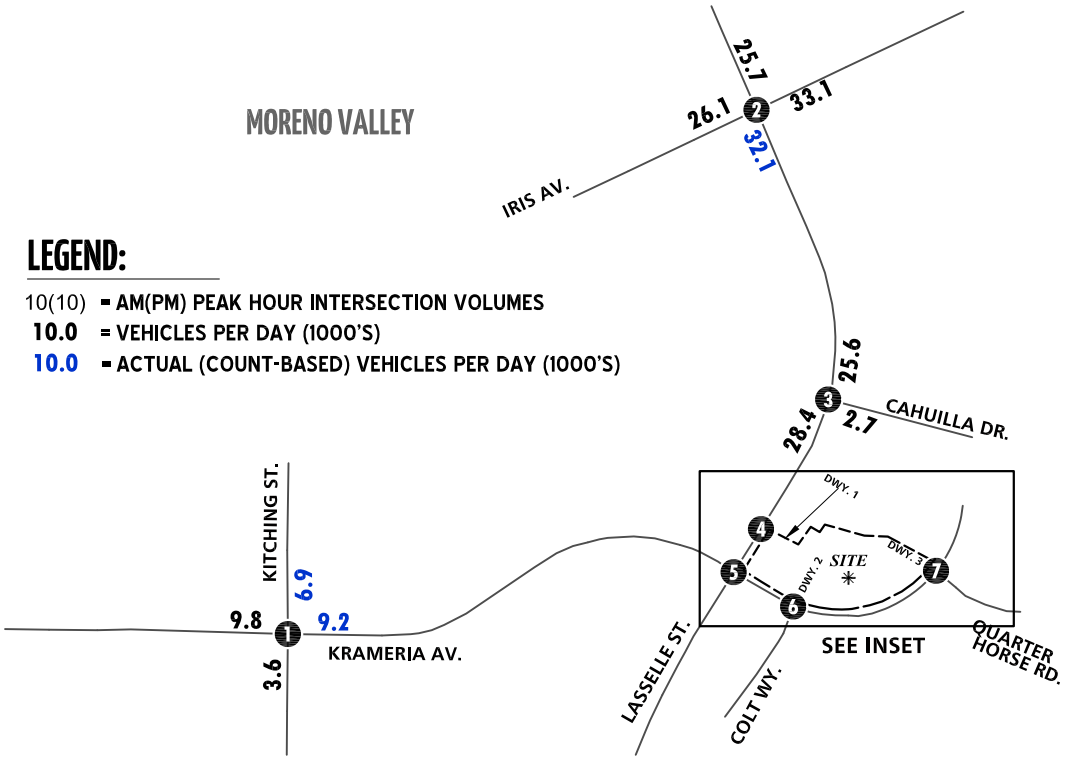
3.7 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. No study area intersections currently warrant a traffic signal for Existing traffic conditions (see Appendix 3.3).

3.8 ROADWAY SEGMENT ANALYSIS

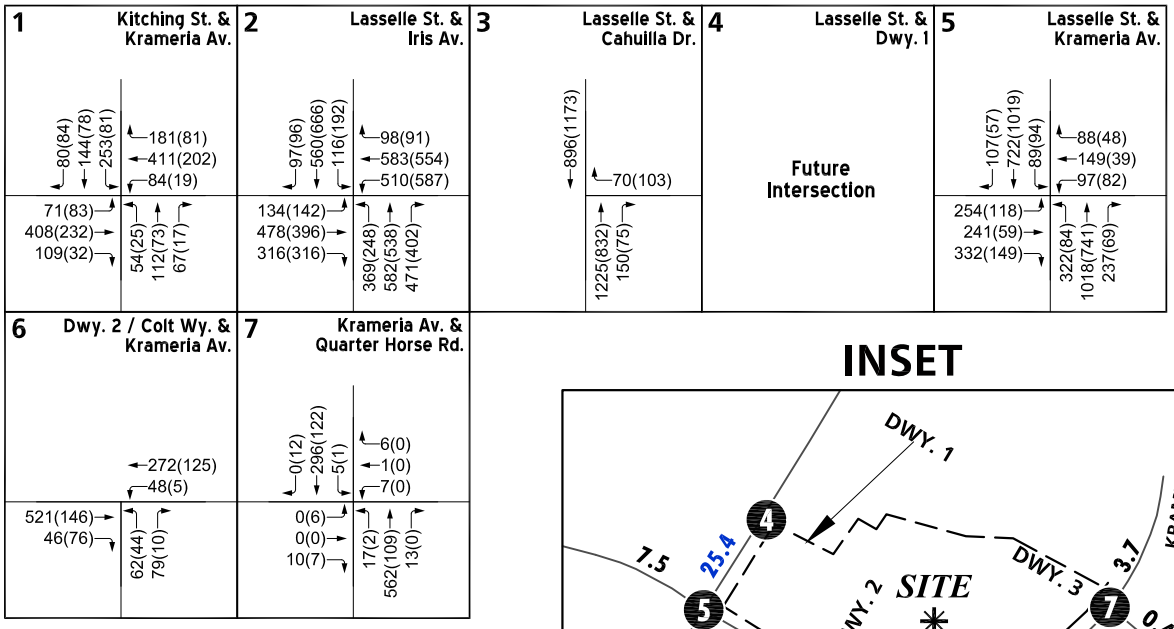
The City of Moreno Valley General Plan Circulation Element provides roadway volume capacity values presented previously in Table 2-4. The roadway segment capacities are approximate figures only, and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 3-2 provides a summary of the Existing (2018) conditions roadway segment capacity analysis based on the City of Moreno Valley Roadway Segment Capacity/LOS Thresholds identified previously in Table 2-4. As shown in Table 3-2, all of the study area roadway segments currently operate at an acceptable LOS based on the City's planning level daily roadway capacity thresholds.

EXHIBIT 3-11: EXISTING (2018) TRAFFIC VOLUMES (IN PCE)



LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)
10.0 = ACTUAL (COUNT-BASED) VEHICLES PER DAY (1000'S)



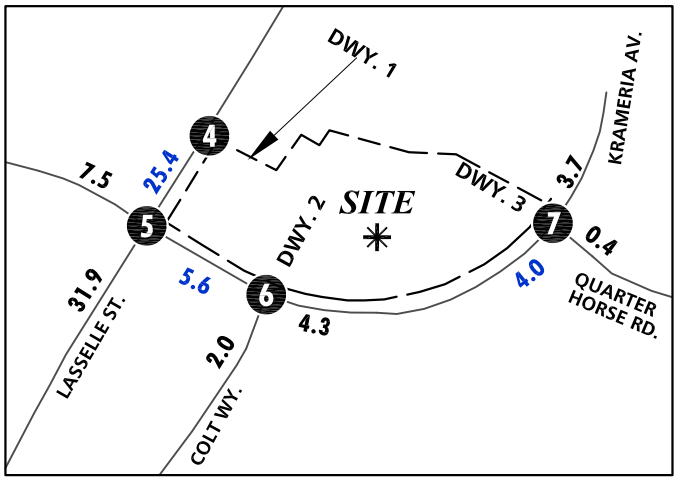


EXHIBIT 3-12: EXISTING (2018) SUMMARY OF LOS

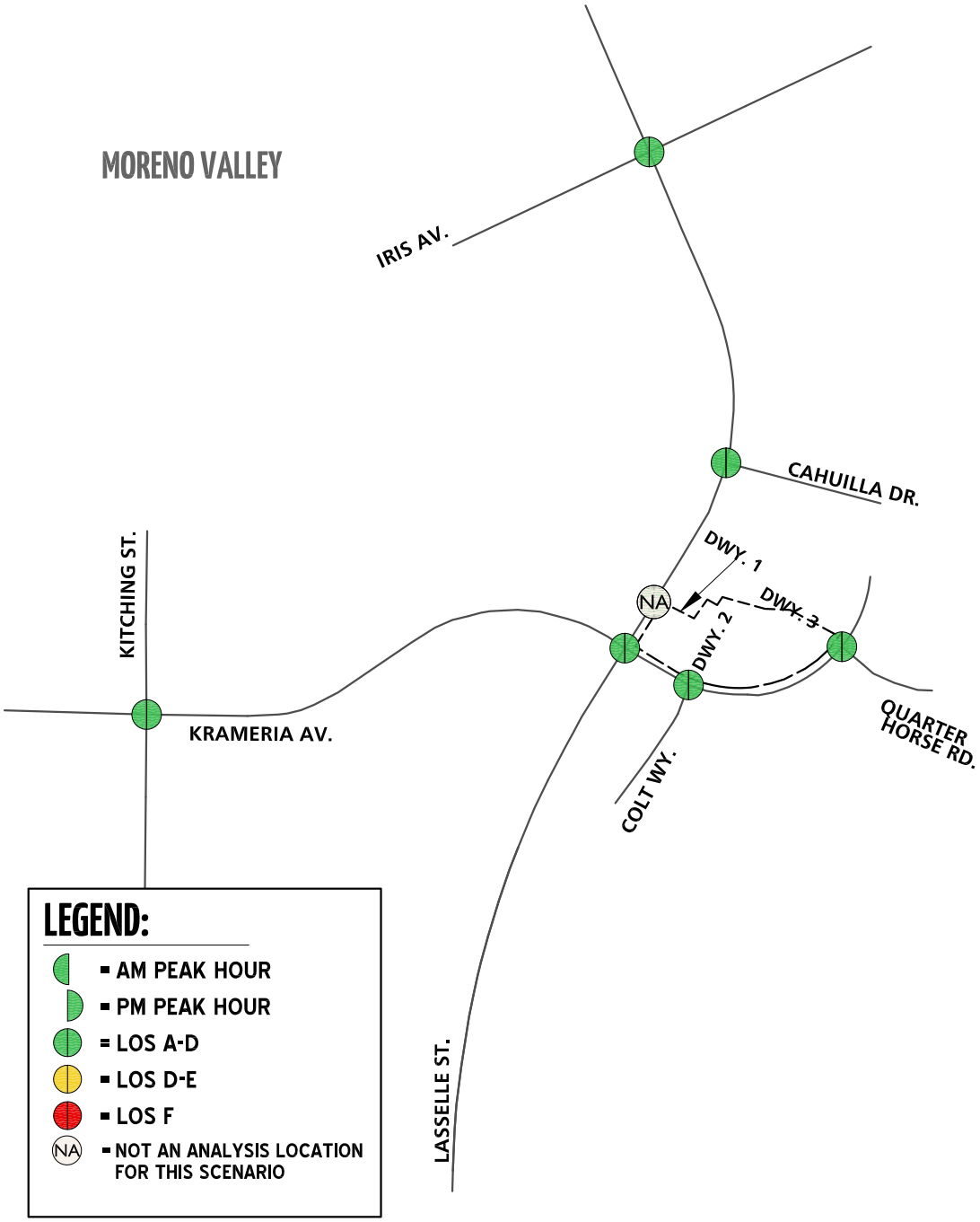


Table 3-1

Intersection Analysis for Existing (2018) Conditions

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service		Acceptable LOS
			Northbound			Southbound			Eastbound			Westbound							
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM	
1	Kitching St. & Krameria Av.	TS	1	2	0	1	2	0	1	2	0	1	2	0	24.0	16.0	C	B	C
2	Lasselle St. & Iris Av.	TS	2	2	1>	2	2	d	2	3	0	2	3	0	36.3	36.7	D	D	D
3	Lasselle St. & Cahuilla Dr.	CSS	0	2	d	0	2	0	0	0	0	0	0	1	16.9	12.7	C	B	C
4	Lasselle St. & Driveway 1		Future Intersection																C
5	Lasselle St. & Krameria Av.	TS	1	2	1>	1	2	0	2	2	0	1	2	0	35.8	18.6	D	B	D
	With Road Diet Improvements	*TS*	*1*	*2*	*1>*	*1*	*2*	*0*	***1***	***1***	***1***	*1*	***1***	***1***	***56.1***	*19.7*	***E***	*B*	
6	Driveway 2/Colt Wy. & Krameria Av.	CSS	0	1	0	0	0	0	0	2	0	1	2	0	17.0	10.3	C	B	C
7	Krameria Av. & Quarter Horse Rd.	CSS	1	2	0	1	1	d	0	1	0	0	1	0	17.9	9.6	C	A	C

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-turn Overlap Phasing; d = Defacto Right Turn Lane

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] AWS = All-way Stop; CSS = Cross-street Stop; TS = Traffic Signal

Table 3-2

Roadway Segment Analysis for Existing (2018) Conditions

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	Existing 2018	V/C[2]	LOS[3]
1	Krameria Av.	Kitching St. to Lasselle St.	4D	37,500	9,285	0.25	A
2		Lasselle St. to Colt Wy.	4D	37,500	5,606	0.15	A
3	Lasselle St.	Iris Av. to Cahuilla Dr.	4D	37,500	32,045	0.85	D
4		Cahuilla Dr. to Driveway 1	4D	37,500	25,435	0.68	B
5		Driveway 1 to Krameria Av.	4D	37,500	25,435	0.68	B

[1] These maximum roadway capacities have been obtained from the City of Moreno Valley's Transportation Division's TIA Preparation Guidelines (August 2007).

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

3.9 QUEUING ANALYSIS

A queuing analysis was conducted at 5 study area intersections in close proximity to the Project in order to determine 95th percentile queues during the peak hours. The queuing analysis results are summarized in Table 3-3 for Existing (2018) traffic conditions, which indicates that the following movements currently experience queuing issues based on the 95th percentile peak hour traffic flows:

- Lasselle Street and Krameria Avenue (#5), northbound left turn lane (AM and PM peak hours)
- Lasselle Street and Krameria Avenue (#5), northbound right turn lane (AM peak hour only)

Queuing worksheets for Existing (2018) traffic conditions are included in Appendix 3.4.

3.10 RECOMMENDED IMPROVEMENTS

As previously shown in Table 3-3, there are 2 movements that are currently experience queuing issues during the AM or PM peak hours. Recommended improvements to address queuing issues for Existing (2018) traffic conditions are shown in Table 3-4. A 180-foot northbound left turn lane and 280-foot northbound right turn lane are recommended in order to accommodate the 95th percentile peak hour queues for Existing (2018) traffic conditions.

Table 3-3

Peak Hour Queuing Summary for Existing (2018) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM
Lasselle St. & Cahuilla Dr.	NBR	135	4	0	Yes	Yes
Lasselle St. & Driveway 1	NBT/R	250	--	--		
Lasselle St. & Krameria Av.	NBL	125	**155**	**137**	**No**	**No**
	NBR	180	**254**	46	**No**	Yes
	SBL	240	122	122	Yes	Yes
	EBL	310	199	112	Yes	Yes
	WBL	200	160	89	Yes	Yes
Driveway 2/Colt Wy. & Krameria Av.	EBL	100	--	--		
	WBL	100	38	4	Yes	Yes
Krameria Av. & Driveway 3/Quarter Horse Rd.	NBL	50	17	0	Yes	Yes
	SBL	100	15	0	Yes	Yes
	SBR	415	0	0	Yes	Yes

BOLD = Inadequate 95th percentile storage.

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

Table 3-4

Peak Hour Queuing Summary for Existing (2018) Conditions With Improvements

Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM
Lasselle St. & Cahuilla Dr.	NBR	135	4	0	Yes	Yes
Lasselle St. & Driveway 1	NBT/R	250	--	--		
Lasselle St. & Krameria Av.	NBL	**180**	155	137	Yes	Yes
	NBR	**280**	254	46	Yes	Yes
	SBL	240	122	122	Yes	Yes
	EBL	310	199	112	Yes	Yes
	WBL	200	160	89	Yes	Yes
Driveway 2/Colt Wy. & Krameria Av.	EBL	100	--	--		
	WBL	100	38	4	Yes	Yes
Krameria Av. & Driveway 3/Quarter Horse Rd.	NBL	50	17	0	Yes	Yes
	SBL	100	15	0	Yes	Yes
	SBR	415	0	0	Yes	Yes

4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project, as well as the Project's trip assignment, onto the study area roadway network. The Project has been evaluated to consist of up to 112 apartments/duplexes and 21,000 sf of commercial retail use. Per the City's traffic study guidelines, the Opening Year Cumulative will have a 5-year minimum horizon from baseline conditions. As such, the Opening Year Cumulative analysis will assess 2023 traffic conditions.

Vehicular access will be provided via the following driveways (see Exhibit 1-1):

- Lasselle Street & Driveway 1 – Right-in right-out only
- Colt Way & Krameria Avenue/Driveway 2 – Full access driveway
- Krameria Avenue & Driveway 3/Quarter Horse Road – Full-access driveway

Regional access to the Project site is provided via the I-215 Freeway at Cactus Avenue and Ramona Expressway interchanges.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development. The ITE Trip Generation Manual is a nationally recognized source for estimating site-specific trip generation. ITE's most current version of the Trip Generation Manual is based on more than 4,800 trip generation studies submitted to ITE by public agencies, consulting firms, universities/colleges, developers, associations, and local sections/districts/student chapters of ITE. (2)

In order to develop the traffic characteristics of the proposed project, trip generation rates are based on the ITE Trip Generation Manual (10th Edition, 2017) for the following land uses: (2)

- Multifamily Housing (Low-Rise) – ITE Land Use 220
- Shopping Center – ITE Land Use 820

Table 4-1 presents the trip generation rates for each of the land uses above. Internal capture is a percentage reduction that can be applied to the trip generation estimates for individual land uses to account for trips internal to the site. In other words, trips may be made between individual retail uses on-site and can be made either by walking or using internal roadways without using external streets. Internal capture reductions between the proposed land uses have been taken into account based on the City's maximum allowable 10 percent.

Table 4-1

Proposed Project Trip Generation Summary

Land Use	Units	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Trip Generation Rates [1]									
Multifamily Housing (Low-Rise)	DU	220	0.11	0.35	0.46	0.35	0.21	0.56	7.32
Shopping Center[3]	TSF	820	4.79	2.94	7.73	3.91	4.24	8.15	99.06

Land Use	Quantity	Units	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Proposed Project Trip Generation Summary									
Multifamily Housing	112	DU	12	40	52	40	23	63	820
Shopping Center	21.000	TSF	101	62	163	82	89	171	2,080
Internal Capture (10% PM and Daily only)			0	0	0	-8	-9	-17	-208
Pass-by Reduction (34% PM and Daily only)[4]			0	0	0	-25	-25	-50	-636
Total			**113**	**102**	**215**	**89**	**78**	**167**	**2,056**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] DU = Dwelling Units; TSF = Thousand Square Feet

[3] Trip generation rate based on the regression equation for ITE Land Use Code 820.

[4] Pass-by Reduction Source: ITE Trip Generation Handbook, Third Edition (2017).

Pass-by trips are defined as intermediate stops on the way from an origin to a primary trip destination without a route diversion. Pass-by trips are attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the generator. These types of trips are many times associated with retail uses. As the Project is proposed to include retail use, pass-by reduction percentages have been obtained and applied from the ITE Trip Generation Handbook, 3rd Edition (2017). (7)

Table 4-1 also summarizes the trip generation based on the proposed Project land uses. As shown in Table 4-1, the proposed Project is anticipated to generate a total of approximately 2,056 trip-ends per day on a typical weekday with 215 vehicle trips during the weekday AM peak hour and 167 vehicle trips during the weekday PM peak.

4.2 PROJECT TRIP DISTRIBUTION

Trip distribution is the process of identifying the probable destinations, directions, or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered to identify the route where the Project traffic would distribute.

The Project trip distribution patterns for the residential use utilized for the purposes of this analysis are shown on Exhibit 4-1. The Project trip distribution patterns for the retail use is shown on Exhibit 4-2.

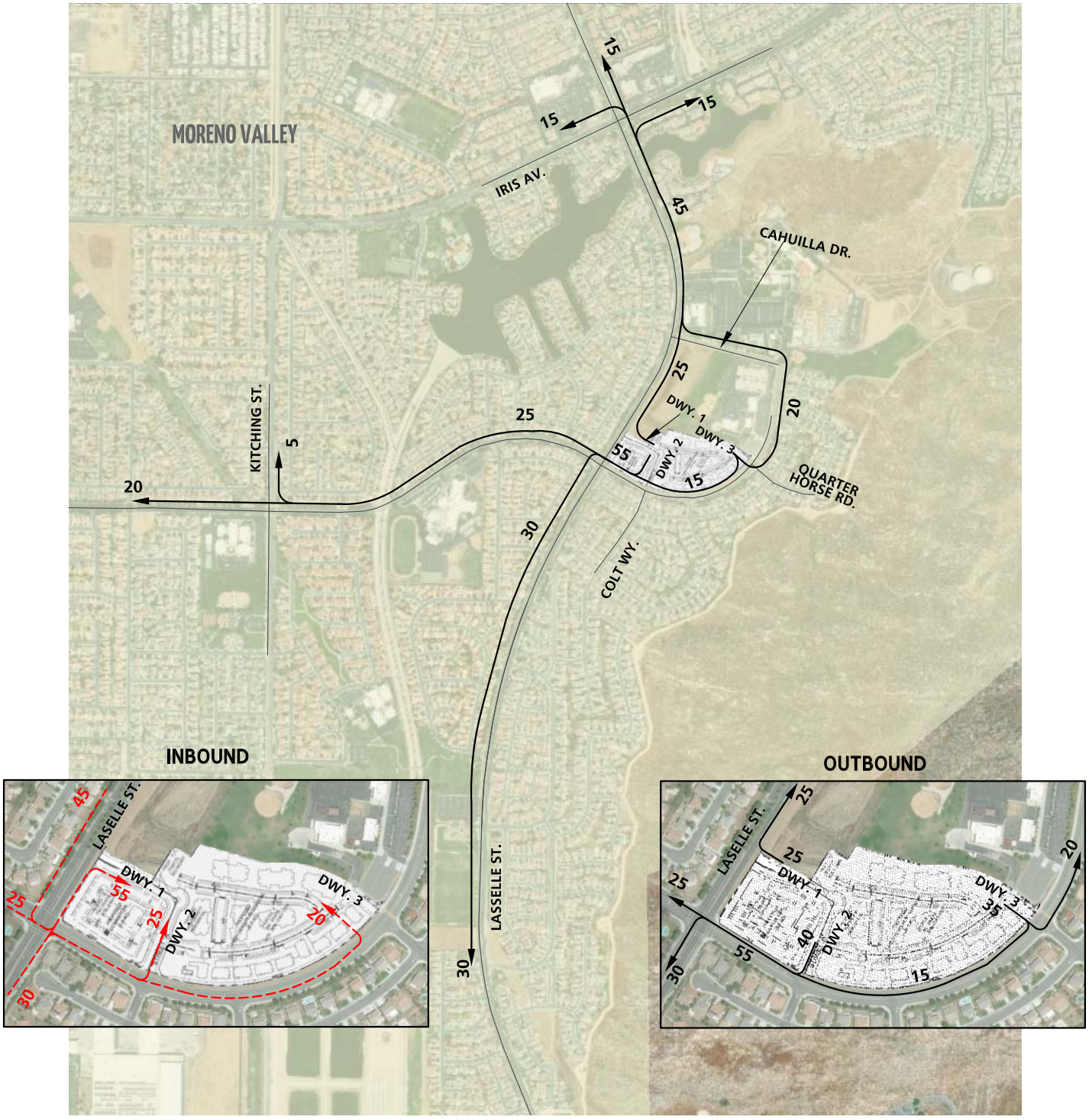
4.3 MODAL SPLIT

The traffic reducing potential of public transit, walking, or bicycling have not been considered in this TIA. Essentially, the traffic projections are "conservative" in that these alternative travel modes might be able to reduce the forecasted traffic volumes.

4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution patterns, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-3.

EXHIBIT 4-1: PROJECT (RESIDENTIAL) TRIP DISTRIBUTION



11575 - trip.dwg

EXHIBIT 4-2: PROJECT (RETAIL) TRIP DISTRIBUTION

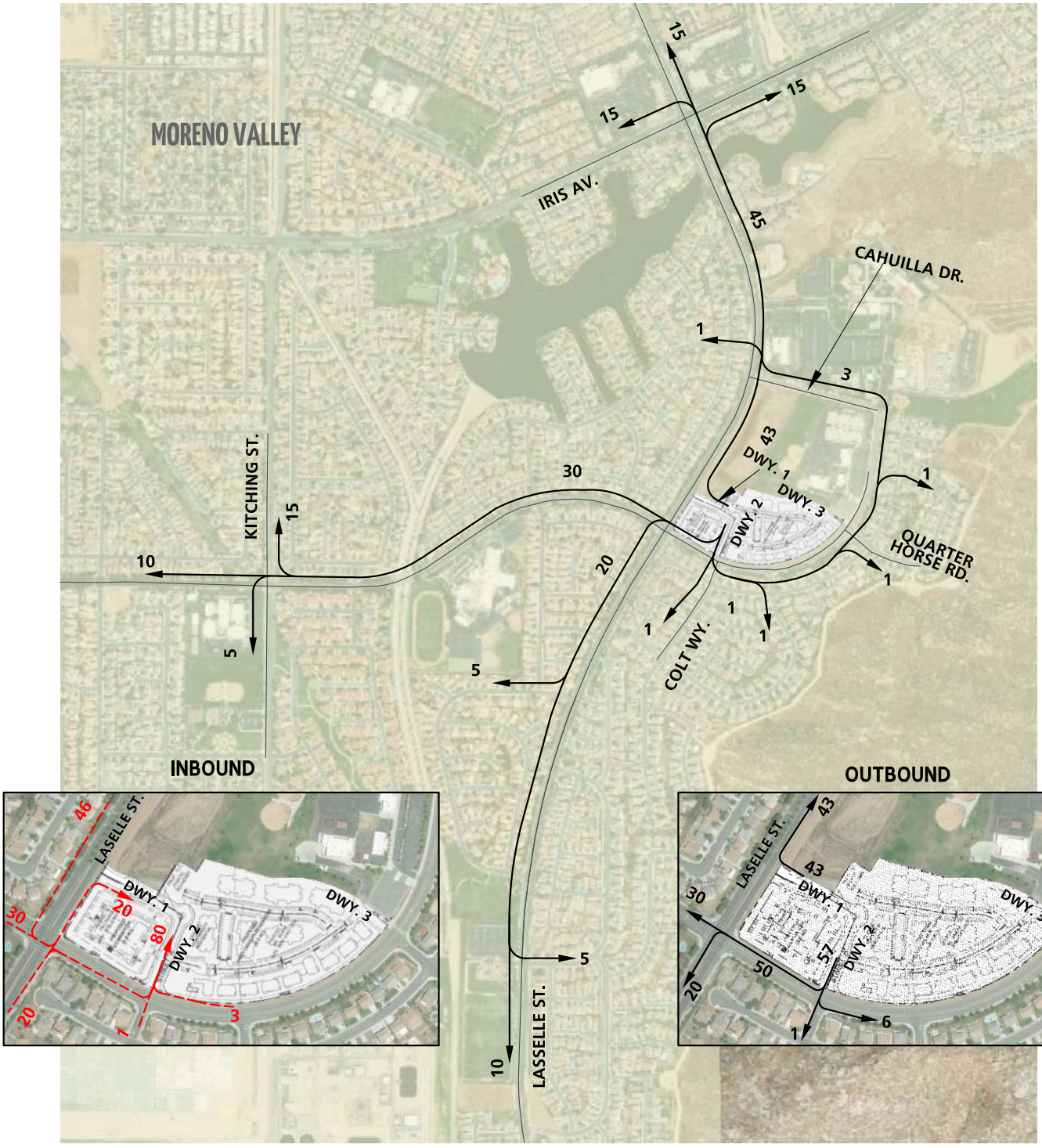


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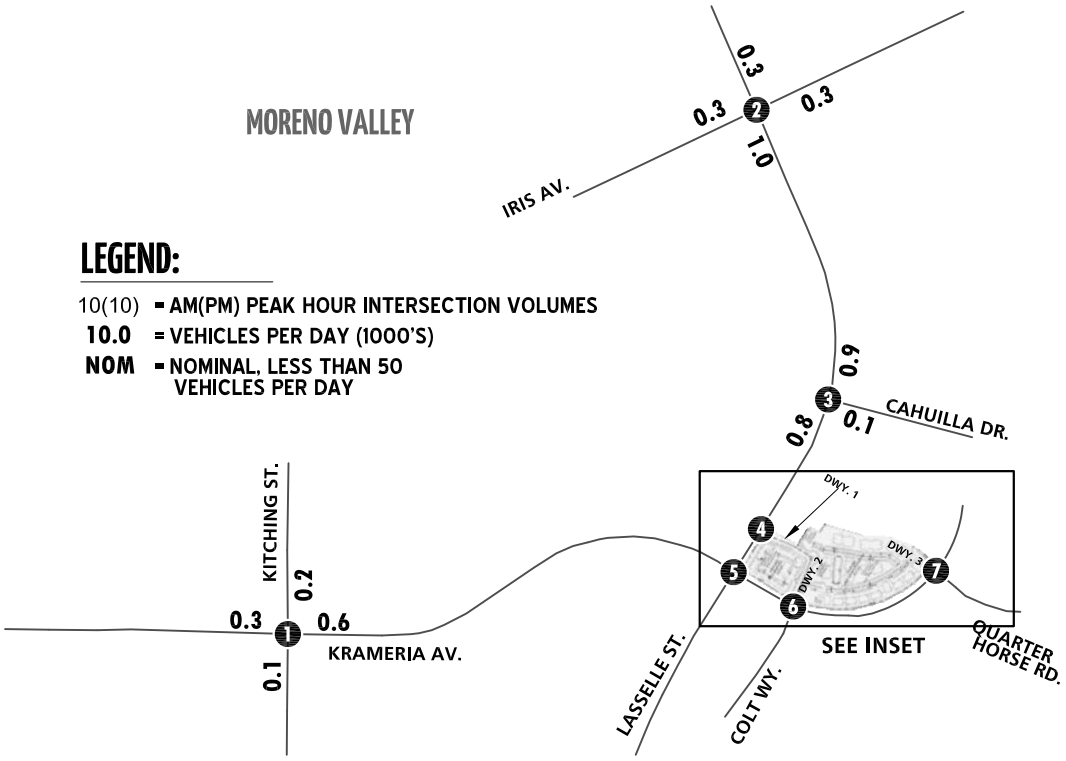
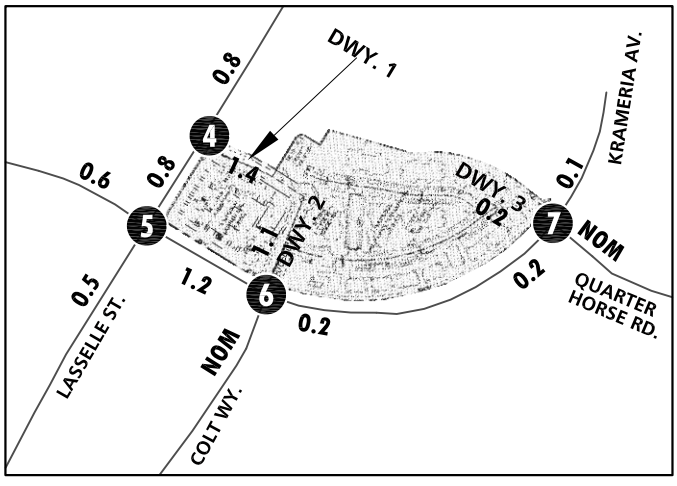
EXHIBIT 4-3: PROJECT ONLY TRAFFIC VOLUMES



1 Kitching St. & Krameria Av.	2 Lasselle St. & Iris Av.	3 Lasselle St. & Cahuilla Dr.	4 Lasselle St. & Dwy. 1	5 Lasselle St. & Krameria Av.
0(0) 0(0) 16(9) → 11(9) ← 14(10) ← 3(3)	0(0) 17(13) 0(0) → 0(0) ← 0(0) ← 17(13)	52(41) → 10(6)	0(0) 52(41) 0(0) → 37(54) ← 0(0) ← 0(0)	0(0) 0(0) 52(41) → 0(0) ← 29(22) ← 24(18)
0(0) → 13(13) → 0(0) ← 0(0) 0(0) 5(2)	0(0) → 0(0) → 17(13) ← 15(12) 15(12) 15(12)	37(29) 0(0) ←	0(0) → 0(0) → 0(0) ← 0(0) 0(-25) 27(57)	3(10) → 30(15) → 0(0) ← 0(0) 24(22) 0(0)

6 Dwy. 2 / Colt Wy. & Krameria Av.	7 Krameria Av. & Quarter Horse Rd.
47(37) 1(1) 4(3) → 3(1) ← 6(3) ← 0(0)	0(0) 1(0) 0(0) → 0(0) ← 0(0) ← 1(0)
80(47) → 2(8) → 0(0) ← 0(0) 1(0) 0(0)	8(5) → 0(0) → 6(3) ← 2(8) 2(2) 1(1)

INSET



4.5 BACKGROUND TRAFFIC

To account for growth in traffic between Existing Conditions (2018) and the Project Opening Year Cumulative (2023), a compounded annual traffic growth rate of 2.0 percent was assumed (10.41 percent aggregate growth in background traffic for the period between 2018 and 2023). The 2.0 percent annual growth rate is intended to capture non-specific ambient traffic growth.

In context, the TIA's assumed 2.0 percent compounded annual growth rate is considered a reasonable approximation of future traffic growth when compared to demographic projections reflected in other local and regional growth modeling efforts. More specifically, the Southern California Association of Governments (SCAG) 2016—2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) growth forecasts for the City of Moreno Valley assume the City population to increase from 197,600 in 2012 to 256,600 by the year 2040, or an approximate 0.94 percent growth rate compounded annually. The RTP/SCS assumed growth in households over the same 28-year period reflects an increase from 51,800 households to 73,000 households; a rate of 1.23 percent compounded annually. At the upper end of assumed RTP/SCS growth rates, employment over the same 28-year period is projected to increase from 31,400 jobs to 83,200 jobs; a rate of approximately 3.54 percent compounded annually. (8) The 2.0 percent compounded annual traffic growth rate used in the TIA reflects the fact that not all persons comprising population growth, household growth, or employment growth would translate on a one-to-one basis as a new vehicle trip in the region; and establishes a judicious midrange estimate lying between the RTP/SCS assumed regional population growth rate (0.94 percent) and the RTP/SCS assumed regional employment growth rate (3.54 percent).

Conservatively, the TIA estimates of area traffic growth then add traffic generated by other known or probable related projects. These related projects are at least in part already accounted for in the assumed annual 2.0 percent ambient growth in traffic noted above; and in some instances, these related projects would likely not be implemented and functional within the 2023 Opening Year Cumulative time frame assumed for the Project. The resulting traffic growth rate used in the TIA (2.0 percent annual ambient growth plus traffic generated by related projects) would therefore tend to overstate rather than understate background cumulative traffic impacts under 2023 conditions.

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

California Environmental Quality Act (CEQA) guidelines require that other reasonably foreseeable development projects which are either approved or being processed concurrently in the study area also be included as part of a cumulative analysis scenario. A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Moreno Valley. The cumulative project list includes known and foreseeable projects that are anticipated to contribute traffic to the study area intersections.

Where applicable, cumulative projects anticipated to contribute measurable traffic (i.e. 50 or more peak hour trips) to study area intersections have been manually added to the study area network to generate Opening Year Cumulative forecasts. In other words, this list of cumulative development projects has been reviewed to determine which projects would likely contribute measurable traffic through the study area intersections (e.g., those cumulative projects in close proximity to the proposed Project). For the purposes of this analysis, the cumulative projects that were determined to affect one or more of the study area intersections are shown on Exhibit 4-4 (and listed in Table 4-2), and have been considered for inclusion.

Although it is unlikely that these cumulative projects would be fully built and occupied by Year 2023, they have been included in an effort to conduct a conservative analysis and overstate as opposed to understate potential traffic impacts.

Any other cumulative projects that are not expected to contribute measurable traffic to study area intersections have not been included since the traffic would dissipate due to the distance from the Project site and study area intersections. Any additional traffic generated by other projects not on the cumulative projects list is accounted for through background ambient growth factors that have been applied to the peak hour volumes at study area intersections as discussed in Section 4.5 *Background Traffic*. Cumulative development project ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-5.

4.7 NEAR-TERM TRAFFIC FORECASTS

To provide a comprehensive assessment of potential transportation network deficiencies, a "buildup" analysis was performed in support of this work effort. The "buildup" method was used to approximate the Opening Year Cumulative traffic forecasts, and is intended to identify the cumulative impacts on both the existing and planned near-term circulation system. The Opening Year Cumulative traffic forecasts include background traffic, traffic generated by other cumulative development projects within the study area, and the traffic generated by the proposed Project.

The "buildup" approach combines existing traffic counts with a background ambient growth factor to forecast the near-term 2023 traffic conditions. An ambient growth factor of 10.41% (2023) accounts for background (area-wide) traffic increases that occur over time, up to the year 2023 from the year 2018 (compounded two percent per year growth over a 5-year period). Traffic volumes generated by the Project are then added to assess the Opening Year Cumulative traffic conditions. The 2023 roadway network is similar to the existing conditions roadway network with the exception of future roadways and intersections proposed to be developed by the Project.

EXHIBIT 4-4: CUMULATIVE DEVELOPMENT LOCATION MAP

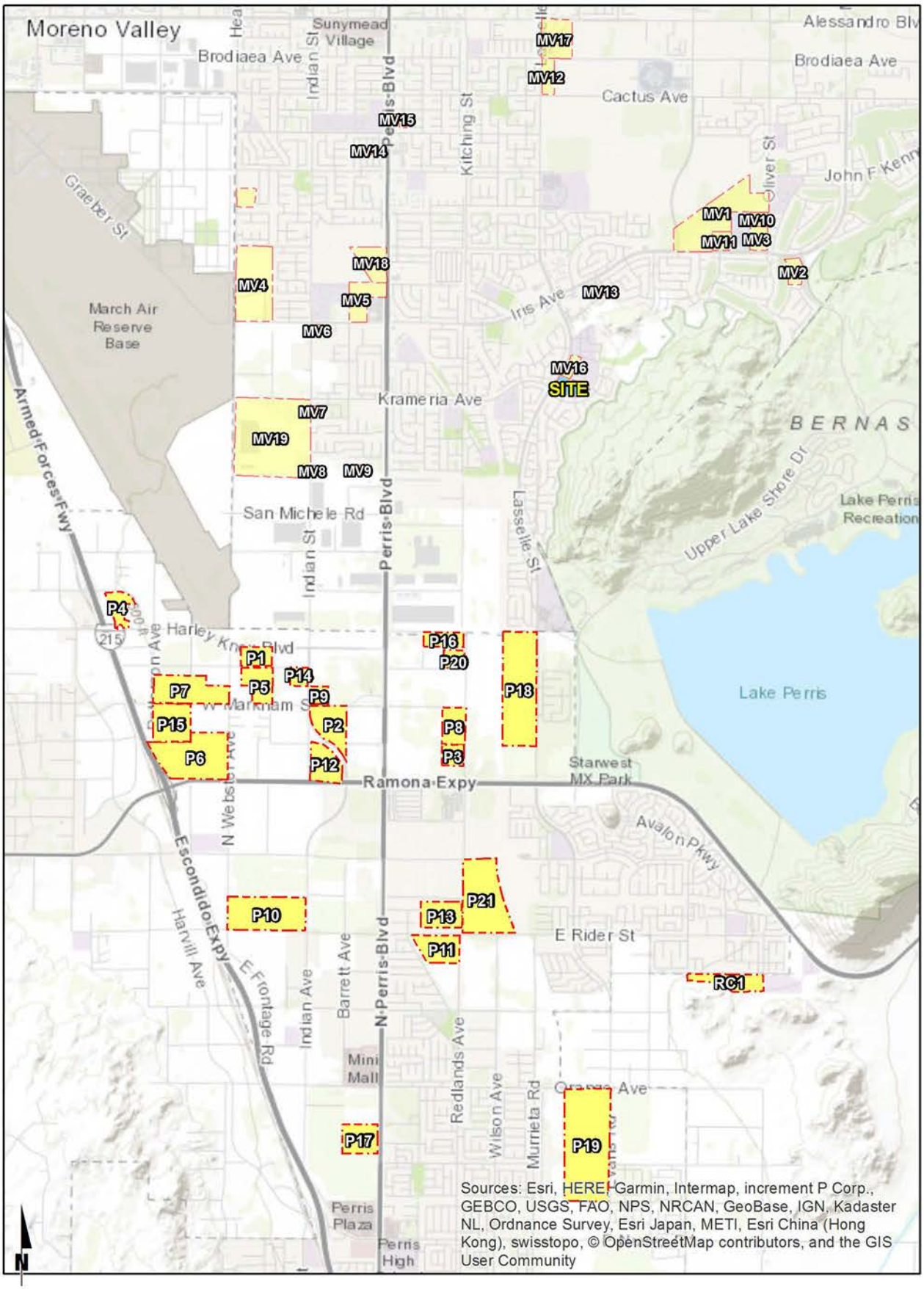
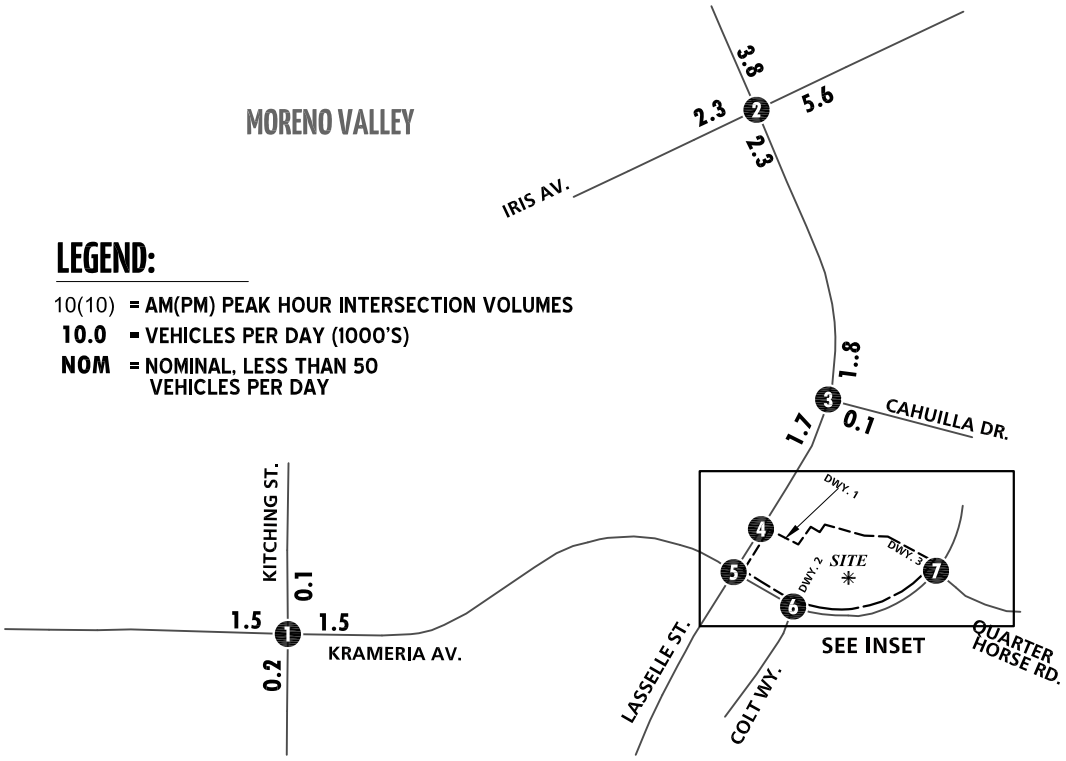
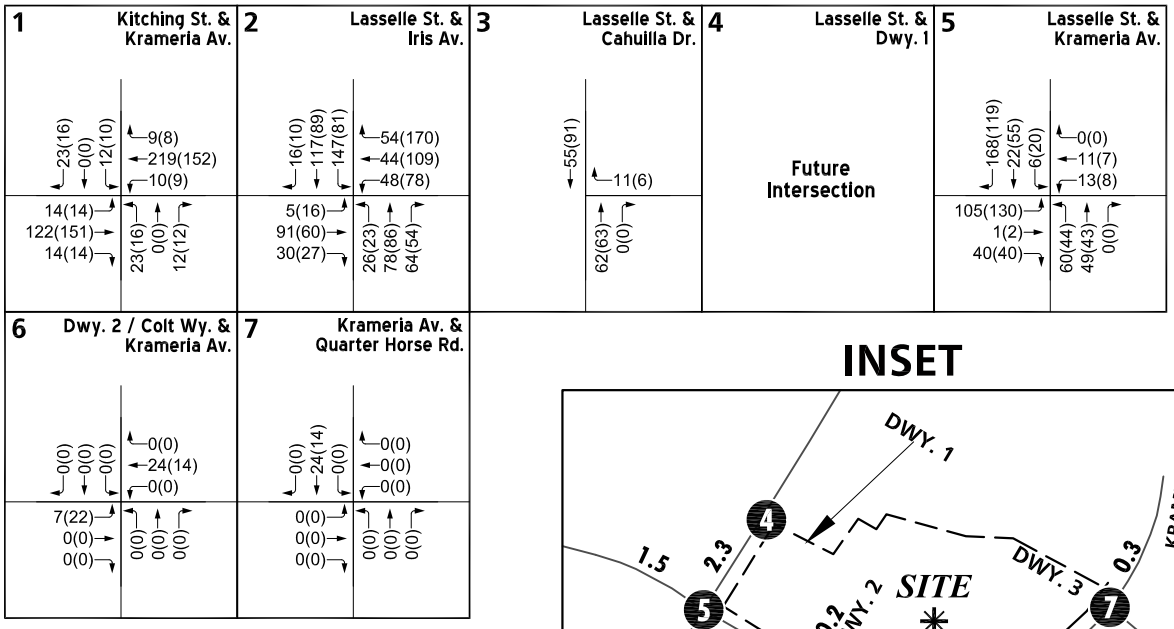


EXHIBIT 4-5: CUMULATIVE ONLY TRAFFIC VOLUMES





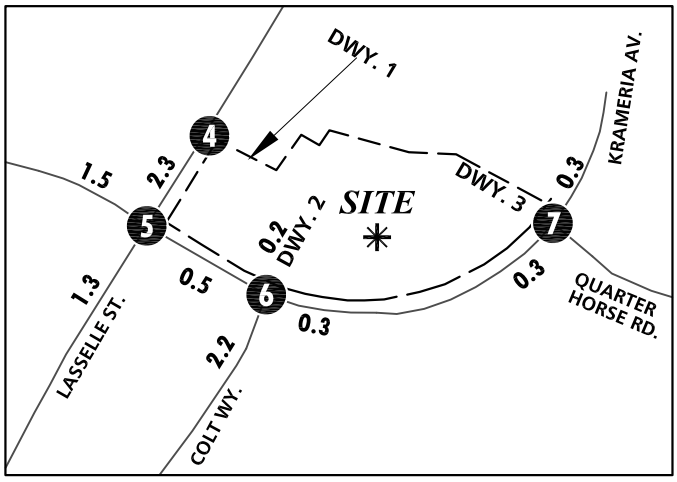


Table 4-2

Cumulative Development Land Use Summary

TAZ	Project Name/Builder/Applicant	Land Use[1]	Quantity	Units[2]
City of Moreno Valley				
MV1	Moreno Valley Medical Overlay Area	Medical Office	122.250	TSF
MV2	Fresenius Medical Care	Medical Office	12.000	TSF
MV3	Kaiser Permanente Moreno Valley Emergency Room Expansion	Hospital	8.500	TSF
MV4	Rados	SFDR	135	DU
	Invermex, Inc.	SFDR	32	DU
MV5	RSI	SFDR	140	DU
MV6	Mission Pacific Land Co.	SFDR	221	DU
MV7	33024 Adam Wisler	SFDR	8	DU
	Ada Deturcios (PEN18-0042)	SFDR	2	DU
MV8	32716 Bob Rogers	SFDR	57	DU
MV9	SKG Pacific Enterprises Inc.	SFDR	63	DU
MV10	Mainstreet Post-acute Care	Medical Office	57.000	TSF
MV11	Pacific Communities "High Pointe" and "Pacific Iris"	SFDR	83	DU
MV12	MV Bella Vista GP, LLC.	Multifamily Housing	220	DU
MV13	GHA	Multifamily Housing	62	DU
MV14	Nova Homes	Multifamily Housing	122	DU
MV15	Mo Ghiassi TL Group	Multifamily Housing	52	DU
MV16	Continental East Fund III, LLC. (Moreno Valley Ranch Specific Plan No. 193)	Multifamily Housing	125	DU
MV17	Boulder Ridge (PEN17-0064)	Multifamily Housing	141	DU
	Rancho Belago Developers	Multifamily Housing	141	DU
	Rocas Grandes (PA 15-0046)	Multifamily Housing	426	DU
MV18	South Moreno Valley Walmart	Walmart	189.520	TSF
		Gas Station	16	VFP
MV19	Moreno Valley Logistics Center	High-Cube Warehouse	1351.770	TSF
		Light Industrial	385.748	TSF
City of Perris				
P1	Bargemann / DPR 07-09-0018	Warehousing	173.000	TSF
P2	Duke 2 / DPR 16-00008	High-Cube Warehouse	669.000	TSF
P3	First Perry / DPR 16-00013	High-Cube Warehouse	240.000	TSF
P4	Gateway / DPR 16-00003	High-Cube Warehouse	400.000	TSF
P5	Integra / DPR 14-02-0014	High-Cube Warehouse	864.000	TSF
P6	OLC 1 / DPR 12-10-0005	High-Cube Warehouse	1,455.000	TSF
P7	OLC2 / DPR 14-01-0015	High-Cube Warehouse	1,037.000	TSF
P8	Markham East / DPR 05-0477	High-Cube Warehouse	460.000	TSF
P9	Markham Industrial / DPR 16-00015	Warehousing	170.000	TSF
P10	Rados / DPR 07-0119	High-Cube Warehouse	1,200.000	TSF
P11	Rider 1 / DPR 16-0365	High-Cube Warehouse	350.000	TSF
P12	Indian/Ramona Warehouse	High-Cube Warehouse	428.730	TSF
P13	Rider 3 / DPR 06-0432	High-Cube Warehouse	640.000	TSF
P14	Westcoast Textile / DPR 16-00001	Warehousing	180.000	TSF
P15	Duke at Patterson / DPR 17-00001	High-Cube Warehouse	811.000	TSF
P16	Harley Knox Commerce Park / DPR 16-004	High-Cube Warehouse	386.278	TSF
P17	Perris Marketplace / DPR 05-0341	Commercial Retail	520.000	TSF
P18	Stratford Ranch Residential / TTM 36648	SFDR	270	DU
P19	Pulte Residential / TTM 30850	SFDR	496	DU
P20	Perris Circle 3	Warehousing	210.900	TSF
P21	Rider 2 & 4	High-Cube Warehouse	1,376.721	TSF
County of Riverside				
RC1	McCanna Hills / TTM 33978	SFDR	63	DU

[1] SFDR = Single Family Detached Residential

[2] DU = Dwelling Units; TSF = Thousand Square Feet ; VFP = Vehicle Fueling Positions

As noted previously, an analysis of the proposed Project at various development tiers has been assessed for the purposes of this traffic study. The near-term traffic analysis includes the following traffic conditions, with the various traffic components:

- Opening Year Cumulative (2023) Without Project
  - Existing 2018 counts
  - Ambient growth (10.41%)
  - Cumulative Development traffic
- Opening Year Cumulative (2023) With Project
  - Existing 2018 counts
  - Ambient growth (10.41%)
  - Cumulative Development traffic
  - Project traffic

4.8 HORIZON YEAR (2040) VOLUME DEVELOPMENT

The Horizon Year (2040) With Project traffic conditions were derived from the RivTAM modified to represent Horizon Year conditions for the City of Moreno Valley using accepted procedures for model forecast refinement and smoothing. The traffic forecasts reflect the area-wide growth anticipated between Existing conditions and Horizon Year conditions.

In most instances the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the Horizon Year With Project peak hour forecasts were refined using the model derived long-range forecasts, along with existing peak hour traffic count data collected at each analysis location in March 2018. Future estimated peak hour traffic data was used for new intersections and intersections with an anticipated change in travel patterns to further refine the Horizon Year With Project peak hour forecasts.

The refined future peak hour approach and departure volumes obtained from the model output data are then entered into a spreadsheet program consistent with the National Cooperative Highway Research Program (NCHRP Report 255), along with initial estimates of turning movement proportions. A linear programming algorithm is used to calculate individual turning movements which match the known directional roadway segment forecast volumes computed in the previous step. This program computes a likely set of intersection turning movements from intersection approach counts and the initial turning proportions from each approach leg.

Typically, the model growth is prorated and is subsequently added to the existing (base validation) traffic volumes to represent Long Range traffic conditions. However, review of the resulting model growth indicates negative growth for several study area intersections. In an effort to conduct a conservative analysis, reductions to traffic forecasts from either Existing or Opening Year Cumulative traffic conditions were not assumed as part of this analysis. Additional growth has also been applied on a movement-by-movement basis, where applicable, to estimate reasonable Horizon Year forecasts. Horizon Year turning volumes were compared to Opening Year Cumulative volumes in order to ensure a minimum growth as a part of the refinement process. The minimum growth

includes any additional growth between Opening Year Cumulative and Horizon Year traffic conditions that is not accounted for by the traffic generated by cumulative development projects and ambient growth rates assumed between Existing (2018) and Opening Year Cumulative traffic conditions. Future estimated peak hour traffic data was used for new intersections and intersections with an anticipated change in travel patterns to further refine the Horizon Year peak hour forecasts.

The future Horizon Year without Project peak hour turning movements were then reviewed by Urban Crossroads for reasonableness, and in some cases, were adjusted to achieve flow conservation, reasonable growth, and reasonable diversion between parallel routes. Flow conservation checks ensure that traffic flow between two closely spaced intersections, such as two freeway ramp locations, is verified in order to make certain that vehicles leaving one intersection are entering the adjacent intersection and that there are no unexplained loss of vehicles. The result of this traffic forecasting procedure is a series of traffic volumes which are suitable for traffic operations analysis.

Post-processing worksheets for Horizon Year Without Project traffic conditions are provided in Appendix 4.1.

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5 E+P TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Existing plus Project (E+P) conditions and the resulting intersection operations, queuing, and traffic signal warrant analyses.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for E+P conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for E+P conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

5.2 E+P TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. Exhibit 5-1 shows the ADT and peak hour intersection turning movement volumes, which can be expected for E+P traffic conditions.

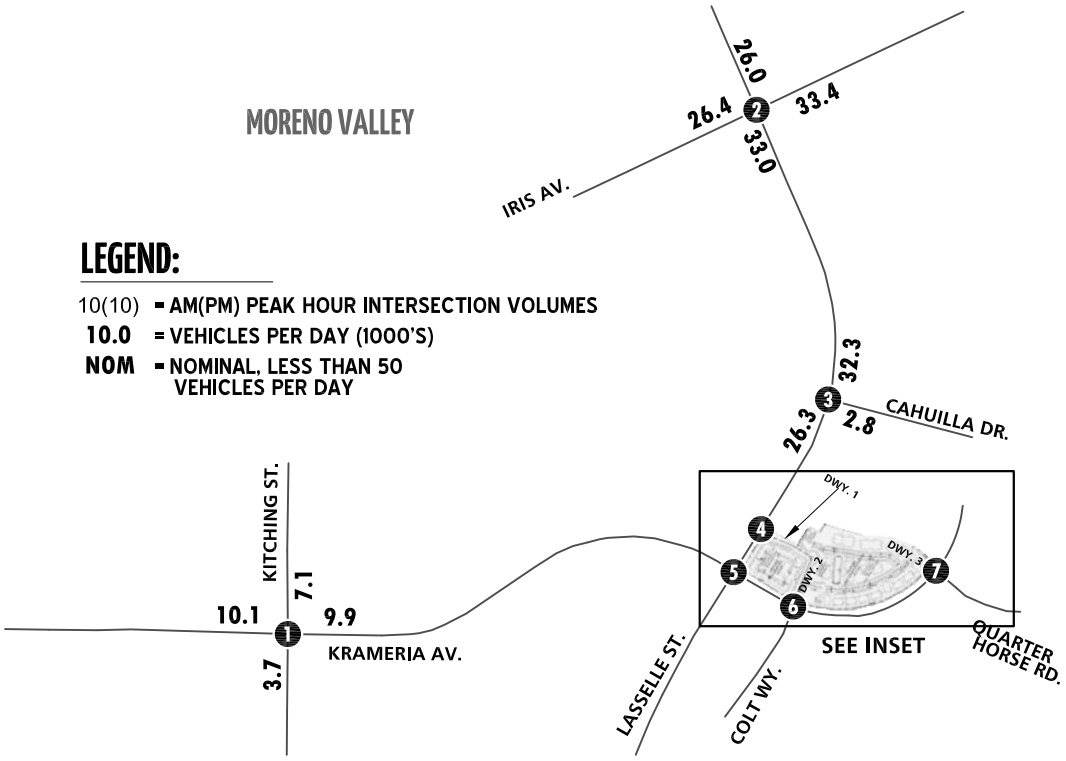
5.3 INTERSECTION OPERATIONS ANALYSIS

E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 5-1, which indicates that there are no study area intersections anticipated to operate at an unacceptable LOS during one or both peak hours, consistent with Existing (2018) traffic conditions. Also, similar to Existing (2018) traffic conditions, the intersection of Lasselle Street and Krameria Avenue is anticipated to operate at a deficient LOS during the AM peak hour with the implementation of the proposed road diet improvements along Krameria Avenue. Exhibit 5-2 summarizes the weekday AM and PM peak hour study area intersections LOS under E+P traffic conditions, consistent with the results provided in Table 5-1. The intersection operations analysis worksheets are included in Appendix 5.1 of this TIA.

5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

There are no unsignalized study area intersections anticipated to meet either peak hour or planning level (ADT) volume-based traffic signal warrants under E+P traffic conditions (see Appendix 5.2).

EXHIBIT 5-1: E+P TRAFFIC VOLUMES



1 Kitching St. & Krameria Av.	2 Lasselle St. & Iris Av.	3 Lasselle St. & Cahuilla Dr.	4 Lasselle St. & Dwy. 1	5 Lasselle St. & Krameria Av.
80(84) 144(78) 269(90) → 192(90) ← 425(212) ← 87(22)	97(96) 577(679) 116(192) → 98(91) ← 583(554) ← 527(600)	948(1214) → 80(109)	0(0) 970(1211) 0(0) → 37(54) ← 0(0) ← 0(0)	107(57) 722(1019) 141(135) → 88(48) ← 178(61) ← 121(100)
71(83) 421(245) 109(32) → 54(25) 112(73) 72(19) ←	134(142) 478(396) 333(329) → 384(260) 597(550) 486(414) ←	1262(861) 150(75) ←	0(0) 0(0) 0(0) → 0(0) 1360(882) 27(57) ←	257(128) 271(74) 332(149) → 322(84) 1042(763) 237(69) ←

6 Dwy. 2 / Colt Wy. & Krameria Av.	7 Krameria Av. & Quarter Horse Rd.
47(37) 1(1) 4(3) → 3(1) ← 278(128) ← 48(5)	0(12) 297(122) 5(1) → 6(0) ← 1(0) ← 8(0)
80(47) 523(154) 46(76) → 62(44) 1(0) 79(10) ←	8(11) 0(0) 16(10) → 19(10) 564(111) 14(1) ←

INSET

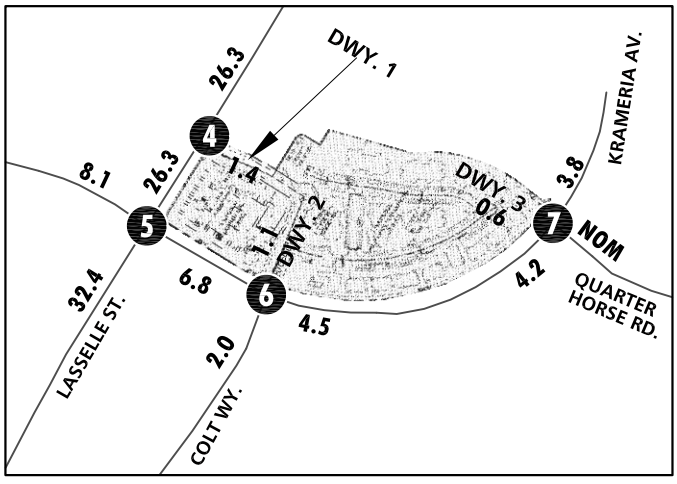


EXHIBIT 5-2: E+P SUMMARY OF LOS

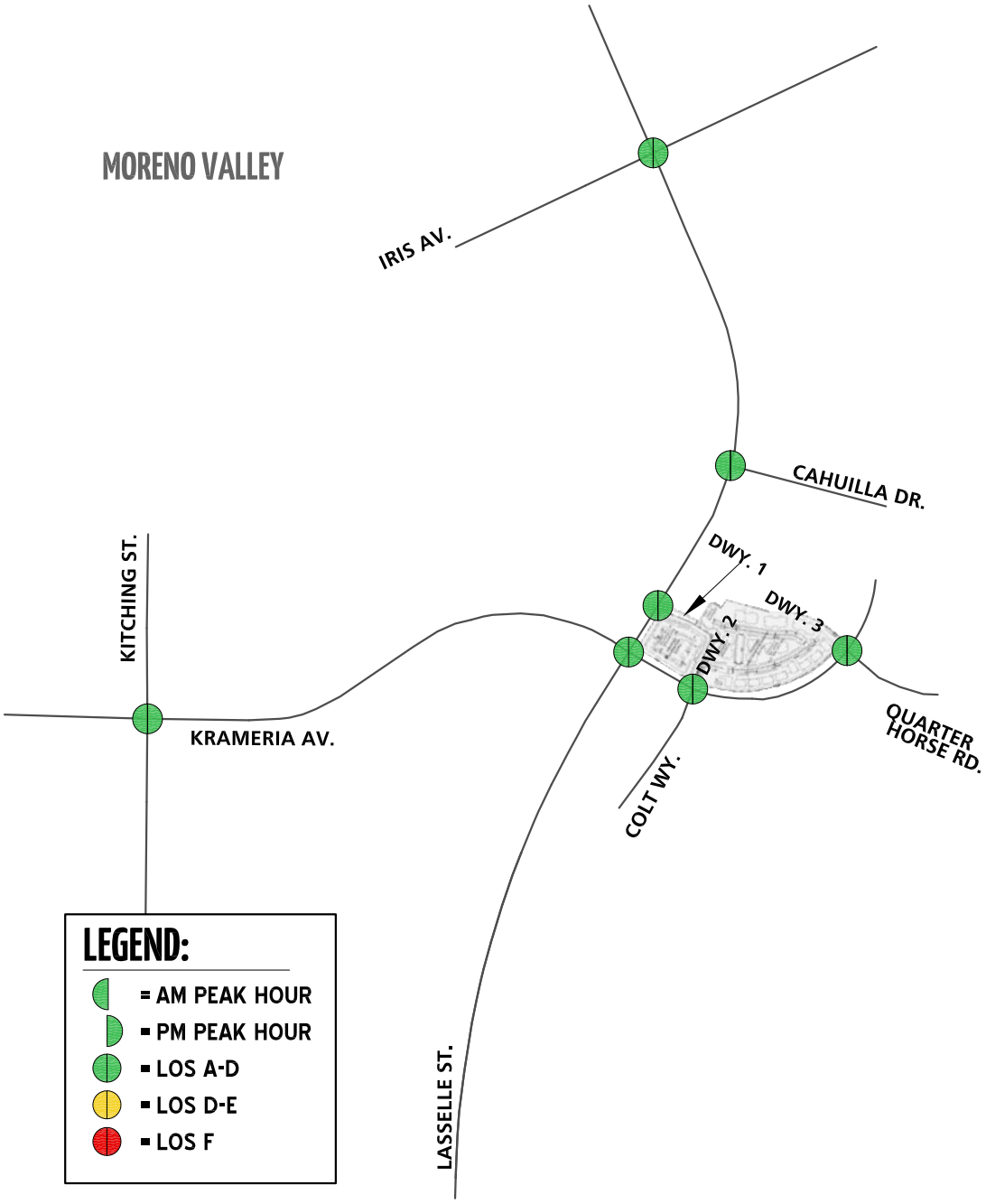


Table 5-1

Intersection Analysis for E+P Conditions

#	Intersection	Traffic Control[2]	Existing (2018) Delay[1] (secs.) AM	Existing (2018) Delay[1] (secs.) PM	Existing (2018) Level of Service AM	Existing (2018) Level of Service PM	E+P Delay[1] (secs.) AM	E+P Delay[1] (secs.) PM	E+P Level of Service AM	E+P Level of Service PM	Acceptable LOS
1	Kitching St. & Krameria Av.	TS	24.0	16.0	C	B	25.0	16.2	C	B	C
2	Lasselle St. & Iris Av.	TS	36.3	36.7	D	D	38.0	38.0	D	D	D
3	Lasselle St. & Cahuilla Dr.	CSS	16.9	12.7	C	B	17.9	13.1	C	B	C
4	Lasselle St. & Driveway 1	**CSS**	Future Intersection				16.5	13.0	C	B	C
5	Lasselle St. & Krameria Av.	TS	35.8	18.6	D	B	42.6	34.8	D	C	D
	With Road Diet Improvements		***56.1***	*19.7*	***E***	*B*	***62.1***	*21.0*	***E***	*C*	
6	Driveway 2/Colt Wy. & Krameria Av.	CSS	17.0	10.3	C	B	23.7	11.1	C	B	C
7	Krameria Av. & Quarter Horse Rd.	CSS	17.9	9.6	C	A	19.6	10.0	C	B	C

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[2] AWS = All-way Stop; CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

5.5 ROADWAY SEGMENT CAPACITY ANALYSIS

As noted previously, the City of Moreno Valley stated roadway segment capacities are approximate figures only, and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet future traffic demand.

Table 5-2 provides a summary of the E+P conditions roadway segment capacity analysis based on the City of Moreno Valley Roadway Segment Capacity/LOS Thresholds identified previously in Table 2-4. As shown in Table 5-2, the study area roadway segments are anticipated to continue to operate at an acceptable LOS under E+P traffic conditions, consistent with Existing (2018) traffic conditions.

5.6 QUEUING ANALYSIS

A queuing analysis was conducted at 5 study area intersections in close proximity to the Project in order to determine 95th percentile queues during the peak hours for E+P traffic conditions. The queuing analysis results are summarized in Table 5-3 for E+P traffic conditions. As shown in Table 5-3, with the addition of Project traffic, there are no additional movements anticipated to experience queuing issues during the AM or PM peak hours for E+P traffic conditions, in addition to those movements previously identified under Existing (2018) traffic conditions. Queuing worksheets for E+P traffic conditions are included in Appendix 5.3.

5.7 RECOMMENDED IMPROVEMENTS

5.7.1 INTERSECTION IMPROVEMENTS

The study area intersections are anticipated to operate at an acceptable LOS, as such, intersection improvements have not been recommended.

5.7.2 QUEUING IMPROVEMENTS

As previously shown in Table 5-3, there are 2 movements that experience queuing issues during the AM or PM peak hours. Recommended improvements to address queuing issues for E+P traffic conditions are shown in Table 5-4. Consistent with Existing (2018) traffic conditions, a 180-foot northbound left turn lane and 280-foot northbound right turn lane in order to accommodate the 95th percentile peak hour queues for E+P traffic conditions. The Project should contribute fair share towards the turn pocket improvements for the northbound left and right turn lanes as they are needed to address Existing queuing deficiencies at the intersection of Lasselle Street and Krameria Avenue.

Table 5-2

Roadway Segment Analysis for E+P Conditions

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	Existing 2018	V/C[2]	LOS[3]	E+P	V/C[2]	LOS[3]
1	Krameria Av.	Kitching St. to Lasselle St.	4D	37,500	9,285	0.25	A	9,861	0.26	A
2		Lasselle St. to Colt Wy.	2D	18,750	5,606	0.30	A	6,795	0.36	A
3	Lasselle St.	Iris Av. to Cahuilla Dr.	4D	37,500	32,045	0.85	D	32,969	0.88	D
4		Cahuilla Dr. to Driveway 1	4D	37,500	25,435	0.68	B	26,272	0.70	C
5		Driveway 1 to Krameria Av.	4D	37,500	25,435	0.68	B	26,254	0.70	B

[1] These maximum roadway capacities have been obtained from the City of Moreno Valley's Transportation Division's TIA Preparation Guidelines (August 2007).

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

Table 5-3

Peak Hour Queuing Summary for E+P Conditions

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2018)				E+P			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
Lasselle St. & Cahuilla Dr.	NBR	135	4	0	Yes	Yes	6	0	Yes	Yes
Lasselle St. & Driveway 1	NBT/R	250	--	--			0	0	Yes	Yes
Lasselle St. & Krameria Av.	NBL	125	**155**	137 [1]	**No**	Yes	**152**	**150**	**No**	**No**
	NBR	180	**254**	46	**No**	Yes	**269**	**211**	**No**	**No**
	SBL	240	122	122	Yes	Yes	258	155	Yes	Yes
	EBL	310	199	112	Yes	Yes	226	225	Yes	Yes
	WBL	200	160	89	Yes	Yes	197	158	Yes	Yes
Driveway 2/Colt Wy. & Krameria Av.	EBL	100	--	--			39	36	Yes	Yes
	WBL	100	38	4	Yes	Yes	24	25	Yes	Yes
Krameria Av. & Driveway 3/Quarter Horse Rd.	NBL	50	17	0	Yes	Yes	24	17	Yes	Yes
	SBL	100	15	0	Yes	Yes	16	15	Yes	Yes
	SBR	415	0	0	Yes	Yes	42	14	Yes	Yes

BOLD = Inadequate 95th percentile storage.

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

Table 5-4

Peak Hour Queuing Summary for E+P Conditions With Improvements

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2018)				E+P			
			95th Percentile Queue (Feet)		Acceptable?[1]		95th Percentile Queue (Feet)		Acceptable?[1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
Lasselle St. & Cahuilla Dr.	NBR	135	4	0	Yes	Yes	6	0	Yes	Yes
Lasselle St. & Driveway 1	NBT/R	250	--	--			0	0	Yes	Yes
Lasselle St. & Krameria Av.	NBL	**180**	155	137	Yes	Yes	152	150	Yes	Yes
	NBR	**280**	254	46	Yes	Yes	269	211	Yes	Yes
	SBL	240	122	122	Yes	Yes	258	155	Yes	Yes
	EBL	310	199	112	Yes	Yes	226	225	Yes	Yes
	WBL	200	160	89	Yes	Yes	197	158	Yes	Yes
Driveway 2/Colt Wy. & Krameria Av.	EBL	100	--	--			39	36	Yes	Yes
	WBL	100	38	4	Yes	Yes	24	25	Yes	Yes
Krameria Av. & Driveway 3/Quarter Horse Rd.	NBL	50	17	0	Yes	Yes	24	17	Yes	Yes
	SBL	100	15	0	Yes	Yes	16	15	Yes	Yes
	SBR	415	0	0	Yes	Yes	42	14	Yes	Yes

BOLD = Inadequate 95th percentile storage.

6 OPENING YEAR CUMULATIVE (2023) TRAFFIC CONDITIONS

This section discusses the methods used to develop Opening Year Cumulative (2023) traffic forecasts and the resulting intersection operations, queuing, and traffic signal warrant analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2023) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways).

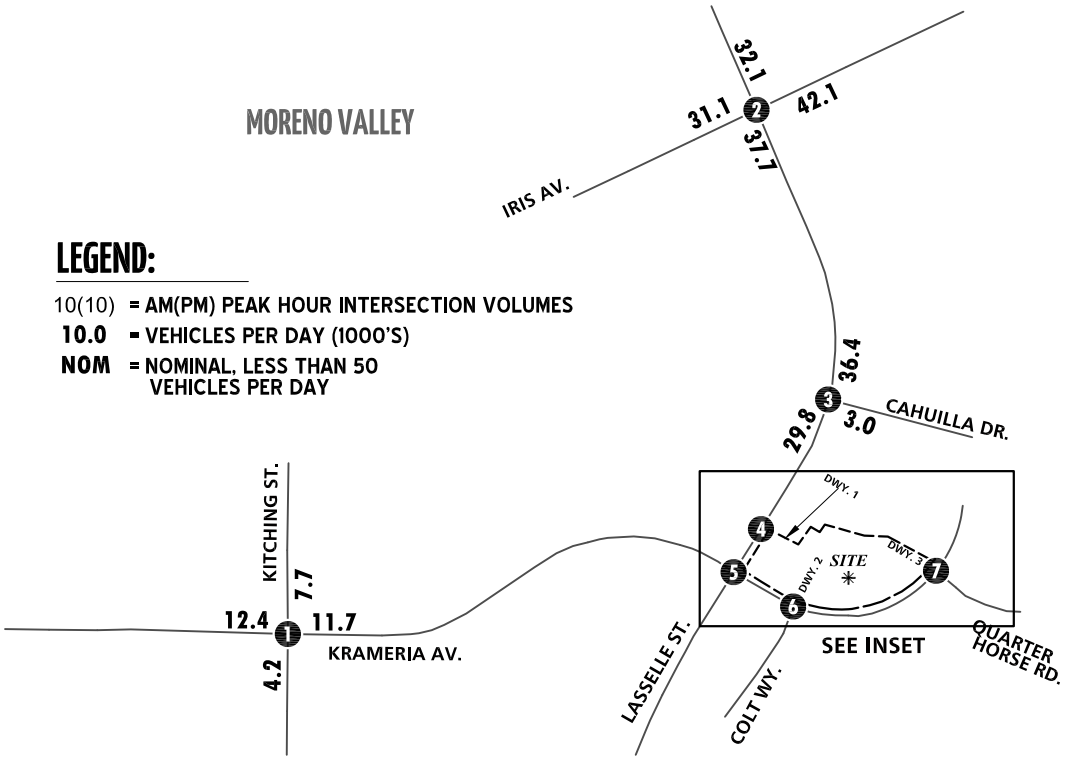
6.2 OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

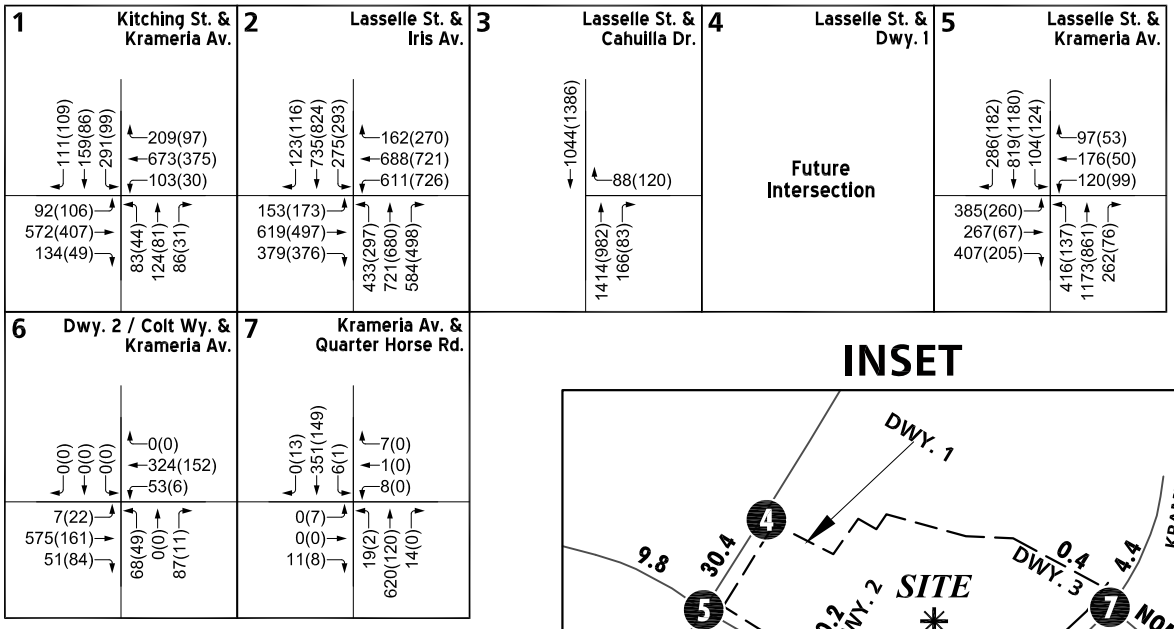
To account for background traffic, other known cumulative development projects in the study area were included in addition to 10.41% of ambient growth for Opening Year Cumulative traffic conditions. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2023) Without Project traffic conditions are shown on Exhibit 6-1.

6.3 OPENING YEAR CUMULATIVE (2023) WITH PROJECT TRAFFIC VOLUME FORECASTS

To account for background traffic, other known cumulative development projects in the study area were included in addition to 10.41% of ambient growth for Opening Year Cumulative traffic conditions in conjunction with traffic associated with the proposed Project. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2023) With Project traffic conditions are shown on Exhibit 6-2.

EXHIBIT 6-1: OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT TRAFFIC VOLUMES





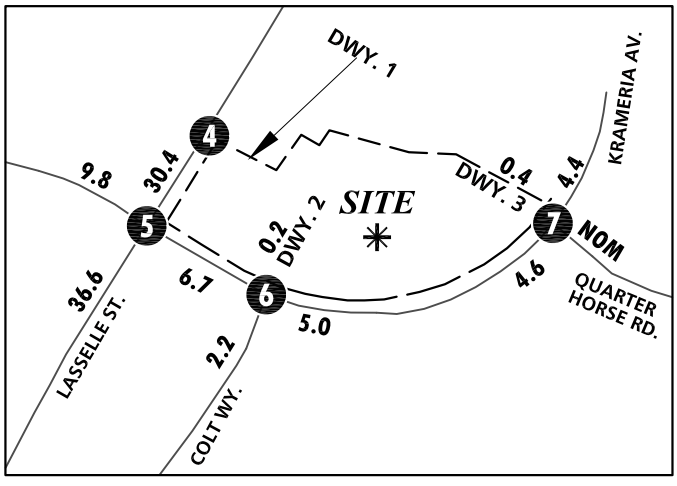
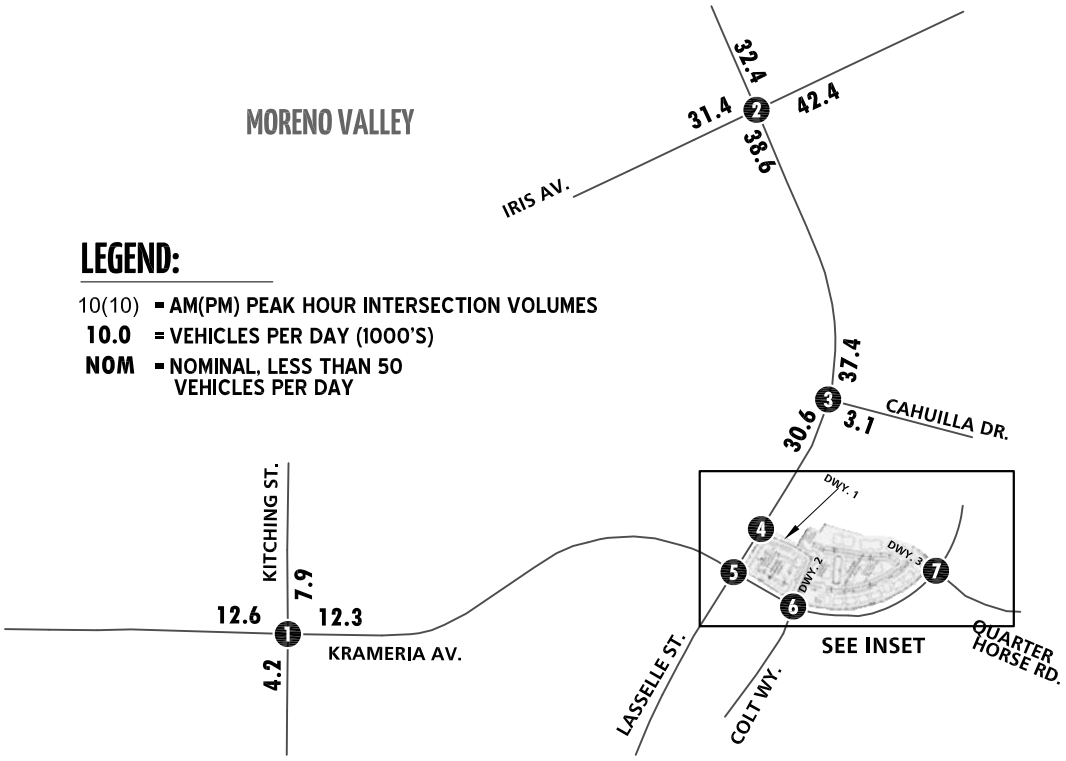
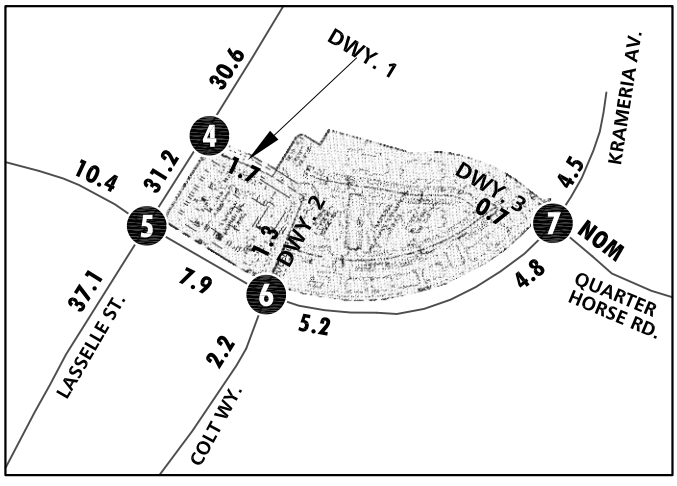


EXHIBIT 6-2: OPENING YEAR CUMULATIVE (2023) WITH PROJECT TRAFFIC VOLUMES



1 Kitching St. & Krameria Av.	**2** Lasselle St. & Iris Av.	**3** Lasselle St. & Cahuilla Dr.	**4** Lasselle St. & Dwy. 1	**5** Lasselle St. & Krameria Av.
111(109) 159(86) 307(108) → 220(106) ← 687(385) ← 106(33)	123(116) 752(837) 275(293) → 162(270) ← 688(721) ← 628(739)	1096(1427) ↓ 98(126)	0(0) 1121(1424) 0(0) → 46(59) ← 0(0) ← 0(0)	286(182) 819(1180) 156(165) → 97(53) ← 205(72) ← 144(117)
92(106) → 585(420) → 134(49) ↓ 83(44) 124(81) 91(33) ↑	153(173) → 619(497) → 396(389) ↓ 448(309) 736(692) 599(510) ↑	1451(1011) 166(83) ↑	0(0) → 0(0) → 0(0) ↓ 0(0) 1556(1033) 34(79) ↑	388(270) → 297(82) → 407(205) ↓ 416(137) 1197(883) 262(76) ↑
6 Dwy. 2 / Colt Wy. & Krameria Av.	**7** Krameria Av. & Quarter Horse Rd.			
47(37) 1(1) 4(3) → 3(1) ← 330(155) ← 53(6)	0(13) 352(149) 6(1) → 7(0) ← 1(0) ← 9(0)			
87(69) → 577(169) → 51(84) ↓ 68(49) 1(0) 87(11) ↑	8(12) → 0(0) → 17(11) ↓ 21(10) 622(122) 15(1) ↑			



6.4 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under Opening Year Cumulative conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. As shown in Table 6-1, the study area intersections are anticipated to operate at an acceptable LOS during the peak hours under Opening Year Cumulative (2023) Without Project traffic conditions, with the exception of the following study area intersections:

- Lasselle Street & Iris Avenue (#2) – LOS E AM and PM peak hours
- Lasselle Street & Krameria Avenue (#5) – LOS F AM peak hour only

The addition of Project traffic is not anticipated to result in any additional deficiencies at the study area intersections, in addition to the locations identified under Opening Year Cumulative (2023) Without Project traffic conditions. A summary of the peak hour intersection LOS for Opening Year Cumulative (2023) Without Project conditions are shown on Exhibit 6-3 and on Exhibit 6-4 for Opening Year Cumulative (2023) With Project traffic conditions. The intersection operations analysis worksheets for Opening Year Cumulative (2023) Without and With Project traffic conditions are included in Appendix 6.1 and Appendix 6.2 of this TIA, respectively. Measures to address near-term cumulative deficiencies for Opening Year Cumulative traffic conditions are discussed in Section 6.8 *Opening Year Cumulative Deficiencies and Recommended Improvements.*

The intersections of Lasselle Street at Krameria Avenue and Driveway 2/Colt Way at Krameria Avenue are anticipated to experience higher delays with the implementation of the road diet improvements along Krameria Avenue. If the road diet improvements are implemented, it is anticipated that there will be periods during the morning peak hour where the intersections along the affected roadway would likely experience higher/unacceptable delays.

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

There are no unsignalized study area intersections that are anticipated to meet either peak hour or planning level (ADT) volume-based traffic signal warrants for Opening Year Cumulative traffic conditions (see Appendix 6.3 and Appendix 6.4).

Table 6-1

Intersection Analysis for Opening Year Cumulative (2023) Conditions

#	Intersection	Traffic Control[2]	2023 Without Project				2023 With Project				Acceptable LOS
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service		
			AM	PM	AM	PM	AM	PM	AM	PM	
1	Kitching St. & Krameria Av.	TS	33.4	17.2	C	B	34.7	17.5	C	B	C
2	Lasselle St. & Iris Av.	TS	**58.4**	**56.0**	**E**	**E**	**62.2**	**57.5**	**E**	**E**	D
3	Lasselle St. & Cahuilla Dr.	CSS	21.1	14.3	C	B	22.7	14.8	C	B	C
4	Lasselle St. & Driveway 1	**CSS**	Future Intersection				19.6	14.5	C	B	C
5	Lasselle St. & Krameria Av.	TS	**88.1**	28.1	**F**	C	**96.7**	29.6	**F**	C	D
	With Road Diet Improvements		***136.6***	*50.1*	***F***	*D*	***143.0***	*53.4*	***F***	*D*	
6	Driveway 2/Colt Wy. & Krameria Av.	CSS	14.8	10.2	B	B	18.5	12.1	C	B	C
	With Road Diet Improvements		*18.8*	*10.8*	*C*	*B*	***32.0***	*11.9*	***D***	*B*	
7	Krameria Av. & Quarter Horse Rd.	CSS	21.4	10.0	C	B	21.9	10.3	C	B	C

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[2] AWS = All-way Stop; CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

EXHIBIT 6-3: OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT SUMMARY OF LOS

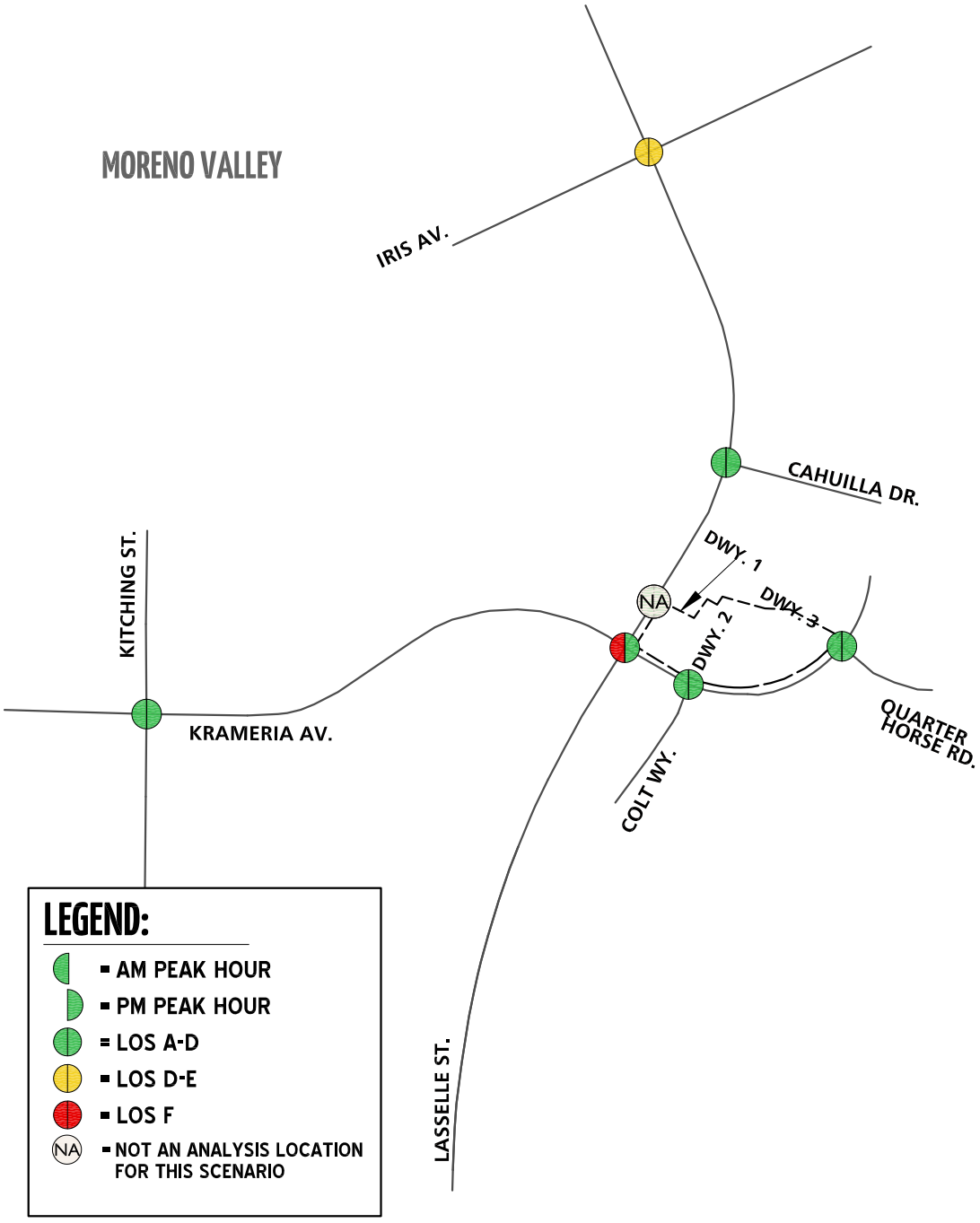
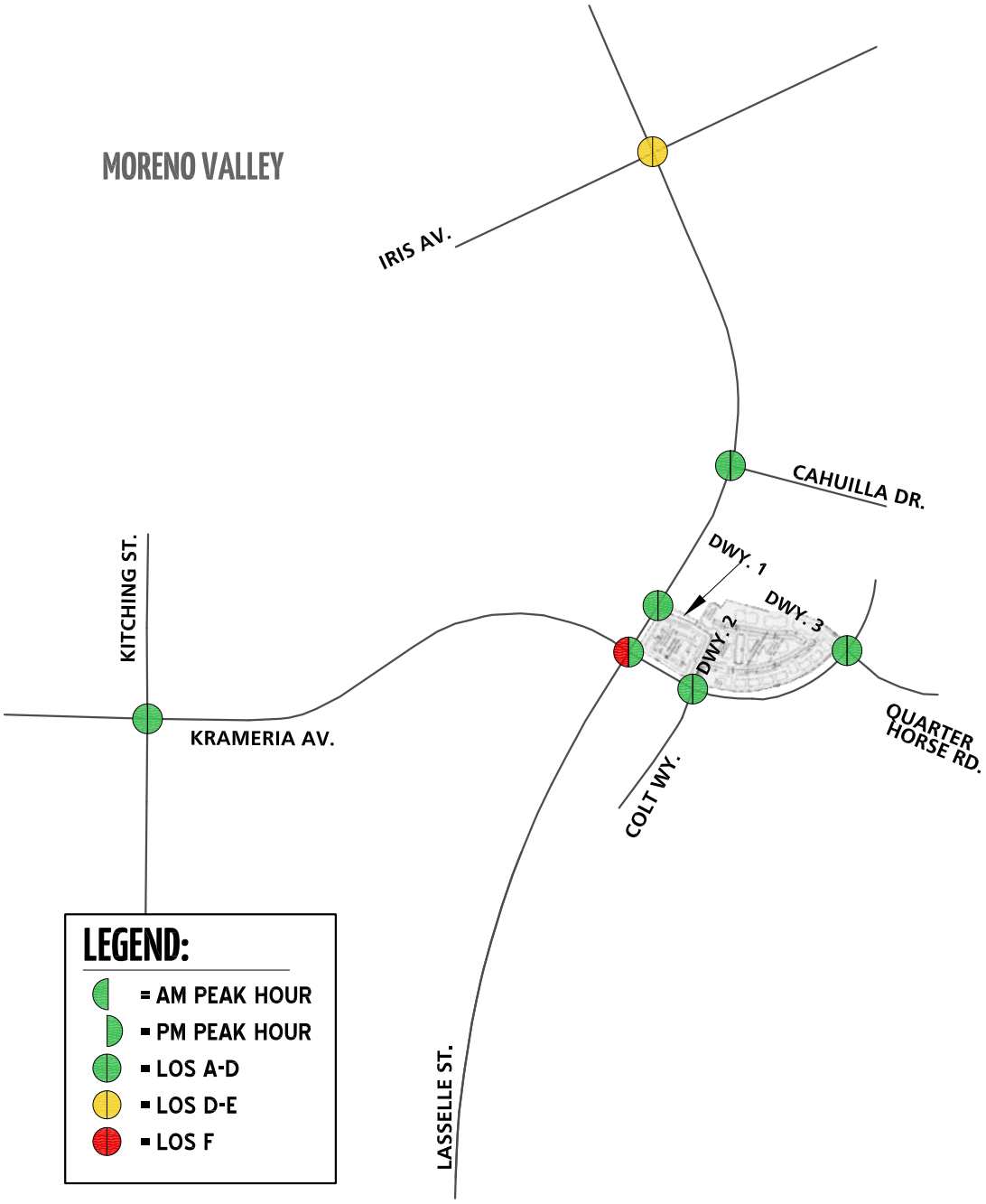


EXHIBIT 6-4: OPENING YEAR CUMULATIVE (2023) WITH PROJECT SUMMARY OF LOS



6.6 ROADWAY SEGMENT CAPACITY ANALYSIS

As noted previously, the City of Moreno Valley stated roadway segment capacities are approximate figures only, and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet future traffic demand.

Table 6-2 provides a summary of the Opening Year Cumulative (2023) conditions roadway segment capacity analysis based on the City of Moreno Valley Roadway Segment Capacity/LOS Thresholds identified previously in Table 2-4. As shown in Table 6-2, the study area roadway segment of Lasselle Street between Iris Avenue and Cahuilla Drive (#3) is anticipated to operate at an unacceptable LOS for Opening Year Cumulative (2023) Without Project traffic conditions. The addition of Project traffic is not anticipated to result in any additional roadway segment deficiencies from the location identified previously for Opening Year Cumulative (2023) Without Project traffic conditions.

6.7 QUEUING ANALYSIS

A queuing analysis was conducted at 5 study area intersections in close proximity to the Project in order to determine 95th percentile queues during the peak hours for Opening Year Cumulative (2023) traffic conditions. The queuing analysis results are summarized in Table 6-3 for Opening Year Cumulative (2023) traffic conditions which indicates the intersection of Lasselle Street and Krameria Avenue is anticipated to continue to experience queuing issues during the AM or PM peak hours for the northbound left turn pocket and northbound right turn pocket, consistent with Existing and E+P traffic conditions. In addition, the westbound left turn pocket is also anticipated to experience queues during the AM peak hour only for Opening Year Cumulative (2023) Without Project traffic conditions. With the addition of Project traffic, the southbound left turn pocket is anticipated to experience queuing issues during the AM peak hour only. Queuing worksheets for Opening Year Cumulative (2023) Without and With Project traffic conditions are included in Appendix 6.5 and Appendix 6.6, respectively.

6.8 OPENING YEAR CUMULATIVE DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

6.8.1 INTERSECTION IMPROVEMENTS

Improvements necessary to reduce project-related traffic impacts to less-than-significant are also discussed below. The effectiveness of the proposed recommended mitigation measures are presented in Table 6-4 for Opening Year Cumulative (2023) traffic conditions. With the implementation of the intersection improvements discussed below, there are no cumulatively considerable project-related impacts anticipated to the study area intersections (Project to contribute fair share).

Improvement – Lasselle Street & Iris Avenue (#2)

- Add an eastbound right turn lane and modify the traffic signal to implement overlap phasing on the right turn lane

Table 6-2

Roadway Segment Analysis for Opening Year Cumulative (2023) Conditions

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	2023 NP	V/C[2]	LOS[3]	2023 WP	V/C[2]	LOS[3]
1	Krameria Av.	Kitching St. to Lasselle St.	4D	37,500	11,715	0.31	A	12,291	0.33	A
2		Lasselle St. to Colt Wy.	2D	18,750	6,669	0.36	A	7,858	0.42	A
3	Lasselle St.	Iris Av. to Cahuilla Dr.	4D	37,500	**37,676**	**1.00**	**F**	**38,600**	**1.03**	**F**
4		Cahuilla Dr. to Driveway 1	4D	37,500	29,766	0.79	C	30,603	0.82	D
5		Driveway 1 to Krameria Av.	4D	37,500	30,400	0.81	D	31,219	0.83	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] These maximum roadway capacities have been obtained from the City of Moreno Valley's Transportation Division's TIA Preparation Guidelines (August 2007).

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

Table 6-3

Peak Hour Queuing Summary for Opening Year Cumulative (2023) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	2023 Without Project				2023 With Project			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
Lasselle St. & Cahuilla Dr.	NBR	135	0	4	Yes	Yes	4	6	Yes	Yes
Lasselle St. & Driveway 1	NBT/R	250	0	5	Yes	Yes	0	5	Yes	Yes
Lasselle St. & Krameria Av.	NBL	125	**150**	**172**	**No**	**No**	**150**	**175**	**No**	**No**
	NBR	180	**279**	77	**No**	Yes	**279**	111	**No**	Yes
	SBL	240	209	187	Yes	Yes	**266**	234	**No**	Yes
	EBL	310	227	240	Yes	Yes	225	225	Yes	Yes
	WBL	200	172	121	Yes	Yes	199	149	Yes	Yes
Driveway 2/Colt Wy. & Krameria Av.	EBL	100	12	16	Yes	Yes	39	28	Yes	Yes
	WBL	100	32	9	Yes	Yes	26	4	Yes	Yes
Krameria Av. & Driveway 3/Quarter Horse Rd.	NBL	50	22	6	Yes	Yes	23	9	Yes	Yes
	SBL	100	18	0	Yes	Yes	20	0	Yes	Yes
	SBR	415	0	0	Yes	Yes	47	0	Yes	Yes

BOLD = Inadequate 95th percentile storage.

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

Table 6-4

Intersection Analysis for Opening Year Cumulative (2023) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
2	Lasselle St. & Iris Av.																	
	- Without Improvements	TS	2	2	1>	2	2	d	2	3	0	2	3	0	**62.2**	**57.5**	**E**	**E**
	- With Improvements	TS	2	2	1>	2	2	d	2	3	**1>**	2	3	0	50.7	48.8	D	D
5	Lasselle St. & Krameria Av.																	
	- Without Improvements	TS	1	2	1>	1	2	0	2	2	0	1	2	0	**96.7**	29.6	**F**	C
	- With Improvements	TS	**2**	2	1>	1	2	0	2	**1**	**1>**	1	**1**	**1**	50.9	24.4	D	C

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; d = Defacto right turn lane; **1** = Improvement

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal; CSS = Cross-Street Stop

Improvement – Lasselle Street & Krameria Avenue (#5)

- Add a 2nd northbound left turn lane
- Restripe the eastbound approach with 2 lefts, 1 through, and 1 right turn lane
- Modify the traffic signal to implement overlap phasing on the eastbound right turn lane
- The road diet lanes on the westbound approach can remain

The intersection operations analysis worksheets for Opening Year Cumulative (2023) With Project traffic conditions, with improvements, are included in Appendix 6.7 of this TIA.

6.8.2 ROADWAY SEGMENT IMPROVEMENTS

As shown in Table 6-1, the Opening Year Cumulative (2023) peak hour analysis indicates that the adjacent study area intersections on either side of the deficient roadway segment along Lasselle Street is anticipated to operate at acceptable LOS. As such, roadway segment widening does not appear necessary to address the deficiency along the segment of Lasselle Street between Iris Avenue and Cahuilla Drive.

6.8.3 QUEUING IMPROVEMENTS

As previously shown in Table 6-3, there are 3 movements that experience queuing issues during the AM or PM peak hours for Opening Year Cumulative (2023) With Project traffic conditions. Consistent with Existing (2018) and E+P traffic conditions, a 180-foot northbound left turn lane and 280-foot northbound right turn lane are recommended in order to accommodate the 95th percentile peak hour queues for Opening Year Cumulative (2023) traffic conditions. Additionally, a 270-foot southbound left turn lane is recommended in order to accommodate the 95th percentile peak hour queues for Opening Year Cumulative (2023) traffic conditions.

The Project should contribute fair share towards the turn pocket improvements for the northbound left and right turn lanes and modifications to the existing landscaped median to accommodate a 270-foot southbound left turn lane at the intersection of Lasselle Street and Krameria Avenue. Recommended improvements to address queuing issues for Opening Year Cumulative (2023) traffic conditions are described below and shown in Table 6-5.

Table 6-5

Peak Hour Queuing Summary for Opening Year Cumulative (2023) Conditions With Improvements

Intersection	Movement	Available Stacking Distance (Feet)	2023 Without Project				2023 With Project			
			95th Percentile Queue (Feet)		Acceptable?[1]		95th Percentile Queue (Feet)		Acceptable?[1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
Lasselle St. & Cahuilla Dr.	NBR	135	0	4	Yes	Yes	4	6	Yes	Yes
Lasselle St. & Driveway 1	NBT/R	250	0	5	Yes	Yes	0	5	Yes	Yes
Lasselle St. & Krameria Av.	NBL	**180**	150	172	Yes	Yes	150	175	Yes	Yes
	NBR	**280**	279	77	Yes	Yes	279	111	Yes	Yes
	SBL	**270**	209	187	Yes	Yes	266	234	Yes	Yes
	EBL	310	227	240	Yes	Yes	225	225	Yes	Yes
	WBL	200	172	121	Yes	Yes	199	149	Yes	Yes
Driveway 2/Colt Wy. & Krameria Av.	EBL	100	12	16	Yes	Yes	39	28	Yes	Yes
	WBL	100	32	9	Yes	Yes	26	4	Yes	Yes
Krameria Av. & Driveway 3/Quarter Horse Rd.	NBL	50	22	6	Yes	Yes	23	9	Yes	Yes
	SBL	100	18	0	Yes	Yes	20	0	Yes	Yes
	SBR	415	0	0	Yes	Yes	47	0	Yes	Yes

BOLD = Inadequate 95th percentile storage.

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

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7 HORIZON YEAR (2040) TRAFFIC CONDITIONS

This section discusses the methods used to develop Horizon Year (2040) Without and With Project traffic forecasts, and the resulting intersection operations, queuing, and traffic signal warrant analyses.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Horizon Year conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Horizon Year conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Horizon Year conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways).

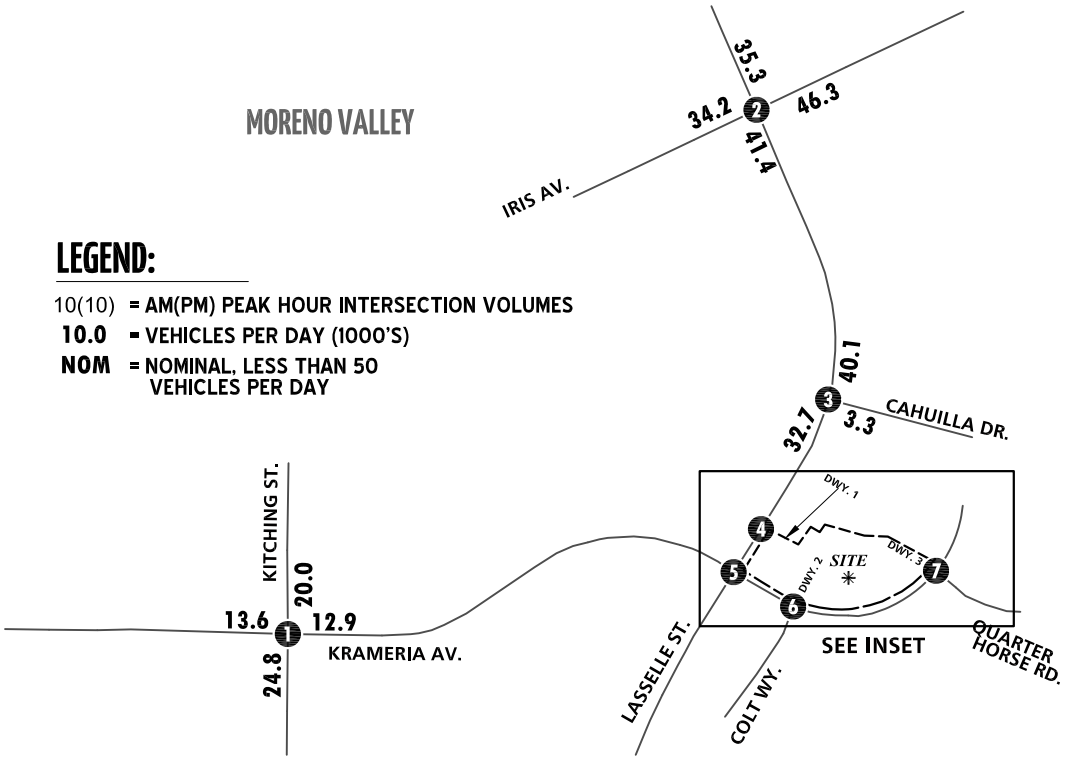
7.2 HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-processed volumes obtained from the RivTAM. For additional information on the development of the Horizon Year Without Project traffic forecasts, see Section 4.8 *Horizon Year (2040) Volume Development* of this TIA. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year Without Project traffic conditions are shown on Exhibit 7-1.

7.3 HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-processed volumes obtained from the RivTAM, plus Project traffic. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year With Project traffic conditions are shown on Exhibit 7-2.

EXHIBIT 7-1: HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUMES



1 Kitching St. & Krameria Av.	2 Lasselle St. & Iris Av.	3 Lasselle St. & Cahuilla Dr.	4 Lasselle St. & Dwy. 1	5 Lasselle St. & Krameria Av.
122(120) 600(441) 320(109) → 230(107) ← 740(413) ← 193(97)	156(146) 809(907) 303(322) → 178(298) ← 908(988) ← 672(799)	1149(1525) ↓ 97(132)	Future Intersection	315(200) 971(1298) 115(136) → 107(64) ← 193(55) ← 132(108)
102(116) → 630(448) → 254(268) → 264(222) 505(646) 270(126)	184(259) → 681(757) → 417(413) → 477(326) 793(748) 642(548)	1556(1080) 182(91)		424(286) → 294(74) → 447(225) → 457(150) 1290(1072) 288(84)

6 Dwy. 2 / Colt Wy. & Krameria Av.	7 Krameria Av. & Quarter Horse Rd.
0(0) 0(0) 0(0) → 0(0) ← 357(167) ← 58(6)	0(15) 386(164) 6(1) → 7(0) ← 1(0) ← 9(0)
8(24) → 633(177) → 56(92) → 75(53) 0(0) 96(12)	0(7) → 0(0) → 12(9) → 21(2) 683(132) 16(0)

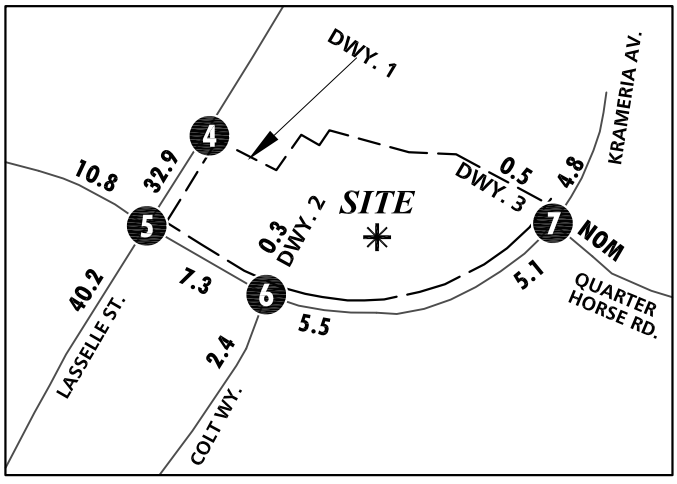
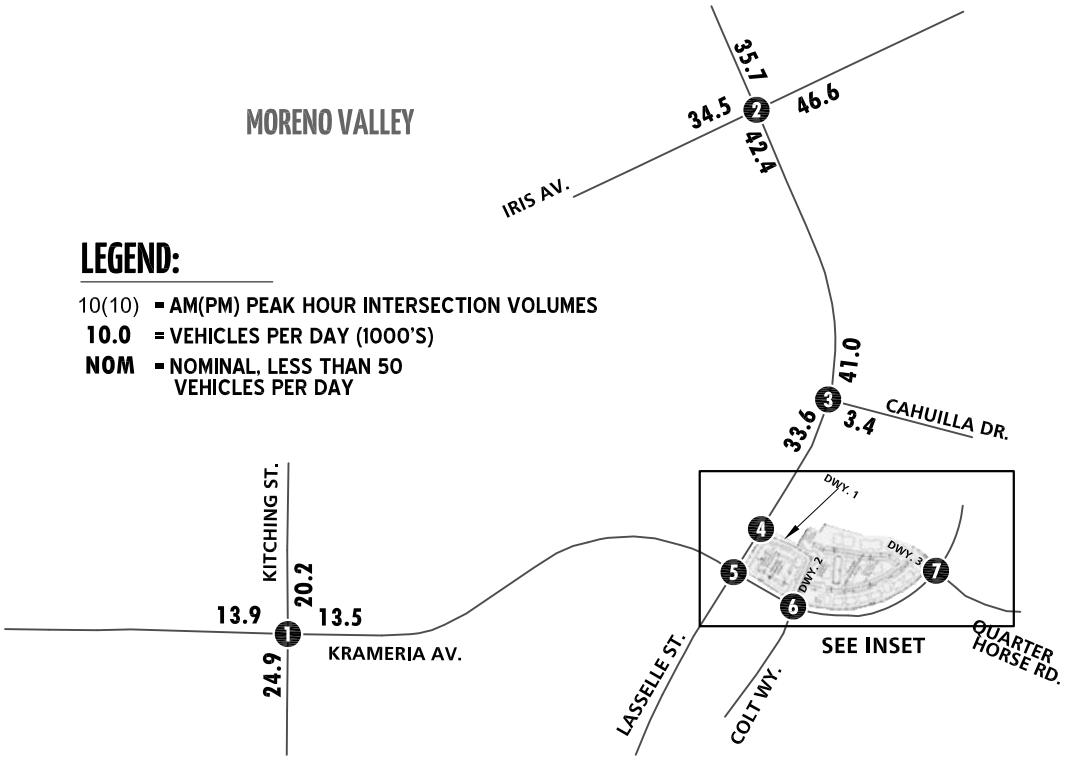


EXHIBIT 7-2: HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUMES



1 Kitching St. & Krameria Av.

122(120)	600(441)	336(118)
102(116)		241(116)
643(461)		754(423)
254(268)		196(100)
264(222)	505(646)	275(128)

2 Lasselle St. & Iris Av.

156(146)	826(920)	303(322)
184(259)		178(298)
681(757)		908(988)
434(426)		689(812)
492(338)	808(760)	657(560)

3 Lasselle St. & Cahuilla Dr.

1201(1566)	
	107(138)
1593(1109)	182(91)

4 Lasselle St. & Dwy. 1

0(0)	1452(1675)	0(0)
0(0)		37(54)
0(0)		0(0)
0(0)		0(0)
0(0)	1821(1397)	27(57)

5 Lasselle St. & Krameria Av.

315(200)	971(1298)	167(177)
427(296)		107(64)
324(89)		222(77)
447(225)		156(126)
457(150)	1314(1094)	288(84)

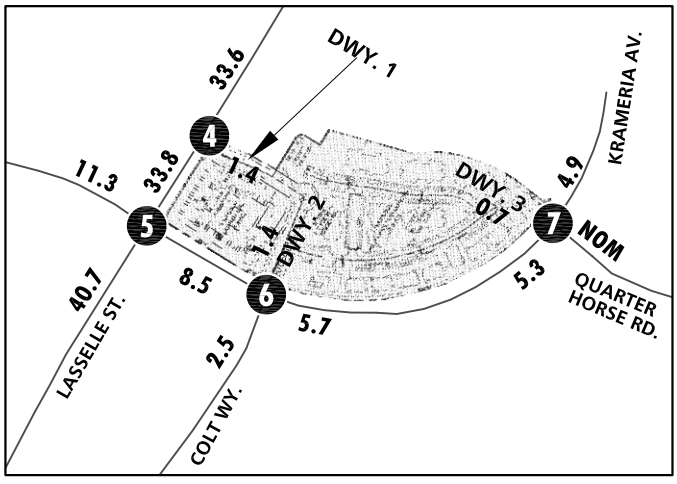
6 Dwy. 2 / Colt Wy. & Krameria Av.

47(37)	1(1)	4(3)
88(71)		3(1)
635(185)		363(170)
56(92)		58(6)
75(53)	1(0)	96(12)

7 Krameria Av. & Quarter Horse Rd.

0(15)	387(164)	6(1)
8(12)		7(0)
0(0)		1(0)
18(12)		10(0)
23(10)	685(134)	17(1)

INSET



7.4 INTERSECTION OPERATIONS ANALYSIS

7.4.1 HORIZON YEAR WITHOUT PROJECT TRAFFIC CONDITIONS

LOS calculations were conducted for the study intersections to evaluate their operations under Horizon Year Without Project conditions with roadway and intersection geometrics consistent with Section 7.1 *Roadway Improvements*. As shown in Table 7-1, the study area intersections are anticipated to operate at acceptable LOS for Horizon Year (2040) Without Project traffic conditions, with the exception of the following study area intersection:

- Kitching Street & Krameria Avenue (#1) – LOS D AM peak hour only
- Lasselle Street & Iris Avenue (#2) – LOS E AM and PM peak hours
- Lasselle Street & Krameria Avenue (#5) – LOS F AM peak hour only

A summary of the peak hour intersection LOS for Horizon Year Without Project conditions are shown on Exhibit 7-3. The intersection operations analysis worksheets for Horizon Year Without Project traffic conditions are included in Appendix 7.1.

7.4.2 HORIZON YEAR WITH PROJECT TRAFFIC CONDITIONS

As shown in Table 7-1 and illustrated on Exhibit 7-4, there are no additional study area intersections anticipated to experience unacceptable LOS (LOS E or worse) with the addition of Project traffic during one or more peak hours in addition to those previously identified under Horizon Year Without Project traffic conditions. The intersection operations analysis worksheets for Horizon Year With Project traffic conditions are included in Appendix 7.2 of this TIA.

The intersections of Lasselle Street at Krameria Avenue and Driveway 2/Colt Way at Krameria Avenue are anticipated to experience higher delays with the implementation of the road diet improvements along Krameria Avenue. If the road diet improvements are implemented, it is anticipated that there will be periods during the morning peak hour where the intersections along the affected roadway would likely experience higher/unacceptable delays.

7.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

There are no unsignalized study area intersections that are anticipated to meet either peak hour or planning level (ADT) volume-based traffic signal warrants for Horizon Year (2040) Without and With Project traffic conditions (see Appendix 7.3 and Appendix 7.4).

Table 7-1

Intersection Analysis for Horizon Year (2040) Conditions

#	Intersection	Traffic Control[2]	2040 Without Project				2040 With Project				Acceptable LOS
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service		
			AM	PM	AM	PM	AM	PM	AM	PM	
1	Kitching St. & Krameria Av.	TS	**48.7**	24.7	**D**	C	**54.9**	26.4	**D**	C	C
2	Lasselle St. & Iris Av.	TS	**74.5**	**70.9**	**E**	**E**	**78.8**	**73.5**	**E**	**E**	D
3	Lasselle St. & Cahuilla Dr.	CSS	23.4	15.7	C	C	24.7	16.3	C	C	C
4	Lasselle St. & Driveway 1	**CSS**	Future Intersection				23.0	18.1	C	C	C
5	Lasselle St. & Krameria Av.	TS	**113.7**	32.6	**F**	C	**116.4**	33.4	**F**	C	D
	With Road Diet Improvements		***187.8***	***61.9***	***F***	***E***	***195.2***	***68.2***	***F***	***E***	
6	Driveway 2/Colt Wy. & Krameria Av.	CSS	16.6	10.4	C	B	24.7	19.9	C	C	C
	With Road Diet Improvements		*22.7*	*11.0*	*C*	*B*	***47.1***	*12.3*	***E***	*B*	
7	Krameria Av. & Quarter Horse Rd.	CSS	24.2	10.1	C	B	24.9	10.4	C	B	C

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[2] AWS = All-way Stop; CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

EXHIBIT 7-3: HORIZON YEAR (2040) WITHOUT PROJECT SUMMARY OF LOS

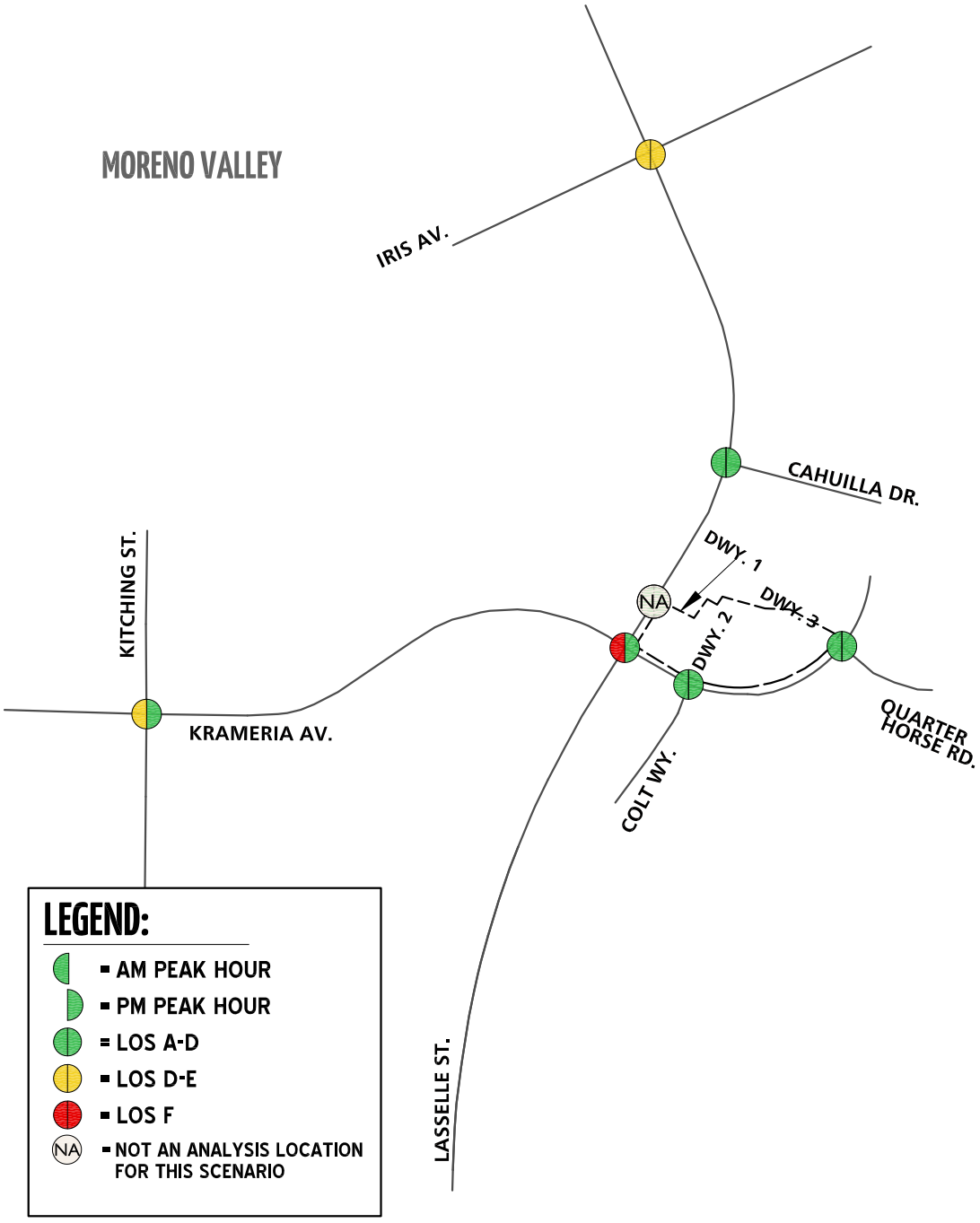
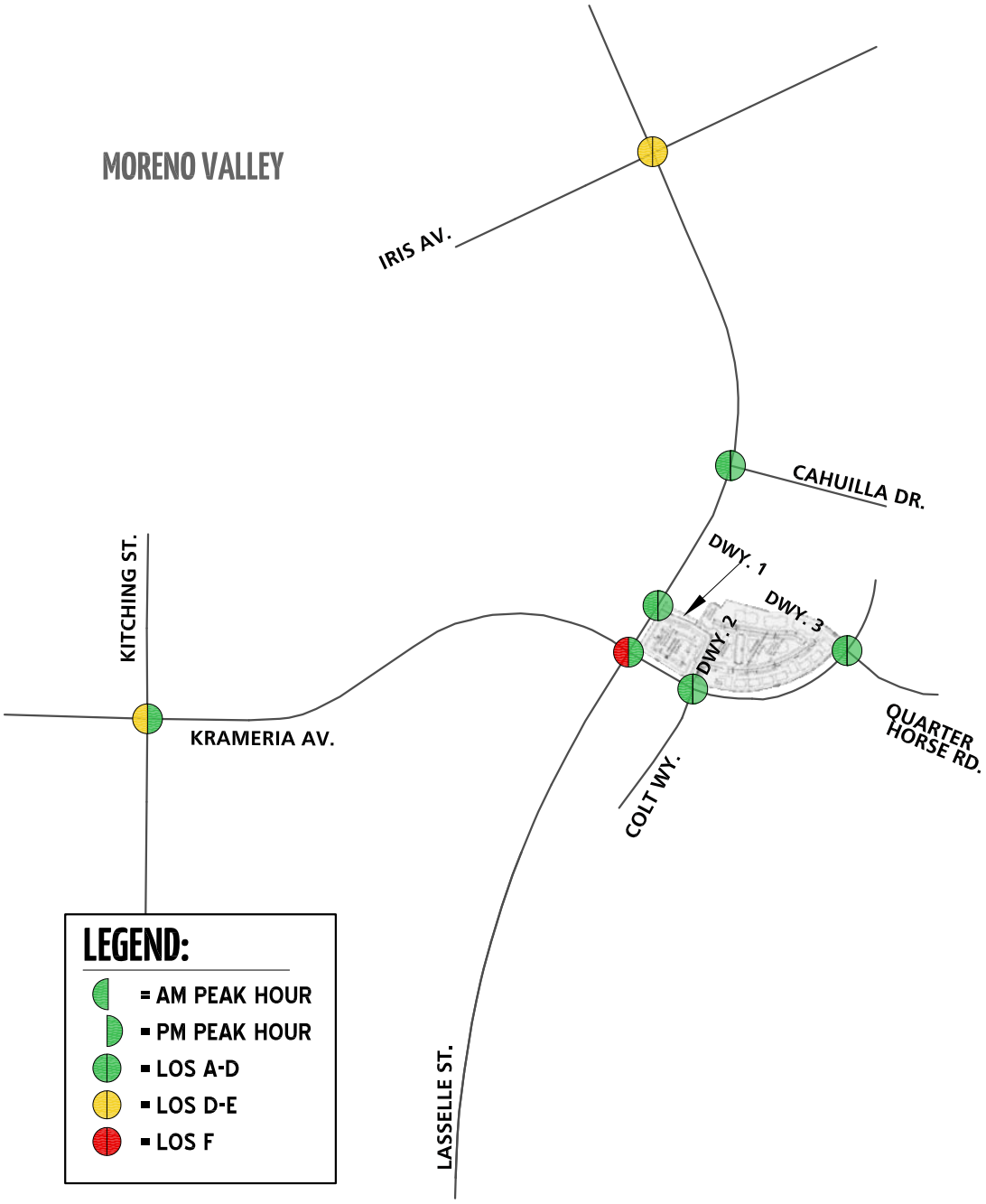


EXHIBIT 7-4: HORIZON YEAR (2040) WITH PROJECT SUMMARY OF LOS



7.6 ROADWAY SEGMENT CAPACITY ANALYSIS

As noted previously, the City of Moreno Valley stated roadway segment capacities are approximate figures only, and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet future traffic demand.

Table 7-2 provides a summary of the Horizon Year (2040) conditions roadway segment capacity analysis based on the City of Moreno Valley Roadway Segment Capacity/LOS Thresholds identified previously in Table 2-4. As shown in Table 7-2, the study area roadway segment of Lasselle Street between Iris Avenue and Cahuilla Drive (#3) is anticipated to operate at an unacceptable LOS for Horizon Year (2040) Without Project traffic conditions. The addition of Project traffic is not anticipated to result in any additional roadway segment deficiencies in addition to the location identified previously for Horizon Year (2040) Without Project traffic conditions.

7.7 QUEUING ANALYSIS

A queuing analysis was conducted at 5 study area intersections in close proximity to the Project in order to determine 95th percentile queues during the peak hours for Horizon Year (2040) traffic conditions. The queuing analysis results are summarized in Table 7-3 for Horizon Year (2040) traffic conditions which indicates the intersection of Lasselle Street and Krameria Avenue is anticipated to continue to experience queuing issues during the AM or PM peak hours for the northbound left turn pocket, northbound right turn pocket, southbound left turn pocket, and westbound left turn pocket for Horizon Year (2040) Without Project traffic conditions. There are no additional turn pockets anticipated to experience peak hour queues with the addition of Project traffic for Horizon Year (2040) With Project traffic conditions. Queuing worksheets for Horizon Year (2040) Without and With Project traffic conditions are included in Appendix 7.5 and Appendix 7.6, respectively.

Table 7-2

Roadway Segment Analysis for Horizon Year (2040) Conditions

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	2040 NP	V/C[2]	LOS[3]	2040 WP	V/C[2]	LOS[3]
1	Krameria Av.	Kitching St. to Lasselle St.	4D	37,500	12,887	0.34	A	13,463	0.36	A
2		Lasselle St. to Colt Wy.	2D	18,750	7,336	0.39	A	8,525	0.45	A
3	Lasselle St.	Iris Av. to Cahuilla Dr.	4D	37,500	**41,444**	**1.11**	**F**	**42,368**	**1.13**	**F**
4		Cahuilla Dr. to Driveway 1	4D	37,500	32,743	0.87	D	33,580	0.90	D
5		Driveway 1 to Krameria Av.	4D	37,500	32,940	0.88	D	33,759	0.90	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] These maximum roadway capacities have been obtained from the City of Moreno Valley's Transportation Division's TIA Preparation Guidelines (August 2007).

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

Table 7-3

Peak Hour Queuing Summary for Horizon Year (2040) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	2040 Without Project				2040 With Project			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
Lasselle St. & Cahuilla Dr.	NBR	135	0	4	Yes	Yes	8	0	Yes	Yes
Lasselle St. & Driveway 1	NBT/R	250	0	0	Yes	Yes	9	7	Yes	Yes
Lasselle St. & Krameria Av.	NBL	125	**150**	**182**	**No**	**No**	**150**	**178**	**No**	**No**
	NBR	180	**277**	143	**No**	Yes	**283**	151	**No**	Yes
	SBL	240	**264**	222	**No**	Yes	**273**	239	**No**	Yes
	EBL	310	226	224	Yes	Yes	225	224	Yes	Yes
	WBL	200	**215**	132	**No**	Yes	**218**	148	**No**	Yes
Driveway 2/Colt Wy. & Krameria Av.	EBL	100	34	20	Yes	Yes	37	30	Yes	Yes
	WBL	100	29	7	Yes	Yes	24	9	Yes	Yes
Krameria Av. & Driveway 3/Quarter Horse Rd.	NBL	50	28	4	Yes	Yes	32	12	Yes	Yes
	SBL	100	20	0	Yes	Yes	20	0	Yes	Yes
	SBR	415	0	0	Yes	Yes	45	0	Yes	Yes

BOLD = Inadequate 95th percentile storage.

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

7.8 HORIZON YEAR DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

7.8.1 INTERSECTION IMPROVEMENTS

Improvements necessary to reduce project-related traffic impacts to less-than-significant are also discussed below. The effectiveness of the proposed recommended mitigation measures are presented in Table 7-4 for Horizon Year (2040) traffic conditions. With the implementation of the intersection improvements discussed below, there are no cumulatively considerable project-related impacts anticipated to the study area intersections (Project to contribute fair share).

Improvement – Kitching Street & Krameria Avenue (#1)

- Add an eastbound right turn lane
- Modify the traffic signal to implement overlap phasing on the eastbound right turn lane

Improvement – Lasselle Street & Iris Avenue (#2)

- Add an eastbound right turn lane and modify the traffic signal to implement overlap phasing on the right turn lane

Improvement – Lasselle Street & Krameria Avenue (#6)

- Add a 2nd northbound left turn lane
- Add an eastbound right turn lane and modify the traffic signal to implement overlap phasing on the eastbound right turn lane
- The road diet lanes on the westbound approach can remain

The intersection operations analysis worksheets for Horizon Year (2040) With Project traffic conditions, with improvements, are included in Appendix 7.7 of this TIA.

7.8.2 ROADWAY SEGMENT IMPROVEMENTS

As shown in Table 7-1 and with the improvements shown in Table 7-4, the Horizon Year (2040) peak hour analysis indicates that the adjacent study area intersections on either side of the deficient roadway segments are anticipated to operate at acceptable LOS. As such, roadway segment widening does not appear necessary to address the deficiencies.

Table 7-4

Intersection Analysis for Horizon Year (2040) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Kitching St. & Krameria Av.																	
	- Without Improvements	TS	1	2	0	1	2	0	1	2	0	1	2	0	**54.9**	26.4	**D**	C
	- With Improvements	TS	1	2	0	1	2	0	1	2	**1>**	1	2	0	34.9	20.0	C	B
2	Lasselle St. & Iris Av.																	
	- Without Improvements	TS	2	2	1>	2	2	d	2	3	0	2	3	0	**78.8**	**73.5**	**E**	**E**
	- With Improvements	TS	2	2	1>	2	2	d	2	3	**1>**	2	3	0	54.9	54.8	D	D
5	Lasselle St. & Krameria Av.																	
	- Without Improvements	TS	1	2	1>	1	2	0	2	2	0	1	2	0	**116.4**	33.4	**F**	C
	- With Improvements	TS	**2**	2	1>	1	2	0	2	2	**1>**	1	**1**	**1**	54.2	30.7	D	C

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; d = Defacto right turn lane; **1** = Improvement

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal

7.8.3 QUEUING IMPROVEMENTS

As previously shown in Table 7-3, there are movements that experience queuing issues during the AM or PM peak hours for Horizon Year (2040) With Project traffic conditions. Consistent with Existing (2018), E+P, and Opening Year Cumulative (2023) traffic conditions, a 180-foot northbound left turn lane and 280-foot northbound right turn lane are recommended in order to accommodate the 95th percentile peak hour queues for Horizon Year (2040) traffic conditions. Consistent with Opening Year Cumulative (2023) traffic conditions, a 270-foot southbound left turn lane is recommended in order to accommodate the 95th percentile peak hour queues for Horizon Year (2040) traffic conditions.

The Project should contribute fair share towards the turn pocket improvements for the northbound left and right turn lanes and modifications to the existing landscaped median to accommodate a 270-foot southbound left turn lane at the intersection of Lasselle Street and Krameria Avenue. Although there is an anticipated queue that exceeds the storage length for the westbound left turn lane at Lasselle Street and Krameria Avenue, additional improvements have not been recommended as the existing striped two-way-left-turn lane could accommodate up to an additional vehicle (25-feet) without spilling back to the upstream intersection of Colt Way. Recommended improvements to address queuing issues for Horizon Year (2040) traffic conditions are described below and shown in Table 7-5.

Table 7-5

Peak Hour Queuing Summary for Horizon Year (2040) Conditions With Improvements

Intersection	Movement	Available Stacking Distance (Feet)	2040 Without Project				2040 With Project			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
Lasselle St. & Cahuilla Dr.	NBR	135	0	4	Yes	Yes	8	0	Yes	Yes
Lasselle St. & Driveway 1	NBT/R	250	0	0	Yes	Yes	9	7	Yes	Yes
Lasselle St. & Krameria Av.	NBL	**180**	150	182 [2]	Yes	Yes	150	178	Yes	Yes
	NBR	**280**	277	143	Yes	Yes	283 [2]	151	Yes	Yes
	SBL	**270**	264	222	Yes	Yes	273 [2]	239	Yes	Yes
	EBL	310	226	224	Yes	Yes	225	224	Yes	Yes
	WBL	200	**215**	132	**No**	Yes	**218**	148	**No**	Yes
Driveway 2/Colt Wy. & Krameria Av.	EBL	100	34	20	Yes	Yes	37	30	Yes	Yes
	WBL	100	29	7	Yes	Yes	24	9	Yes	Yes
Krameria Av. & Driveway 3/Quarter Horse Rd.	NBL	50	28	4	Yes	Yes	32	12	Yes	Yes
	SBL	100	20	0	Yes	Yes	20	0	Yes	Yes
	SBR	415	0	0	Yes	Yes	45	0	Yes	Yes

BOLD = Inadequate 95th percentile storage.

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pocke is reflected in the stacking distance shown on this table, where applicable.

8 REFERENCES

1. **City of Moreno Valley Transportation Engineering Division.** *Traffic Impact Analysis Preparation Guide.* Moreno Valley : s.n., August 2007.

2. **Institute of Transportation Engineers.** *Trip Generation Manual.* 10th Edition. 2017.

3. **City of Moreno Valley.** *City of Moreno Valley General Plan.* Moreno Valley : s.n., July 11, 2006.

4. **Riverside County Transportation Commission.** *2011 Riverside County Congestion Management Program.* County of Riverside : RCTC, December 14, 2011.

5. **Transportation Research Board.** *Highway Capacity Manual (HCM).* s.l. : National Academy of Sciences, 2016.

6. **California Department of Transportation.** Manual on Uniform Traffic Control Devices (MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CAMUTCD).* 2014.

7. **Institute of Transportation Engineers.** *Trip Generation Handbook.* 3rd Edition. September 2017.

8. **Southern California Association of Governments.** *2016 Regional Transportation Plan/Sustainable Communities Strategy.* April 2016.

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APPENDIX 1.1:

APPROVED TRAFFIC STUDY SCOPING AGREEMENT

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URBAN CROSSROADS

260 E. Baker St. | Suite 200 | Costa Mesa, CA 92626 | (949) 660-1994
urbanxroads.com

Date: October 11, 2018

This letter acknowledges the City of Moreno Valley Transportation Engineering Division requirements for the traffic impact analysis of the following project:

Case No.	PEN18-0056, PEN18-0090, PEN18-0107
Project Name:	Continental Villages
Project Address:	Northeast corner of Evans Road/Lasselle Street and Krameria Avenue
Project Description:	112 apartments/duplexes and 21,000 square feet of retail use
Related Cases:	

	Consultant	Developer Representative
Name:	URBAN CROSSROADS, INC. Attn: Charlene So	Continental East Development Attn: Andrew Spousta
Address:	260 E. Baker Street, Suite 200 Costa Mesa, CA 92626	25467 Medical Center Drive Murrieta, CA 92563
Telephone:	949-336-5982	951-600-8600

I. Background

The proposed Continental Villages development (referred to as "Project") is located on the northeast corner of Lasselle Street and Krameria Avenue in the City of Moreno Valley. The Project is proposed to consist of 112 apartments/duplexes and 21,000 square feet of retail use.

The Project is anticipated to be built in a single phase and the opening year of 2023 will be evaluated for the purposes of this analysis (minimum five-year opening year per Moreno Valley traffic study guidelines). See preliminary site plan on **Exhibit 1**. **Exhibit 2** illustrates the study area and proposed intersection and roadway segment analyses locations.

II. Trip Geographic Distribution and Assignment

The project trip distribution patterns (shown on **Exhibits 3 and 4**) were developed based on an understanding of existing travel patterns in the area, the geographical location of the site, and the site's proximity to the local arterial and regional state highway system.

III. Site Trip Generation Forecast

A. Source for trip generation rates: Institute of Transportation Engineers (ITE) Trip Generation Manual 10th Edition (2017) for ITE Land Use Codes 220 for Multifamily Housing (Low-Rise) and 820 for Shopping Center (based on the ITE Land Use Code 820 regression equation).

B. Weekday AM Peak: 7:00-9:00 AM

C. Weekday PM Peak: 4:00-6:00 PM

D. Intersection and link acceptable Level of Service D for some intersections and links and Level of Service C for others based upon the current City policy. (Use Highway Capacity Manual (6th Edition) operations procedures; parameters per County of Riverside Traffic Impact Analysis Guidelines)

Proposed Use Rates [1] (See attached **Table 1**)

Multifamily Housing (Low-Rise) (per DU)	Daily:	7.32	AM:	0.46	PM:	0.56
Shopping Center (per TSF)	Daily:	99.06	AM:	7.73	PM:	8.15

Internal Trip Allowance:	Yes: X	No:	Percentage:	10% (PM/Daily only)
Pass-by Trip Allowance:	Yes: X	No:	Percentage:	34%[2] (PM and Daily only)

(1) Institute of Transportation Engineers Trip Generation Manual (10th Edition, 2017).
(2) Institute of Transportation Engineers Trip Generation Handbook (3rd Edition 2017).

A. As shown in **Table 1**, the proposed Project is anticipated to generate a net total of 2,056 trip-ends per day with 215 AM peak hour trips and 167 PM peak hour trips. A maximum 10% reduction has been used to account for internal capture for the PM peak hour and Daily trips.

IV. Specific Project Issues to be Analyzed

A. The traffic study will address the adequacy of site access and identify specific near-term circulation improvements required at study area intersections and roadways to maintain acceptable peak hour and daily levels of service (LOS).
B. The traffic study shall address the project traffic impacts at all study intersections listed in Section VI and provide appropriate recommended improvements if applicable. Peak-hour traffic signal warrants shall be evaluated for all intersections that are not currently signalized.
C. Qualitative assessment of existing and planned non-motorized facilities (e.g., pedestrians, bike routes, trails, etc.) within the study area.

D. The traffic study shall provide a detail analysis of each driveway location based on Table 9.11.080-14 of the City of Moreno Valley Municipal Code - Design Guidelines, by preparing a table or an exhibit to show the required minimum spacing distance between the Project driveways and whether each proposed driveway location can meet the minimum distance.

E. The traffic study will include fair share calculations for any study area intersection that is required to contribute to future improvements.

F. The traffic study shall provide a Queuing Analysis section to determine the 95th percentile queues for turning movements (left-turn, right-turn, and/or U-turn) based on forecasted E+P, Opening Year Cumulative (2023) With Project, and Horizon Year (2040) With Project traffic volumes using the Synchro Version 10 software:

1. Lasselle St. & Krameria Av. (all directions)
2. Driveway 2/Colt Wy. & Krameria Av. (all directions)
3. Lasselle St. & Driveway 1 (NB right only)
4. Driveway 3/Quarter Horse Rd. & Krameria Av. (all directions)
5. Lasselle St. & Cahuilla Dr. (NB right only)

If there is not sufficient queuing storage length available, the traffic study shall recommend improvements to resolve such issue.

V. Study Horizon Year

A. Existing (2018)
B. Existing (2018) Plus Project
C. Opening Year Cumulative (2023) Without Project (existing to opening year-2023, assuming a growth rate of 2% per year and includes the traffic from other cumulative development projects in the vicinity)
D. Opening Year Cumulative (2023) With Project
E. Horizon Year (2040) Without Project
F. Horizon Year (2040) With Project

VI. Facilities to be Studied

A. Analysis Locations: (See **Exhibit 2**)

1. Kitching Street & Krameria Avenue
2. Lasselle Street & Iris Avenue
3. Lasselle Street & Cahuilla Drive
4. Lasselle Street & Driveway 1 – Future Intersection
5. Lasselle Street & Krameria Avenue
6. Driveway 2/Colt Way & Krameria Avenue
7. Krameria Avenue & Driveway 3/Quarter Horse Road

B. Roadway Segments:

1. Krameria Avenue between Kitching Street and Lasselle Street
2. Lasselle Street between Iris Avenue and Cahuilla Drive
3. Lasselle Street between Cahuilla Drive and Driveway 1
4. Lasselle Street between Driveway 1 and Krameria Avenue
5. Krameria Avenue between Lasselle Street and Colt Way

VII. Other Items

A. There is a list of cumulative projects provided in **Table 2** (also shown graphically on **Exhibit 5**) and is consistent with the cumulative lists on other recent projects.
B. **Exhibit 6** shows the distribution for the apartment complex Parcel 1 (cumulative project) north of the Project site. This distribution is consistent with the Project residential trip distribution previously shown on **Exhibit 3**.

VIII. Deliverables

a. Draft traffic impact studies (2 hard copies plus PDF on a CD or USB drive)
b. Final traffic impact studies (4 hard copies plus PDF on a CD or USB drive)

All draft and final traffic impact studies shall be delivered with the appropriate review fee to the Permit Technician, Land Development Division - Moreno Valley City Hall, 14177 Frederick Street, Moreno Valley, CA 92552. Please contact the Land Development Division at 951-413-3110 prior to the delivery of the traffic study.

A review fee of $3,118 will be required upon submittal of the traffic study. **A signed copy of this *Scoping Agreement* must be included in the submitted draft and final traffic impact studies.** If you have any questions regarding this *Scoping Agreement*, please contact Eric Lewis at 951-413-3140.

If you have any questions regarding this *Scoping Agreement*, please contact Eric Lewis at 951-413-3140.

Recommended By:

Charlene So

Charlene So, PE
Senior Associate
Urban Crossroads, Inc.

Approved By:

Eric Lewis, City of Moreno Valley

* NOTE: This scoping agreement was reviewed and approved based on the information submitted by Urban Crossroads, Inc. on 10/11/2018. Urban Crossroads and the Project Applicant acknowledge that any changes to the Project (zoning, size, type of use, number or location of access points, etc.) after 10/11/2018 may require this scoping agreement to be revised and resubmitted for review and approval by the City of Moreno Valley.

Attachments

EXHIBIT 1: PRELIMINARY SITE PLAN

EXHIBIT 2: LOCATION MAP

LEGEND:

- 0 = EXISTING INTERSECTION ANALYSIS LOCATION
- (0) = FUTURE INTERSECTION ANALYSIS LOCATION
- [00] = ROADWAY SEGMENT ANALYSIS LOCATION

N

EXHIBIT 3: PROJECT (RESIDENTIAL) TRIP DISTRIBUTION

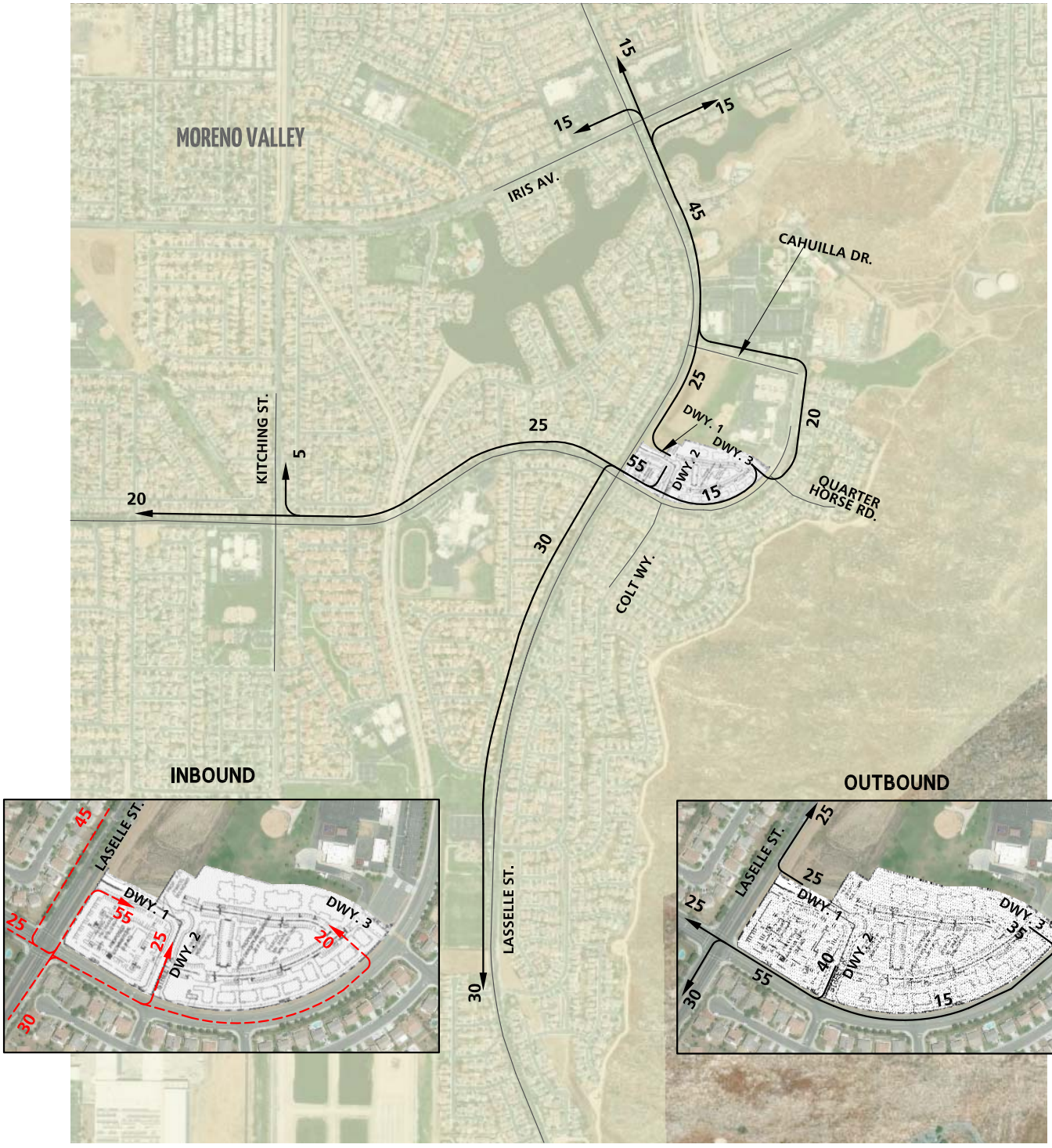

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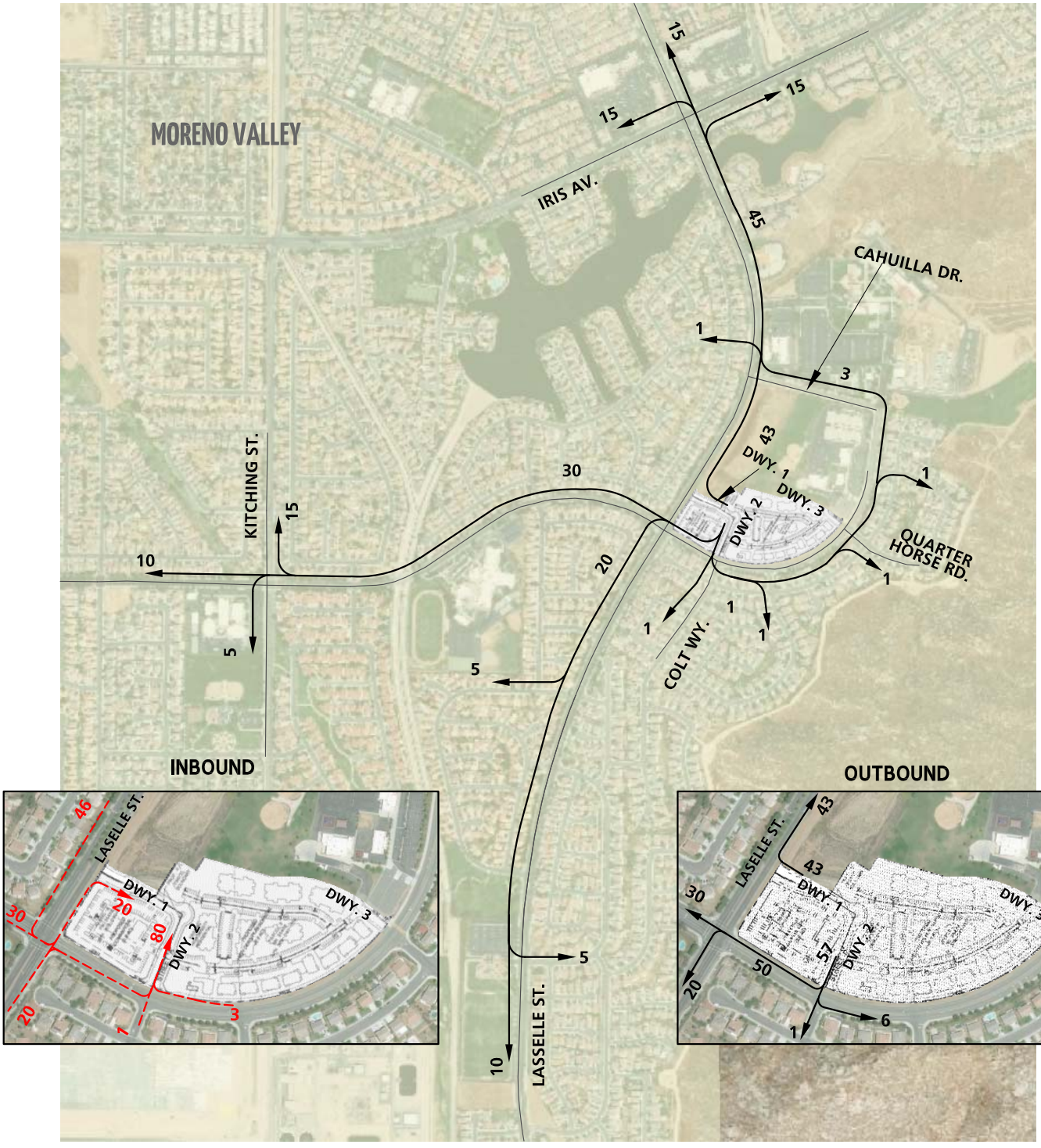
EXHIBIT 4: PROJECT (RETAIL) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

= OUTBOUND

= INBOUND

N

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EXHIBIT 5: CUMULATIVE DEVELOPMENT LOCATION MAP

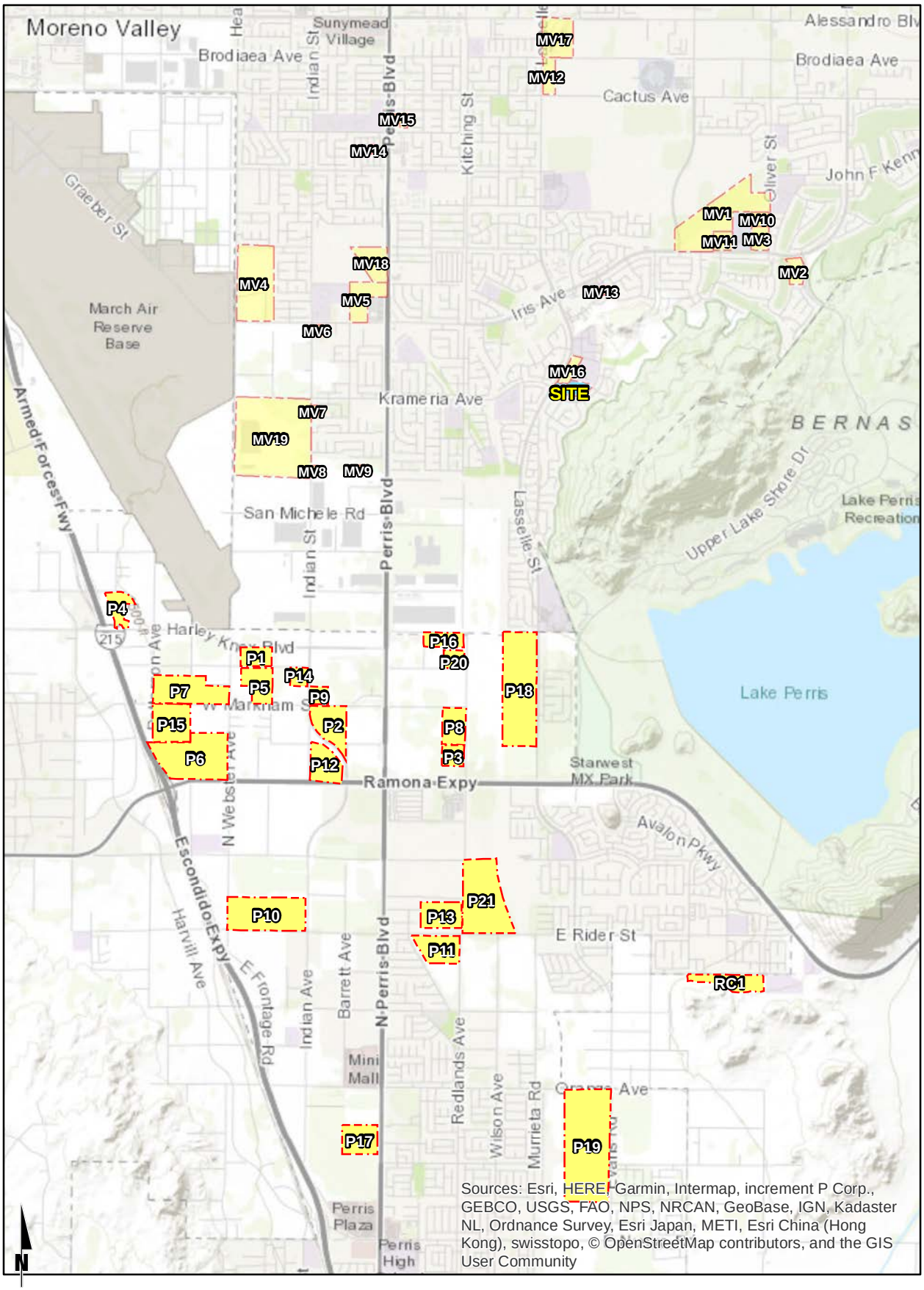

EXHIBIT 6: PARCEL 1 TRIP DISTRIBUTION

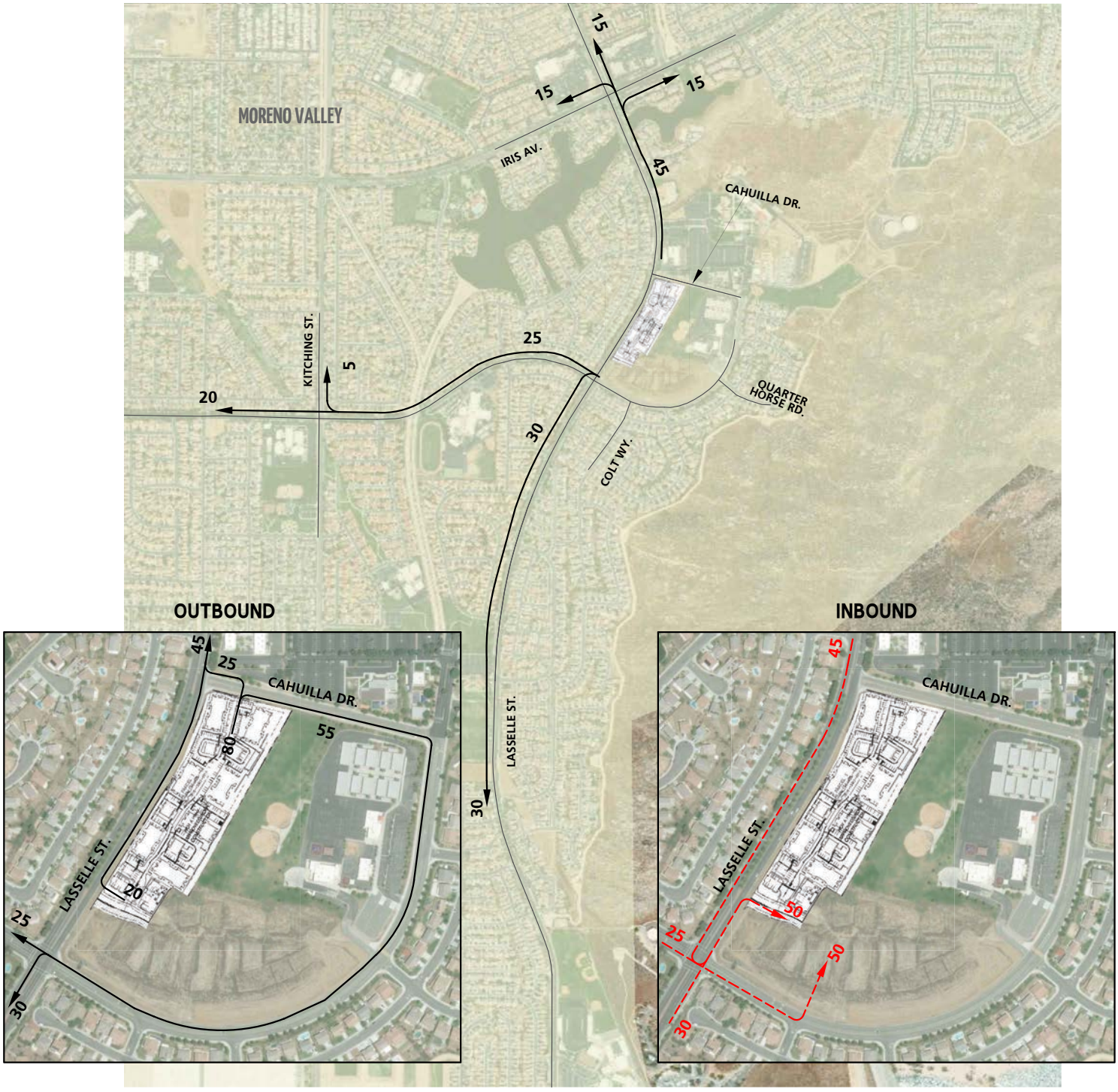

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Table 1

Proposed Project Trip Generation Summary

Land Use	Units	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Trip Generation Rates [1]									
Multifamily Housing (Low-Rise)	DU	220	0.11	0.35	0.46	0.35	0.21	0.56	7.32
Shopping Center[3]	TSF	820	4.79	2.94	7.73	3.91	4.24	8.15	99.06

Land Use	Quantity	Units	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Proposed Project Trip Generation Summary									
Multifamily Housing	112	DU	12	40	52	40	23	63	820
Shopping Center	21.000	TSF	101	62	163	82	89	171	2,080
Internal Capture (10% PM and Daily only)			0	0	0	-8	-9	-17	-208
Pass-by Reduction (34% PM and Daily only)[4]			0	0	0	-25	-25	-50	-636
Total			**113**	**102**	**215**	**89**	**78**	**167**	**2,056**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] DU = Dwelling Units; TSF = Thousand Square Feet

[3] Trip generation rate based on the regression equation for ITE Land Use Code 820.

[4] Pass-by Reduction Source: ITE Trip Generation Handbook, Third Edition (2017).

Table 2

Cumulative Development Land Use Summary

TAZ	Project Name/Builder/Applicant	Land Use[1]	Quantity	Units[2]
City of Moreno Valley				
MV1	Moreno Valley Medical Overlay Area	Medical Office	122.250	TSF
MV2	Fresenius Medical Care	Medical Office	12.000	TSF
MV3	Kaiser Permanente Moreno Valley Emergency Room Expansion	Hospital	8.500	TSF
MV4	Rados	SFDR	135	DU
	Invermex, Inc.	SFDR	32	DU
MV5	RSI	SFDR	140	DU
MV6	Mission Pacific Land Co.	SFDR	221	DU
MV7	33024 Adam Wisler	SFDR	8	DU
	Ada Deturcios (PEN18-0042)	SFDR	2	DU
MV8	32716 Bob Rogers	SFDR	57	DU
MV9	SKG Pacific Enterprises Inc.	SFDR	63	DU
MV10	Mainstreet Post-acute Care	Medical Office	57.000	TSF
MV11	Pacific Communities "High Pointe" and "Pacific Iris"	SFDR	83	DU
MV12	MV Bella Vista GP, LLC.	Multifamily Housing	220	DU
MV13	GHA	Multifamily Housing	62	DU
MV14	Nova Homes	Multifamily Housing	122	DU
MV15	Mo Ghiassi TL Group	Multifamily Housing	52	DU
MV16	Continental East Fund III, LLC. (Moreno Valley Ranch Specific Plan No. 193)	Multifamily Housing	125	DU
MV17	Boulder Ridge (PEN17-0064)	Multifamily Housing	141	DU
	Rancho Belago Developers	Multifamily Housing	141	DU
	Rocas Grandes (PA 15-0046)	Multifamily Housing	426	DU
MV18	South Moreno Valley Walmart	Walmart	189.520	TSF
		Gas Station	16	VFP
MV19	Moreno Valley Logistics Center	High-Cube Warehouse	1351.770	TSF
		Light Industrial	385.748	TSF
City of Perris				
P1	Bargemann / DPR 07-09-0018	Warehousing	173.000	TSF
P2	Duke 2 / DPR 16-00008	High-Cube Warehouse	669.000	TSF
P3	First Perry / DPR 16-00013	High-Cube Warehouse	240.000	TSF
P4	Gateway / DPR 16-00003	High-Cube Warehouse	400.000	TSF
P5	Integra / DPR 14-02-0014	High-Cube Warehouse	864.000	TSF
P6	OLC 1 / DPR 12-10-0005	High-Cube Warehouse	1,455.000	TSF
P7	OLC2 / DPR 14-01-0015	High-Cube Warehouse	1,037.000	TSF
P8	Markham East / DPR 05-0477	High-Cube Warehouse	460.000	TSF
P9	Markham Industrial / DPR 16-00015	Warehousing	170.000	TSF
P10	Rados / DPR 07-0119	High-Cube Warehouse	1,200.000	TSF
P11	Rider 1 / DPR 16-0365	High-Cube Warehouse	350.000	TSF
P12	Indian/Ramona Warehouse	High-Cube Warehouse	428.730	TSF
P13	Rider 3 / DPR 06-0432	High-Cube Warehouse	640.000	TSF
P14	Westcoast Textile / DPR 16-00001	Warehousing	180.000	TSF
P15	Duke at Patterson / DPR 17-00001	High-Cube Warehouse	811.000	TSF
P16	Harley Knox Commerce Park / DPR 16-004	High-Cube Warehouse	386.278	TSF
P17	Perris Marketplace / DPR 05-0341	Commercial Retail	520.000	TSF
P18	Stratford Ranch Residential / TTM 36648	SFDR	270	DU
P19	Pulte Residential / TTM 30850	SFDR	496	DU
P20	Perris Circle 3	Warehousing	210.900	TSF
P21	Rider 2 & 4	High-Cube Warehouse	1,376.721	TSF
County of Riverside				
RC1	McCanna Hills / TTM 33978	SFDR	63	DU

[1] SFDR = Single Family Detached Residential

[2] DU = Dwelling Units; TSF = Thousand Square Feet ; VFP = Vehicle Fueling Positions

APPENDIX 1.2:

SITE ADJACENT QUEUES

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Queuing and Blocking Report
Horizon Year (2040) With Project - AM Peak Hour

10/24/2018

Intersection: 4: Lasselle St. & Cahuillia Dr.

Movement	WB	NB	SB	SB
Directions Served	R	R	T	T
Maximum Queue (ft)	81	11	897	874
Average Queue (ft)	34	0	518	502
95th Queue (ft)	67	8	1108	1086
Link Distance (ft)	458		1025	1025
Upstream Blk Time (%)			13	12
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)		140		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Lasselle St. & Driveway 1

Movement	WB	NB	SB	SB
Directions Served	R	T	T	T
Maximum Queue (ft)	77	17	1024	1017
Average Queue (ft)	26	1	956	953
95th Queue (ft)	57	9	1090	1094
Link Distance (ft)	202	225	975	975
Upstream Blk Time (%)			34	38
Queuing Penalty (veh)			207	230
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
Horizon Year (2040) With Project - AM Peak Hour 10/24/2018

Intersection: 6: Lasselle St. & Krameria Av.

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	225	1072	1062	224	279	104	150	1007	1010	205	225	294
Average Queue (ft)	224	1047	1034	118	130	42	149	976	974	145	179	250
95th Queue (ft)	225	1060	1102	218	224	81	150	997	997	283	273	285
Link Distance (ft)		1029	1029		401	401		953	953			225
Upstream Blk Time (%)		95	45					75	53		13	59
Queuing Penalty (veh)		0	0					0	0		0	431
Storage Bay Dist (ft)	200			200			125			180	240	
Storage Blk Time (%)	90	5		5	1		71	13	39	0	13	59
Queuing Penalty (veh)	291	20		11	2		467	61	111	1	61	99

Intersection: 6: Lasselle St. & Krameria Av.

Movement	SB
Directions Served	TR
Maximum Queue (ft)	277
Average Queue (ft)	241
95th Queue (ft)	260
Link Distance (ft)	225
Upstream Blk Time (%)	54
Queuing Penalty (veh)	394
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Colt Wy./Driveway 2 & Krameria Av.

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (ft)	47	9	26	130	71
Average Queue (ft)	13	0	9	61	27
95th Queue (ft)	37	4	24	105	55
Link Distance (ft)		401		164	252
Upstream Blk Time (%)				0	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)	50		50		
Storage Blk Time (%)	0		0		
Queuing Penalty (veh)	2		0		

Intersection: 9: Krameria Av. & Driveway/Quarter Horse Rd.

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	53	49	41	151	30	64
Average Queue (ft)	20	13	9	25	4	13
95th Queue (ft)	47	37	32	86	20	45
Link Distance (ft)	245	150		658		453
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50		100	
Storage Blk Time (%)			0	1		
Queuing Penalty (veh)			0	0		

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	L	L	T	T	R	L
Maximum Queue (ft)	308	318	381	342	127	84	64	335	1350	1356	225	212
Average Queue (ft)	218	232	111	98	48	14	22	154	1319	1326	222	206
95th Queue (ft)	339	350	261	214	102	58	55	397	1344	1345	252	230
Link Distance (ft)			2427	2427	2427				1304	1304		
Upstream Blk Time (%)									34	73		
Queuing Penalty (veh)									0	0		
Storage Bay Dist (ft)	325	325				300	310	310			200	200
Storage Blk Time (%)	1	3						0	55	50	19	38
Queuing Penalty (veh)	1	6						0	50	330	145	185

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	T	T	R	L	L	T	T	R
Maximum Queue (ft)	225	1152	1142	1127	227	240	2176	2180	240
Average Queue (ft)	223	1123	1116	994	225	239	1870	1845	236
95th Queue (ft)	239	1141	1137	1525	232	240	2666	2658	268
Link Distance (ft)		1103	1103	1103			2298	2298	
Upstream Blk Time (%)		84	44	23			25	28	
Queuing Penalty (veh)		0	0	0			0	0	
Storage Bay Dist (ft)	200				215	215			215
Storage Blk Time (%)	59	36			23	80	8	13	42
Queuing Penalty (veh)	285	184			70	249	33	64	130

Network Summary

Network wide Queuing Penalty: 4119

Queuing and Blocking Report
Horizon Year (2040) With Project - PM Peak Hour 10/24/2018

Intersection: 4: Lasselle St. & Cahuillia Dr.

Movement	WB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	92	84	62
Average Queue (ft)	40	5	3
95th Queue (ft)	74	55	46
Link Distance (ft)	458	1025	1025
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Lasselle St. & Driveway 1

Movement	WB	NB	SB	SB
Directions Served	R	TR	T	T
Maximum Queue (ft)	67	10	802	784
Average Queue (ft)	32	0	482	482
95th Queue (ft)	60	7	931	928
Link Distance (ft)	202	225	975	975
Upstream Blk Time (%)			0	0
Queuing Penalty (veh)			2	2
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Lasselle St. & Krameria Av.

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	225	1076	1054	176	147	77	149	400	355	205	225	277
Average Queue (ft)	224	1047	944	78	48	27	114	230	200	41	138	239
95th Queue (ft)	224	1062	1374	148	102	58	178	363	325	151	239	268
Link Distance (ft)		1029	1029		401	401		953	953			225
Upstream Blk Time (%)		97	33								1	35
Queuing Penalty (veh)		0	0								0	292
Storage Bay Dist (ft)	200			200			125			180	240	
Storage Blk Time (%)	95	2		0			7	24	10	0	1	35
Queuing Penalty (veh)	85	6		0			37	35	8	0	8	62

Intersection: 6: Lasselle St. & Krameria Av.

Movement	SB
Directions Served	TR
Maximum Queue (ft)	264
Average Queue (ft)	238
95th Queue (ft)	259
Link Distance (ft)	225
Upstream Blk Time (%)	36
Queuing Penalty (veh)	303
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Colt Wy./Driveway 2 & Krameria Av.

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (ft)	40	8	21	78	57
Average Queue (ft)	8	0	1	35	24
95th Queue (ft)	30	4	9	65	49
Link Distance (ft)		401		164	252
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	50		50		
Storage Blk Time (%)	0		0		
Queuing Penalty (veh)	0		0		

Intersection: 9: Krameria Av. & Driveway/Quarter Horse Rd.

Movement	EB	NB
Directions Served	LTR	L
Maximum Queue (ft)	36	28
Average Queue (ft)	17	2
95th Queue (ft)	43	12
Link Distance (ft)	245	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		50
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	L	L	T	T	R	L
Maximum Queue (ft)	293	304	314	332	306	292	126	334	463	494	225	195
Average Queue (ft)	177	191	228	231	211	105	31	91	266	274	188	108
95th Queue (ft)	265	279	302	307	284	219	80	225	393	430	280	203
Link Distance (ft)			2427	2427	2427				1304	1304		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	325	325				300	310	310			200	200
Storage Blk Time (%)	0	0	0		0	0		0	4	13	7	0
Queuing Penalty (veh)	0	1	0		1	0		0	4	57	27	0

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	T	T	R	L	L	T	T	R
Maximum Queue (ft)	224	330	284	84	227	240	2352	2354	240
Average Queue (ft)	154	193	168	32	225	239	2319	2318	173
95th Queue (ft)	229	286	249	67	234	240	2338	2335	304
Link Distance (ft)		1103	1103	1103			2298	2298	
Upstream Blk Time (%)							87	50	
Queuing Penalty (veh)							0	0	
Storage Bay Dist (ft)	200				215	215			215
Storage Blk Time (%)	2	6			21	75	7	13	2
Queuing Penalty (veh)	6	16			93	328	37	50	7

Network Summary

Network wide Queuing Penalty: 1468

APPENDIX 3.1:

EXISTING TRAFFIC COUNTS – MARCH 2018

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Counts Unlimited
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Corona, CA 92878
(951) 268-6268

City of Moreno Valley
N/S: Perris Boulevard
E/W: Krameria Avenue
Weather: Clear

File Name : 03_MRV_Perris_Krameria AM
Site Code : 05118162
Start Date : 3/8/2018
Page No : 1

Groups Printed- Total Volume

	Perris Boulevard Southbound					Krameria Avenue Westbound					Perris Boulevard Northbound					Krameria Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	13	172	39	5	224	10	21	9	5	40	77	205	19	7	301	43	24	113	50	180	67	745	812
07:15 AM	15	232	27	4	274	23	33	12	3	68	99	270	42	6	411	103	49	127	16	279	29	1032	1061
07:30 AM	18	112	19	2	149	14	37	23	9	74	79	278	58	19	415	71	59	45	13	175	43	813	856
07:45 AM	46	140	17	2	203	27	30	23	6	80	49	250	79	21	378	56	59	22	9	137	38	798	836
Total	92	656	102	13	850	74	121	67	23	262	304	1003	198	53	1505	273	191	307	88	771	177	3388	3565
08:00 AM	40	105	7	0	152	57	41	29	10	127	32	212	75	20	319	53	41	28	18	122	48	720	768
08:15 AM	10	85	16	1	111	31	32	27	14	90	19	153	9	5	181	24	14	25	11	63	31	445	476
08:30 AM	6	88	7	0	101	14	5	12	5	31	17	151	4	2	172	24	3	20	13	47	20	351	371
08:45 AM	3	90	8	0	101	11	3	7	3	21	9	157	7	1	173	20	3	19	15	42	19	337	356
Total	59	368	38	1	465	113	81	75	32	269	77	673	95	28	845	121	61	92	57	274	118	1853	1971
Grand Total	151	1024	140	14	1315	187	202	142	55	531	381	1676	293	81	2350	394	252	399	145	1045	295	5241	5536
Apprch %	11.5	77.9	10.6			35.2	38	26.7			16.2	71.3	12.5			37.7	24.1	38.2					
Total %	2.9	19.5	2.7		25.1	3.6	3.9	2.7		10.1	7.3	32	5.6		44.8	7.5	4.8	7.6		19.9	5.3	94.7	

3.1-1

	Perris Boulevard Southbound				Krameria Avenue Westbound				Perris Boulevard Northbound				Krameria Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	13	172	**39**	224	10	21	9	40	77	205	19	301	43	24	113	180	745
07:15 AM	15	**232**	27	**274**	23	33	12	68	**99**	270	42	411	**103**	49	**127**	**279**	**1032**
07:30 AM	18	112	19	149	14	**37**	**23**	74	79	**278**	58	**415**	71	**59**	45	175	813
07:45 AM	**46**	140	17	203	**27**	30	23	**80**	49	250	**79**	378	56	59	22	137	798
Total Volume	92	656	102	850	74	121	67	262	304	1003	198	1505	273	191	307	771	3388
% App. Total	10.8	77.2	12		28.2	46.2	25.6		20.2	66.6	13.2		35.4	24.8	39.8		
PHF	.500	.707	.654	.776	.685	.818	.728	.819	.768	.902	.627	.907	.663	.809	.604	.691	.821

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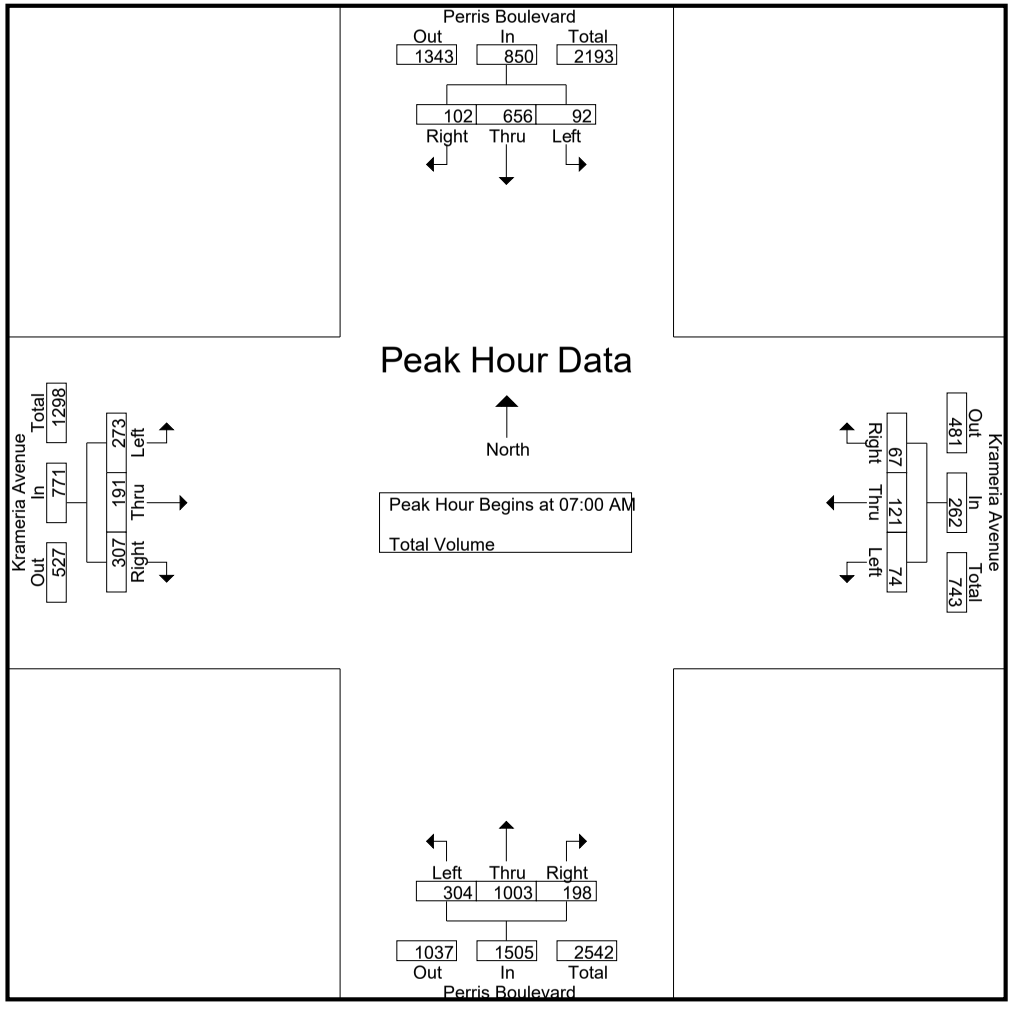
City of Moreno Valley
N/S: Perris Boulevard
E/W: Krameria Avenue
Weather: Clear

File Name : 03_MRV_Perris_Krameria AM
Site Code : 05118162
Start Date : 3/8/2018
Page No : 2



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City of Moreno Valley
N/S: Perris Boulevard
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Site Code : 05118162
Start Date : 3/8/2018
Page No : 1

Groups Printed- Total Volume

	Perris Boulevard Southbound					Krameria Avenue Westbound					Perris Boulevard Northbound					Krameria Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	25	194	19	2	238	20	17	11	1	48	31	182	9	1	222	23	8	39	14	70	18	578	596
04:15 PM	25	268	10	0	303	14	11	6	1	31	26	174	9	0	209	28	6	33	8	67	9	610	619
04:30 PM	24	212	17	2	253	18	10	9	1	37	28	191	9	1	228	37	11	33	6	81	10	599	609
04:45 PM	19	255	24	2	298	18	11	9	4	38	28	186	16	0	230	23	6	40	18	69	24	635	659
Total	93	929	70	6	1092	70	49	35	7	154	113	733	43	2	889	111	31	145	46	287	61	2422	2483
05:00 PM	18	209	19	1	246	13	6	15	9	34	22	175	3	1	200	32	8	32	19	72	30	552	582
05:15 PM	20	259	18	2	297	18	11	11	4	40	13	191	15	5	219	25	14	28	18	67	29	623	652
05:30 PM	27	259	15	2	301	14	7	8	3	29	25	222	13	7	260	34	11	31	11	76	23	666	689
05:45 PM	27	271	8	2	306	9	4	21	14	34	29	209	17	2	255	34	16	49	26	99	44	694	738
Total	92	998	60	7	1150	54	28	55	30	137	89	797	48	15	934	125	49	140	74	314	126	2535	2661
Grand Total	185	1927	130	13	2242	124	77	90	37	291	202	1530	91	17	1823	236	80	285	120	601	187	4957	5144
Apprch %	8.3	86	5.8			42.6	26.5	30.9			11.1	83.9	5			39.3	13.3	47.4					
Total %	3.7	38.9	2.6		45.2	2.5	1.6	1.8		5.9	4.1	30.9	1.8		36.8	4.8	1.6	5.7		12.1	3.6	96.4	

	Perris Boulevard Southbound				Krameria Avenue Westbound				Perris Boulevard Northbound				Krameria Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	18	209	**19**	246	13	6	15	34	22	175	3	200	32	8	32	72	552
05:15 PM	20	259	18	297	**18**	**11**	11	**40**	13	191	15	219	25	14	28	67	623
05:30 PM	**27**	259	15	301	14	7	8	29	25	**222**	13	**260**	**34**	11	31	76	666
05:45 PM	27	**271**	8	**306**	9	4	**21**	34	**29**	209	**17**	255	34	**16**	**49**	**99**	**694**
Total Volume	92	998	60	1150	54	28	55	137	89	797	48	934	125	49	140	314	2535
% App. Total	8	86.8	5.2		39.4	20.4	40.1		9.5	85.3	5.1		39.8	15.6	44.6		
PHF	.852	.921	.789	.940	.750	.636	.655	.856	.767	.898	.706	.898	.919	.766	.714	.793	.913

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City of Moreno Valley
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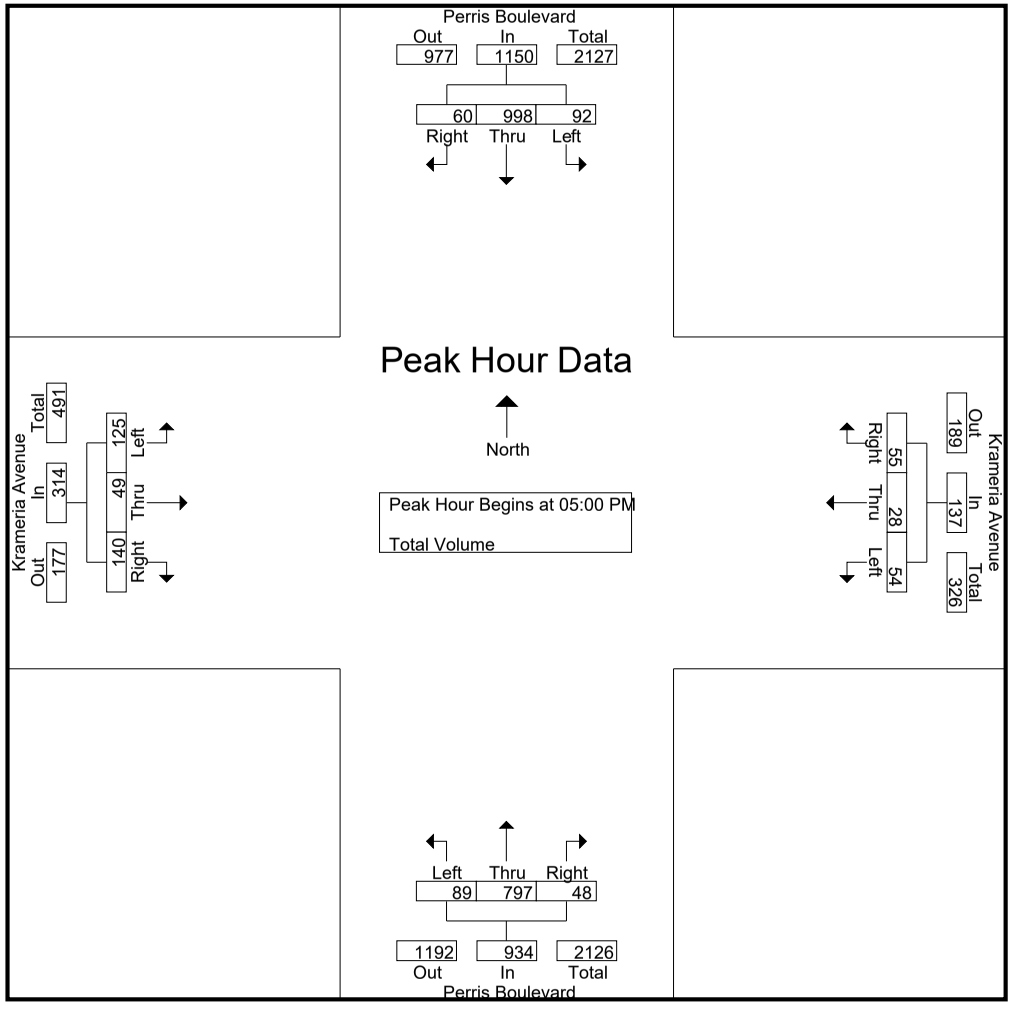
Weather: Clear

File Name : 03_MRV_Perris_Krameria PM
Site Code : 05118162
Start Date : 3/8/2018
Page No : 2



Location: Moreno Valley
N/S: Perris Boulevard
E/W: Krameria Avenue

Date: 3/8/2018
Date: Thursday

PEDESTRIANS

	North Leg Perris Boulevard	East Leg Krameria Avenue	South Leg Perris Boulevard	West Leg Krameria Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	7	7
7:15 AM	0	0	2	1	3
7:30 AM	0	1	3	0	4
7:45 AM	0	0	1	1	2
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	1	1
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	1	6	10	17

	North Leg Perris Boulevard	East Leg Krameria Avenue	South Leg Perris Boulevard	West Leg Krameria Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	2	0	11	1	14
4:15 PM	0	0	3	5	8
4:30 PM	0	1	11	1	13
4:45 PM	0	0	2	2	4
5:00 PM	0	0	2	5	7
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	2	1	2	0	5
TOTAL VOLUMES:	4	2	31	14	51

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Location: Moreno Valley
N/S: Perris Boulevard
E/W: Krameria Avenue

Date: 3/8/2018
Date: Thursday

BICYCLES

	Southbound Perris Boulevard			Westbound Krameria Avenue			Northbound Perris Boulevard			Eastbound Krameria Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	1	0	0	0	0	0	0	1	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	1	0	0	0	0	0	0	2	0	0	1	0	4

	Southbound Perris Boulevard			Westbound Krameria Avenue			Northbound Perris Boulevard			Eastbound Krameria Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	`	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	1	0	0	2	0	3
4:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
TOTAL VOLUMES:	1	3	0	0	1	0	0	2	0	0	2	0	9

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City of Moreno Valley
N/S: Kitching Street
E/W: Krameria Avenue
Weather: Clear

File Name : 05_MRV_Kitching_Krameria AM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 1

Groups Printed- Total Volume

	Kitching Street Southbound					Krameria Avenue Westbound					Kitching Street Northbound					Krameria Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	85	17	17	6	119	10	75	45	19	130	8	13	21	6	42	7	110	14	2	131	33	422	455
07:15 AM	114	22	16	6	152	23	123	64	14	210	11	20	19	7	50	17	124	10	1	151	28	563	591
07:30 AM	28	41	20	7	89	26	144	55	7	225	11	34	17	7	62	24	79	30	10	133	31	509	540
07:45 AM	26	64	27	7	117	25	69	17	4	111	24	45	10	4	79	23	95	55	2	173	17	480	497
Total	253	144	80	26	477	84	411	181	44	676	54	112	67	24	233	71	408	109	15	588	109	1974	2083
08:00 AM	17	45	18	3	80	5	70	26	3	101	24	73	13	2	110	16	49	23	4	88	12	379	391
08:15 AM	6	16	25	9	47	0	59	18	5	77	4	16	3	0	23	10	34	6	2	50	16	197	213
08:30 AM	10	10	9	4	29	2	55	26	3	83	3	18	1	0	22	7	29	5	2	41	9	175	184
08:45 AM	6	9	16	5	31	1	30	10	1	41	2	11	2	1	15	13	34	0	0	47	7	134	141
Total	39	80	68	21	187	8	214	80	12	302	33	118	19	3	170	46	146	34	8	226	44	885	929
Grand Total	292	224	148	47	664	92	625	261	56	978	87	230	86	27	403	117	554	143	23	814	153	2859	3012
Apprch %	44	33.7	22.3			9.4	63.9	26.7			21.6	57.1	21.3			14.4	68.1	17.6					
Total %	10.2	7.8	5.2		23.2	3.2	21.9	9.1		34.2	3	8	3		14.1	4.1	19.4	5		28.5	5.1	94.9	

	Kitching Street Southbound				Krameria Avenue Westbound				Kitching Street Northbound				Krameria Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	85	17	17	119	10	75	45	130	8	13	**21**	42	7	110	14	131	422
07:15 AM	**114**	22	16	**152**	23	123	**64**	210	11	20	19	50	17	**124**	10	151	**563**
07:30 AM	28	41	20	89	**26**	**144**	55	**225**	11	34	17	62	**24**	79	30	133	509
07:45 AM	26	**64**	**27**	117	25	69	17	111	**24**	**45**	10	**79**	23	95	**55**	**173**	480
Total Volume	253	144	80	477	84	411	181	676	54	112	67	233	71	408	109	588	1974
% App. Total	53	30.2	16.8		12.4	60.8	26.8		23.2	48.1	28.8		12.1	69.4	18.5		
PHF	.555	.563	.741	.785	.808	.714	.707	.751	.563	.622	.798	.737	.740	.823	.495	.850	.877

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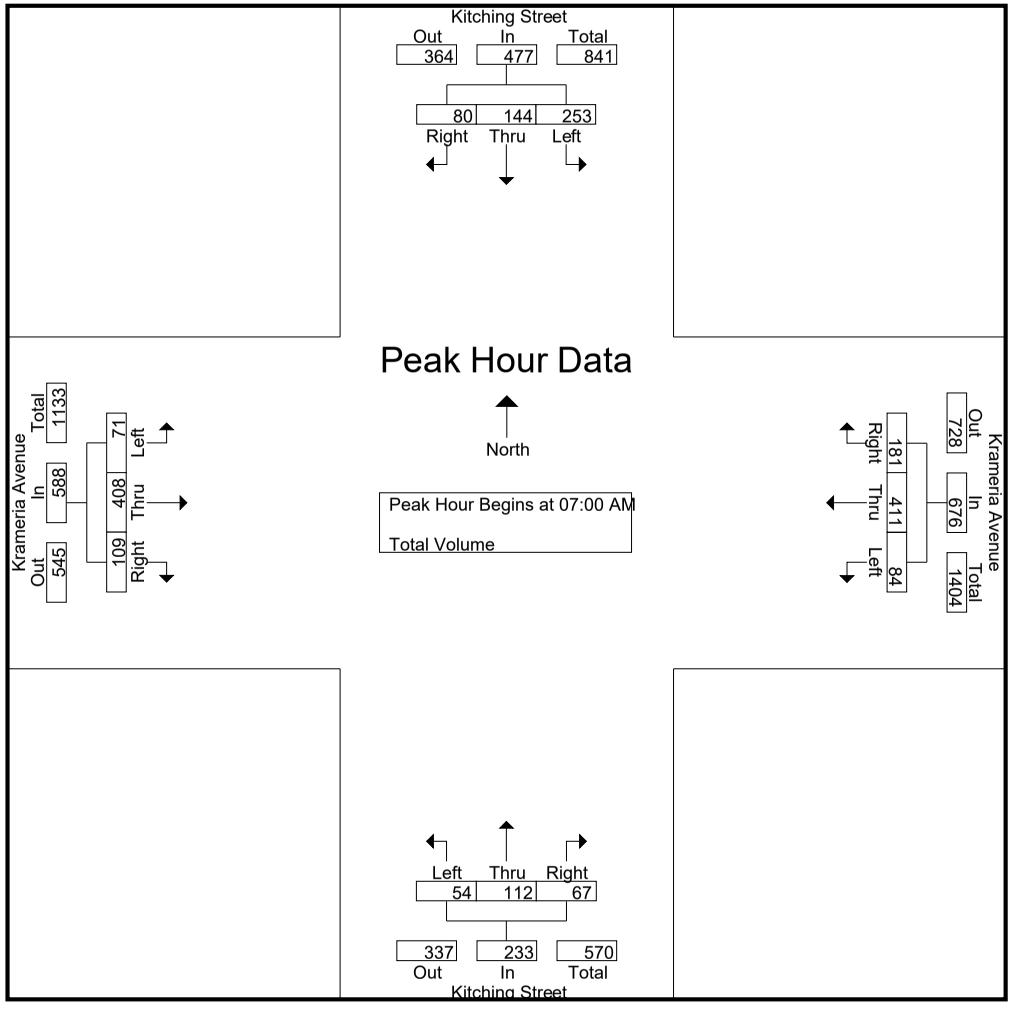
City of Moreno Valley
N/S: Kitching Street
E/W: Krameria Avenue
Weather: Clear

File Name : 05_MRV_Kitching_Krameria AM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 2



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(951) 268-6268

City of Moreno Valley
N/S: Kitching Street
E/W: Krameria Avenue
Weather: Clear

File Name : 05_MRV_Kitching_Krameria PM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 1

Groups Printed- Total Volume

	Kitching Street Southbound					Krameria Avenue Westbound					Kitching Street Northbound					Krameria Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	20	18	23	12	61	5	56	23	5	84	6	20	4	1	30	16	48	3	0	67	18	242	260
04:15 PM	15	22	21	11	58	6	51	27	4	84	12	23	6	3	41	15	50	13	3	78	21	261	282
04:30 PM	23	20	21	10	64	5	49	17	1	71	4	12	4	2	20	30	61	7	1	98	14	253	267
04:45 PM	23	18	19	2	60	3	46	14	7	63	3	18	3	0	24	22	73	9	2	104	11	251	262
Total	81	78	84	35	243	19	202	81	17	302	25	73	17	6	115	83	232	32	6	347	64	1007	1071
05:00 PM	35	18	20	10	73	3	39	17	4	59	7	14	4	0	25	18	57	5	2	80	16	237	253
05:15 PM	35	18	16	6	69	7	38	12	2	57	1	8	4	3	13	13	69	7	0	89	11	228	239
05:30 PM	24	21	25	10	70	7	38	16	4	61	4	23	7	2	34	14	69	6	3	89	19	254	273
05:45 PM	31	16	28	8	75	6	35	18	5	59	9	17	4	0	30	19	66	6	2	91	15	255	270
Total	125	73	89	34	287	23	150	63	15	236	21	62	19	5	102	64	261	24	7	349	61	974	1035
Grand Total	206	151	173	69	530	42	352	144	32	538	46	135	36	11	217	147	493	56	13	696	125	1981	2106
Apprch %	38.9	28.5	32.6			7.8	65.4	26.8			21.2	62.2	16.6			21.1	70.8	8					
Total %	10.4	7.6	8.7		26.8	2.1	17.8	7.3		27.2	2.3	6.8	1.8		11	7.4	24.9	2.8		35.1	5.9	94.1	

	Kitching Street Southbound				Krameria Avenue Westbound				Kitching Street Northbound				Krameria Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	20	18	**23**	61	5	**56**	23	**84**	6	20	4	30	16	48	3	67	242
04:15 PM	15	**22**	21	58	**6**	51	**27**	84	**12**	**23**	**6**	**41**	15	50	**13**	78	**261**
04:30 PM	**23**	20	21	**64**	5	49	17	71	4	12	4	20	**30**	61	7	98	253
04:45 PM	23	18	19	60	3	46	14	63	3	18	3	24	22	**73**	9	**104**	251
Total Volume	81	78	84	243	19	202	81	302	25	73	17	115	83	232	32	347	1007
% App. Total	33.3	32.1	34.6		6.3	66.9	26.8		21.7	63.5	14.8		23.9	66.9	9.2		
PHF	.880	.886	.913	.949	.792	.902	.750	.899	.521	.793	.708	.701	.692	.795	.615	.834	.965

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City of Moreno Valley
N/S: Kitching Street
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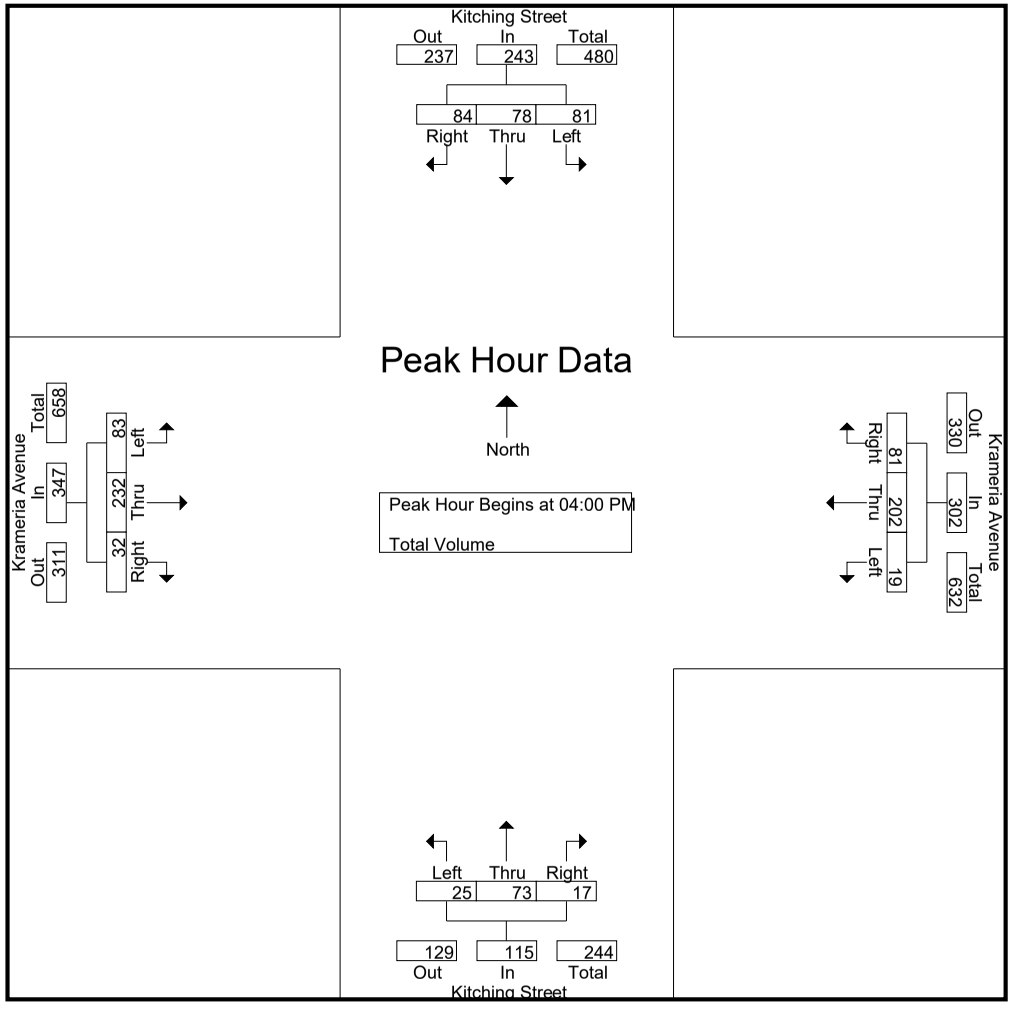
File Name : 05_MRV_Kitching_Krameria PM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 2



Location: Moreno Valley
N/S: Kitching Street
E/W: Krameria Avenue

Date: 3/6/2018
Date: Tuesday

PEDESTRIANS

	North Leg Kitching Street	East Leg Krameria Avenue	South Leg Kitching Street	West Leg Krameria Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	2	2	3	2	9
7:15 AM	0	0	7	4	11
7:30 AM	0	0	3	3	6
7:45 AM	2	3	7	15	27
8:00 AM	0	0	1	11	12
8:15 AM	0	0	0	0	0
8:30 AM	0	2	2	0	4
8:45 AM	0	0	0	1	1
TOTAL VOLUMES:	4	7	23	36	70

	North Leg Kitching Street	East Leg Krameria Avenue	South Leg Kitching Street	West Leg Krameria Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	2	0	2
4:30 PM	0	0	0	4	4
4:45 PM	2	1	0	1	4
5:00 PM	0	1	0	1	2
5:15 PM	0	1	2	2	5
5:30 PM	0	1	0	0	1
5:45 PM	2	1	0	0	3
TOTAL VOLUMES:	4	5	4	8	21

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Location: Moreno Valley
N/S: Kitching Street
E/W: Krameria Avenue

Date: 3/6/2018
Date: Tuesday

BICYCLES

	Southbound Kitching Street			Westbound Krameria Avenue			Northbound Kitching Street			Eastbound Krameria Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	1	0	0	3	0	4
7:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	1	0	1	3	0	5

	Southbound Kitching Street			Westbound Krameria Avenue			Northbound Kitching Street			Eastbound Krameria Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	0	0	0	0	0	1	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	1	0	0	0	0	0	1	2	5

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City of Moreno Valley
N/S: Lasselle Street
E/W: Iris Avenue
Weather: Clear

File Name : 06_MRV_Lasselle_Iris AM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 1

Groups Printed- Total Volume

	Lasselle Street Southbound					Iris Avenue Westbound					Lasselle Street Northbound					Iris Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	18	108	11	5	137	163	149	21	12	333	57	117	97	56	271	18	72	76	43	166	116	907	1023
07:15 AM	15	147	21	10	183	156	130	9	6	295	110	157	127	55	394	31	70	92	40	193	111	1065	1176
07:30 AM	25	141	23	11	189	128	167	24	10	319	134	144	102	40	380	23	137	72	24	232	85	1120	1205
07:45 AM	31	165	32	21	228	147	182	51	16	380	63	131	101	52	295	58	155	95	36	308	125	1211	1336
Total	89	561	87	47	737	594	628	105	44	1327	364	549	427	203	1340	130	434	335	143	899	437	4303	4740
08:00 AM	45	107	21	11	173	79	104	14	6	197	62	150	141	57	353	22	116	57	32	195	106	918	1024
08:15 AM	33	68	13	9	114	69	92	22	18	183	53	105	114	62	272	20	99	36	17	155	106	724	830
08:30 AM	48	63	11	6	122	64	88	19	12	171	45	91	83	37	219	16	83	31	14	130	69	642	711
08:45 AM	42	77	12	8	131	93	115	28	9	236	33	101	63	36	197	28	69	34	17	131	70	695	765
Total	168	315	57	34	540	305	399	83	45	787	193	447	401	192	1041	86	367	158	80	611	351	2979	3330
Grand Total	257	876	144	81	1277	899	1027	188	89	2114	557	996	828	395	2381	216	801	493	223	1510	788	7282	8070
Apprch %	20.1	68.6	11.3			42.5	48.6	8.9			23.4	41.8	34.8			14.3	53	32.6					
Total %	3.5	12	2		17.5	12.3	14.1	2.6		29	7.6	13.7	11.4		32.7	3	11	6.8		20.7	9.8	90.2	

3.1-13

	Lasselle Street Southbound				Iris Avenue Westbound				Lasselle Street Northbound				Iris Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	15	147	21	183	**156**	130	9	295	110	**157**	127	**394**	31	70	92	193	1065
07:30 AM	25	141	23	189	128	167	24	319	**134**	144	102	380	23	137	72	232	1120
07:45 AM	31	**165**	**32**	**228**	147	**182**	**51**	**380**	63	131	101	295	**58**	**155**	**95**	**308**	**1211**
08:00 AM	**45**	107	21	173	79	104	14	197	62	150	**141**	353	22	116	57	195	918
Total Volume	116	560	97	773	510	583	98	1191	369	582	471	1422	134	478	316	928	4314
% App. Total	15	72.4	12.5		42.8	49	8.2		25.9	40.9	33.1		14.4	51.5	34.1		
PHF	.644	.848	.758	.848	.817	.801	.480	.784	.688	.927	.835	.902	.578	.771	.832	.753	.891

Counts Unlimited
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City of Moreno Valley
N/S: Lasselle Street
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Site Code : 05118162
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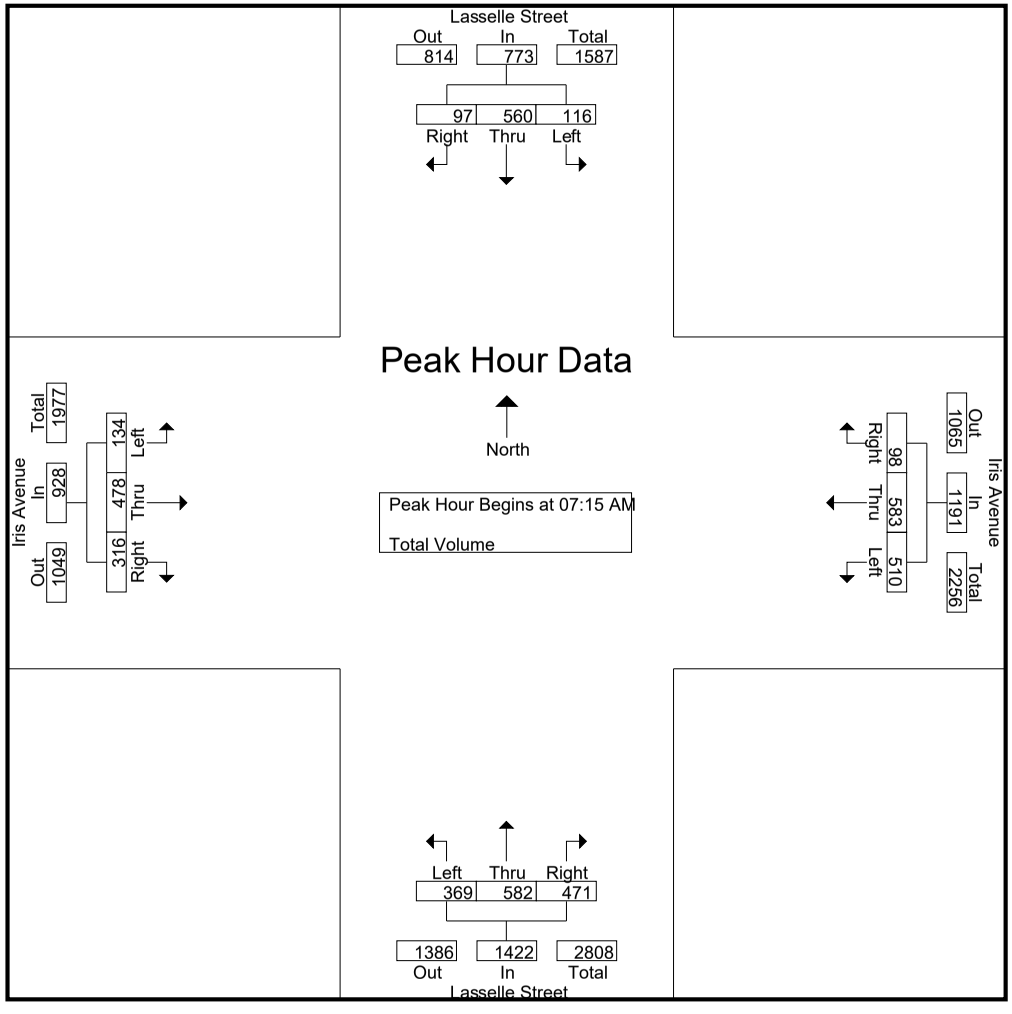

3.1-14

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City of Moreno Valley
N/S: Lasselle Street
E/W: Iris Avenue
Weather: Clear

File Name : 06_MRV_Lasselle_Iris PM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 1

Groups Printed- Total Volume

	Lasselle Street Southbound					Iris Avenue Westbound					Lasselle Street Northbound					Iris Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	49	120	21	10	190	123	108	22	9	253	74	159	111	47	344	34	93	53	15	180	81	967	1048
04:15 PM	59	131	17	9	207	100	125	16	6	241	41	139	123	65	303	27	110	60	22	197	102	948	1050
04:30 PM	47	120	28	17	195	139	130	22	9	291	44	158	107	48	309	29	86	68	27	183	101	978	1079
04:45 PM	61	145	23	12	229	128	128	20	4	276	47	144	120	53	311	36	124	38	13	198	82	1014	1096
Total	216	516	89	48	821	490	491	80	28	1061	206	600	461	213	1267	126	413	219	77	758	366	3907	4273
05:00 PM	54	130	14	9	198	141	125	31	10	297	62	150	106	52	318	31	96	76	23	203	94	1016	1110
05:15 PM	54	165	16	5	235	134	138	20	7	292	64	136	119	41	319	29	108	72	24	209	77	1055	1132
05:30 PM	45	160	33	18	238	158	139	23	10	320	78	112	93	55	283	33	97	68	13	198	96	1039	1135
05:45 PM	39	211	33	17	283	154	152	17	0	323	44	140	84	45	268	49	95	100	23	244	85	1118	1203
Total	192	666	96	49	954	587	554	91	27	1232	248	538	402	193	1188	142	396	316	83	854	352	4228	4580
Grand Total	408	1182	185	97	1775	1077	1045	171	55	2293	454	1138	863	406	2455	268	809	535	160	1612	718	8135	8853
Apprch %	23	66.6	10.4			47	45.6	7.5			18.5	46.4	35.2			16.6	50.2	33.2					
Total %	5	14.5	2.3		21.8	13.2	12.8	2.1		28.2	5.6	14	10.6		30.2	3.3	9.9	6.6		19.8	8.1	91.9	

3.1-15

	Lasselle Street Southbound				Iris Avenue Westbound				Lasselle Street Northbound				Iris Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	**54**	130	14	198	141	125	**31**	297	62	**150**	106	318	31	96	76	203	1016
05:15 PM	54	165	16	235	134	138	20	292	64	136	**119**	**319**	29	**108**	72	209	1055
05:30 PM	45	160	**33**	238	**158**	139	23	320	**78**	112	93	283	33	97	68	198	1039
05:45 PM	39	**211**	33	**283**	154	**152**	17	**323**	44	140	84	268	**49**	95	**100**	**244**	**1118**
Total Volume	192	666	96	954	587	554	91	1232	248	538	402	1188	142	396	316	854	4228
% App. Total	20.1	69.8	10.1		47.6	45	7.4		20.9	45.3	33.8		16.6	46.4	37		
PHF	.889	.789	.727	.843	.929	.911	.734	.954	.795	.897	.845	.931	.724	.917	.790	.875	.945

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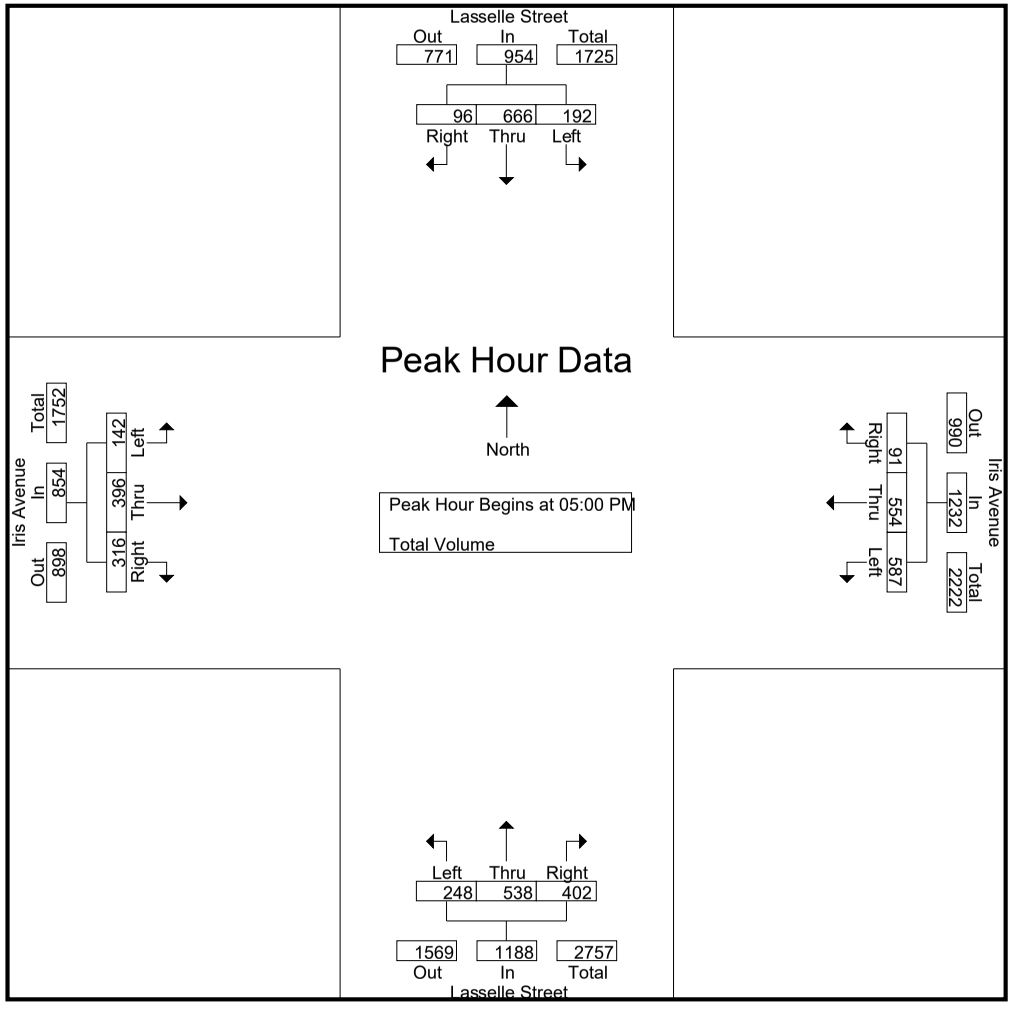
City of Moreno Valley
N/S: Lasselle Street
E/W: Iris Avenue
Weather: Clear

File Name : 06_MRV_Lasselle_Iris PM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 2



Location: Moreno Valley
N/S: Lasselle Street
E/W: Iris Avenue

Date: 3/6/2018
Date: Tuesday

PEDESTRIANS

	North Leg Lasselle Street	East Leg Iris Avenue	South Leg Lasselle Street	West Leg Iris Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	9	3	2	8	22
7:15 AM	5	1	1	7	14
7:30 AM	0	1	0	7	8
7:45 AM	11	4	0	7	22
8:00 AM	1	2	1	13	17
8:15 AM	2	4	2	8	16
8:30 AM	4	1	5	6	16
8:45 AM	4	1	1	4	10
TOTAL VOLUMES:	36	17	12	60	125

	North Leg Lasselle Street	East Leg Iris Avenue	South Leg Lasselle Street	West Leg Iris Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	9	2	2	4	17
4:15 PM	8	6	0	7	21
4:30 PM	9	0	1	4	14
4:45 PM	6	7	1	5	19
5:00 PM	19	11	0	7	37
5:15 PM	13	5	2	3	23
5:30 PM	6	5	1	3	15
5:45 PM	6	3	0	7	16
TOTAL VOLUMES:	76	39	7	40	162

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Location: Moreno Valley
N/S: Lasselle Street
E/W: Iris Avenue

Date: 3/6/2018
Date: Tuesday

BICYCLES

	Southbound Lasselle Street			Westbound Iris Avenue			Northbound Lasselle Street			Eastbound Iris Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	2	0	0	1	0	0	0	0	0	0	0	3
7:15 AM	0	1	0	0	0	0	0	1	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
7:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	6	0	1	1	0	0	3	0	0	0	0	11

	Southbound Lasselle Street			Westbound Iris Avenue			Northbound Lasselle Street			Eastbound Iris Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	1	1	0	0	0	0	2
4:15 PM	0	0	0	0	2	0	0	1	0	0	3	0	6
4:30 PM	0	1	0	0	1	0	0	1	0	0	1	0	4
4:45 PM	0	1	0	0	2	0	0	2	0	0	0	0	5
5:00 PM	0	2	0	0	3	0	0	1	0	1	0	0	7
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	1	0	1	0	2
5:45 PM	0	2	0	0	1	0	0	0	0	0	1	0	4
TOTAL VOLUMES:	0	6	0	0	9	0	1	6	1	1	6	0	30

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City of Moreno Valley
N/S: Lasselle Street
E/W: Cahuilla Drive
Weather: Clear

File Name : 07_MRV_Lasselle_Cahuilla AM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 1

Groups Printed- Total Volume

	Lasselle Street Southbound			Cahuilla Drive Westbound			Lasselle Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	292	292	0	12	12	277	4	281	585
07:15 AM	0	251	251	0	20	20	371	22	393	664
07:30 AM	0	156	156	0	19	19	318	36	354	529
07:45 AM	0	197	197	0	19	19	259	88	347	563
Total	0	896	896	0	70	70	1225	150	1375	2341
08:00 AM	0	142	142	0	54	54	255	77	332	528
08:15 AM	0	124	124	0	34	34	203	13	216	374
08:30 AM	0	121	121	0	16	16	169	13	182	319
08:45 AM	0	139	139	0	15	15	163	15	178	332
Total	0	526	526	0	119	119	790	118	908	1553
Grand Total	0	1422	1422	0	189	189	2015	268	2283	3894
Apprch %	0	100		0	100		88.3	11.7		
Total %	0	36.5	36.5	0	4.9	4.9	51.7	6.9	58.6	

	Lasselle Street Southbound			Cahuilla Drive Westbound			Lasselle Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	**292**	**292**	0	12	12	277	4	281	585
07:15 AM	0	251	251	0	**20**	**20**	**371**	22	**393**	**664**
07:30 AM	0	156	156	0	19	19	318	36	354	529
07:45 AM	0	197	197	0	19	19	259	**88**	347	563
Total Volume	0	896	896	0	70	70	1225	150	1375	2341
% App. Total	0	100		0	100		89.1	10.9		
PHF	.000	.767	.767	.000	.875	.875	.825	.426	.875	.881

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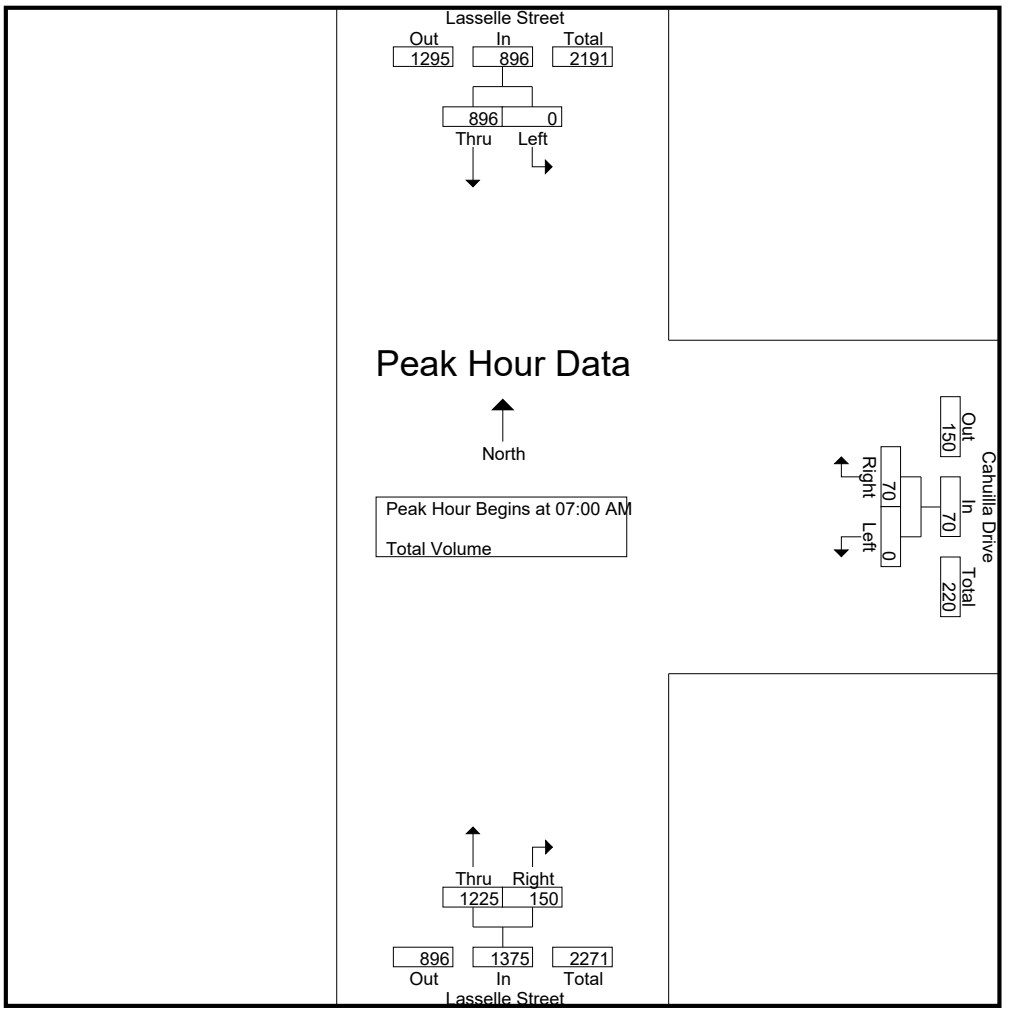
City of Moreno Valley
N/S: Lasselle Street
E/W: Cahuilla Drive
Weather: Clear

File Name : 07_MRV_Lasselle_Cahuilla AM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:30 AM			07:15 AM		
+0 mins.	0	**292**	**292**	0	19	19	**371**	22	**393**
+15 mins.	0	251	251	0	19	19	318	36	354
+30 mins.	0	156	156	0	**54**	**54**	259	**88**	347
+45 mins.	0	197	197	0	34	34	255	77	332
Total Volume	0	896	896	0	126	126	1203	223	1426
% App. Total	0	100		0	100		84.4	15.6	
PHF	.000	.767	.767	.000	.583	.583	.811	.634	.907

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City of Moreno Valley
N/S: Lasselle Street
E/W: Cahuilla Drive
Weather: Clear

File Name : 07_MRV_Lasselle_Cahuilla PM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 1

Groups Printed- Total Volume

	Lasselle Street Southbound			Cahuilla Drive Westbound			Lasselle Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	255	255	0	38	38	205	7	212	505
04:15 PM	0	230	230	0	38	38	184	5	189	457
04:30 PM	0	309	309	0	36	36	225	4	229	574
04:45 PM	0	261	261	0	28	28	223	4	227	516
Total	0	1055	1055	0	140	140	837	20	857	2052
05:00 PM	0	278	278	0	30	30	191	10	201	509
05:15 PM	0	320	320	0	33	33	200	6	206	559
05:30 PM	0	281	281	0	27	27	229	29	258	566
05:45 PM	0	294	294	0	13	13	212	30	242	549
Total	0	1173	1173	0	103	103	832	75	907	2183
Grand Total	0	2228	2228	0	243	243	1669	95	1764	4235
Apprch %	0	100		0	100		94.6	5.4		
Total %	0	52.6	52.6	0	5.7	5.7	39.4	2.2	41.7	

	Lasselle Street Southbound			Cahuilla Drive Westbound			Lasselle Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	278	278	0	30	30	191	10	201	509
05:15 PM	0	**320**	**320**	0	**33**	**33**	200	6	206	559
05:30 PM	0	281	281	0	27	27	**229**	29	**258**	**566**
05:45 PM	0	294	294	0	13	13	212	**30**	242	549
Total Volume	0	1173	1173	0	103	103	832	75	907	2183
% App. Total	0	100		0	100		91.7	8.3		
PHF	.000	.916	.916	.000	.780	.780	.908	.625	.879	.964

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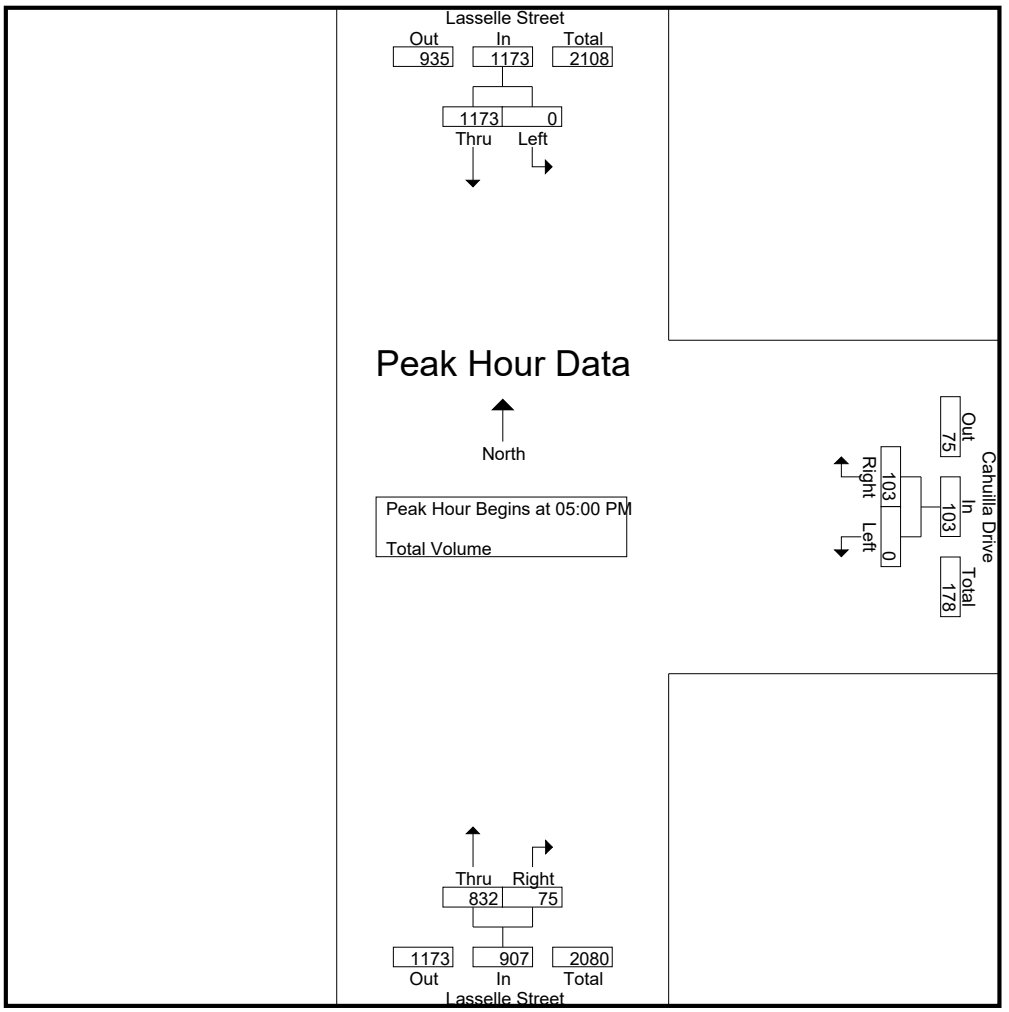
City of Moreno Valley
N/S: Lasselle Street
E/W: Cahuilla Drive
Weather: Clear

File Name : 07_MRV_Lasselle_Cahuilla PM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM			04:00 PM			05:00 PM		
+0 mins.	0	278	278	0	**38**	**38**	191	10	201
+15 mins.	0	**320**	**320**	0	38	38	200	6	206
+30 mins.	0	281	281	0	36	36	**229**	29	**258**
+45 mins.	0	294	294	0	28	28	212	**30**	242
Total Volume	0	1173	1173	0	140	140	832	75	907
% App. Total	0	100		0	100		91.7	8.3	
PHF	.000	.916	.916	.000	.921	.921	.908	.625	.879

Location: Moreno Valley
N/S: Lasselle Street
E/W: Cahuilla Drive

Date: 3/6/2018
Date: Tuesday

PEDESTRIANS

	North Leg Lasselle Street	East Leg Cahuilla Drive	South Leg Lasselle Street	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	1	0	0	1
7:30 AM	0	2	0	0	2
7:45 AM	0	0	0	0	0
8:00 AM	0	1	2	0	3
8:15 AM	2	0	0	0	2
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	2	4	2	0	8

	North Leg Lasselle Street	East Leg Cahuilla Drive	South Leg Lasselle Street	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	3	0	0	3
4:15 PM	1	2	0	0	3
4:30 PM	0	0	0	0	0
4:45 PM	0	1	0	0	1
5:00 PM	0	2	0	0	2
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	1	8	0	0	9

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Location: Moreno Valley
N/S: Lasselle Street
E/W: Cahuilla Drive

Date: 3/6/2018
Date: Tuesday

BICYCLES

	Southbound Lasselle Street			Westbound Cahuilla Drive			Northbound Lasselle Street			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	1	0	0	0	0	0	0	1	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	0	0	0	0	1	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	1	4	0	0	0	0	0	3	1	0	0	0	9

	Southbound Lasselle Street			Westbound Cahuilla Drive			Northbound Lasselle Street			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	2	0	0	0	0	0	1	0	0	0	0	3

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City of Moreno Valley
N/S: Lasselle Street
E/W: Krameria Avenue
Weather: Clear

File Name : 08_MRV_Lasselle_Krameria AM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 1

Groups Printed- Total Volume

	Lasselle Street Southbound					Krameria Avenue Westbound					Lasselle Street Northbound					Krameria Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	13	214	40	8	267	8	28	13	7	49	70	207	24	9	301	38	34	113	47	185	71	802	873
07:15 AM	14	231	34	9	279	22	31	15	2	68	90	251	40	12	381	90	58	128	52	276	75	1004	1079
07:30 AM	15	132	15	3	162	25	33	17	3	75	102	277	42	21	421	76	55	61	32	192	59	850	909
07:45 AM	29	145	18	3	192	18	19	20	11	57	60	283	85	31	428	50	48	30	20	128	65	805	870
Total	71	722	107	23	900	73	111	65	23	249	322	1018	191	73	1531	254	195	332	151	781	270	3461	3731
08:00 AM	52	116	11	1	179	42	36	25	7	103	29	227	75	37	331	64	54	30	5	148	50	761	811
08:15 AM	5	107	8	0	120	52	41	24	10	117	23	166	16	4	205	33	10	18	15	61	29	503	532
08:30 AM	11	113	7	0	131	4	4	5	5	13	21	159	9	2	189	28	2	24	19	54	26	387	413
08:45 AM	3	120	11	1	134	5	3	12	8	20	8	130	12	2	150	29	10	11	6	50	17	354	371
Total	71	456	37	2	564	103	84	66	30	253	81	682	112	45	875	154	76	83	45	313	122	2005	2127
Grand Total	142	1178	144	25	1464	176	195	131	53	502	403	1700	303	118	2406	408	271	415	196	1094	392	5466	5858
Apprch %	9.7	80.5	9.8			35.1	38.8	26.1			16.7	70.7	12.6			37.3	24.8	37.9					
Total %	2.6	21.6	2.6		26.8	3.2	3.6	2.4		9.2	7.4	31.1	5.5		44	7.5	5	7.6		20	6.7	93.3	

	Lasselle Street Southbound				Krameria Avenue Westbound				Lasselle Street Northbound				Krameria Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	13	214	**40**	267	8	28	13	49	70	207	24	301	38	34	113	185	802
07:15 AM	14	**231**	34	**279**	22	31	15	68	90	251	40	381	**90**	**58**	**128**	**276**	**1004**
07:30 AM	15	132	15	162	**25**	**33**	17	**75**	**102**	277	42	421	76	55	61	192	850
07:45 AM	**29**	145	18	192	18	19	**20**	57	60	**283**	**85**	**428**	50	48	30	128	805
Total Volume	71	722	107	900	73	111	65	249	322	1018	191	1531	254	195	332	781	3461
% App. Total	7.9	80.2	11.9		29.3	44.6	26.1		21	66.5	12.5		32.5	25	42.5		
PHF	.612	.781	.669	.806	.730	.841	.813	.830	.789	.899	.562	.894	.706	.841	.648	.707	.862

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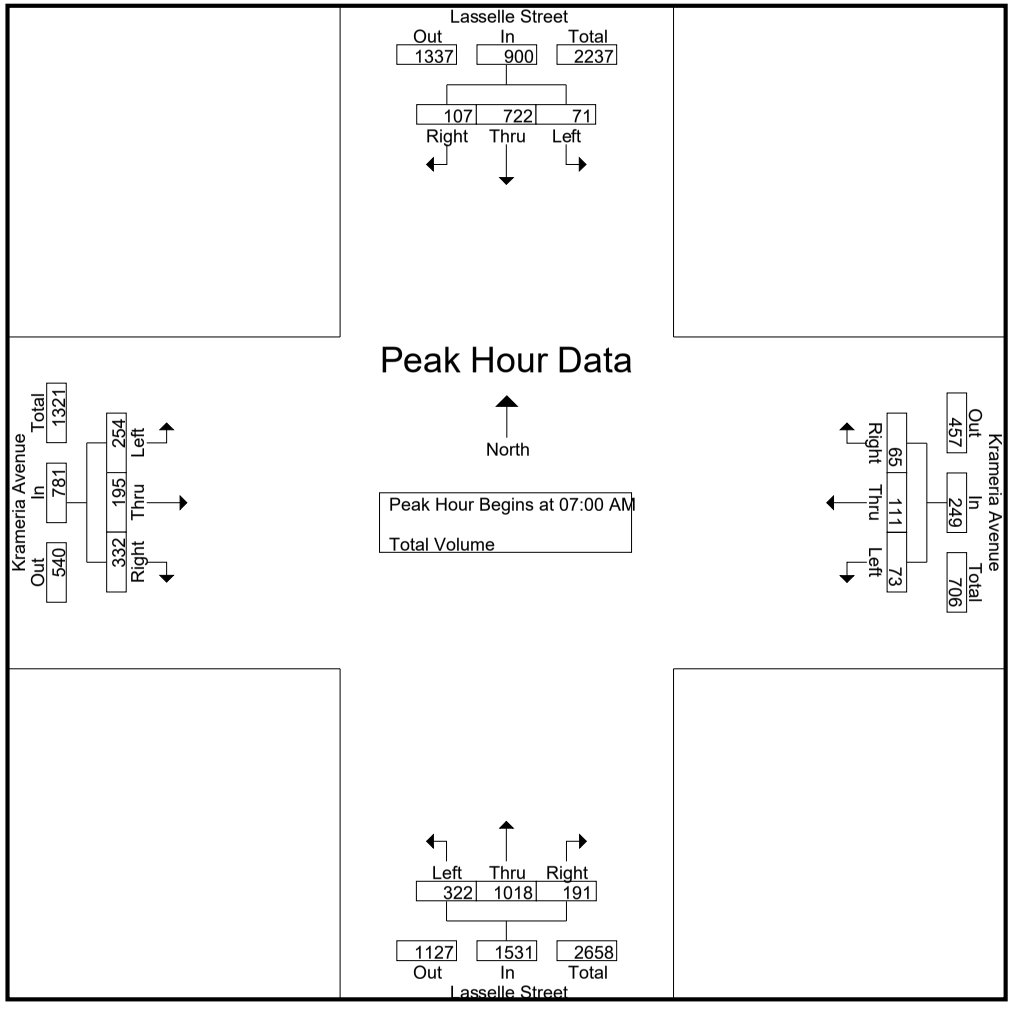
City of Moreno Valley
N/S: Lasselle Street
E/W: Krameria Avenue
Weather: Clear

File Name : 08_MRV_Lasselle_Krameria AM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 2



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City of Moreno Valley
N/S: Lasselle Street
E/W: Krameria Avenue
Weather: Clear

File Name : 08_MRV_Lasselle_Krameria PM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 1

Groups Printed- Total Volume

	Lasselle Street Southbound					Krameria Avenue Westbound					Lasselle Street Northbound					Krameria Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	18	207	18	6	243	14	9	19	10	42	27	173	5	3	205	26	12	35	20	73	39	563	602
04:15 PM	13	218	21	2	252	18	12	11	7	41	25	135	5	4	165	35	15	19	13	69	26	527	553
04:30 PM	26	250	20	4	296	23	16	13	9	52	18	184	10	4	212	29	10	38	26	77	43	637	680
04:45 PM	16	216	17	2	249	16	7	11	6	34	19	188	12	4	219	24	11	42	25	77	37	579	616
Total	73	891	76	14	1040	71	44	54	32	169	89	680	32	15	801	114	48	134	84	296	145	2306	2451
05:00 PM	19	227	15	4	261	20	7	13	11	40	21	164	9	2	194	28	14	43	29	85	46	580	626
05:15 PM	20	307	14	3	341	27	11	11	6	49	17	171	12	5	200	28	11	41	22	80	36	670	706
05:30 PM	22	246	15	3	283	25	9	10	8	44	31	192	17	5	240	29	17	30	18	76	34	643	677
05:45 PM	30	239	13	1	282	10	12	14	6	36	15	214	29	7	258	33	15	35	21	83	35	659	694
Total	91	1019	57	11	1167	82	39	48	31	169	84	741	67	19	892	118	57	149	90	324	151	2552	2703
Grand Total	164	1910	133	25	2207	153	83	102	63	338	173	1421	99	34	1693	232	105	283	174	620	296	4858	5154
Apprch %	7.4	86.5	6			45.3	24.6	30.2			10.2	83.9	5.8			37.4	16.9	45.6					
Total %	3.4	39.3	2.7		45.4	3.1	1.7	2.1		7	3.6	29.3	2		34.8	4.8	2.2	5.8		12.8	5.7	94.3	

	Lasselle Street Southbound				Krameria Avenue Westbound				Lasselle Street Northbound				Krameria Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	19	227	**15**	261	20	7	13	40	21	164	9	194	28	14	**43**	**85**	580
05:15 PM	20	**307**	14	**341**	**27**	11	11	**49**	17	171	12	200	28	11	41	80	**670**
05:30 PM	22	246	15	283	25	9	10	44	**31**	192	17	240	29	**17**	30	76	643
05:45 PM	**30**	239	13	282	10	**12**	**14**	36	15	**214**	**29**	**258**	**33**	15	35	83	659
Total Volume	91	1019	57	1167	82	39	48	169	84	741	67	892	118	57	149	324	2552
% App. Total	7.8	87.3	4.9		48.5	23.1	28.4		9.4	83.1	7.5		36.4	17.6	46		
PHF	.758	.830	.950	.856	.759	.813	.857	.862	.677	.866	.578	.864	.894	.838	.866	.953	.952

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City of Moreno Valley
N/S: Lasselle Street
E/W: Krameria Avenue
Weather: Clear

File Name : 08_MRV_Lasselle_Krameria PM
Site Code : 05118162
Start Date : 3/6/2018
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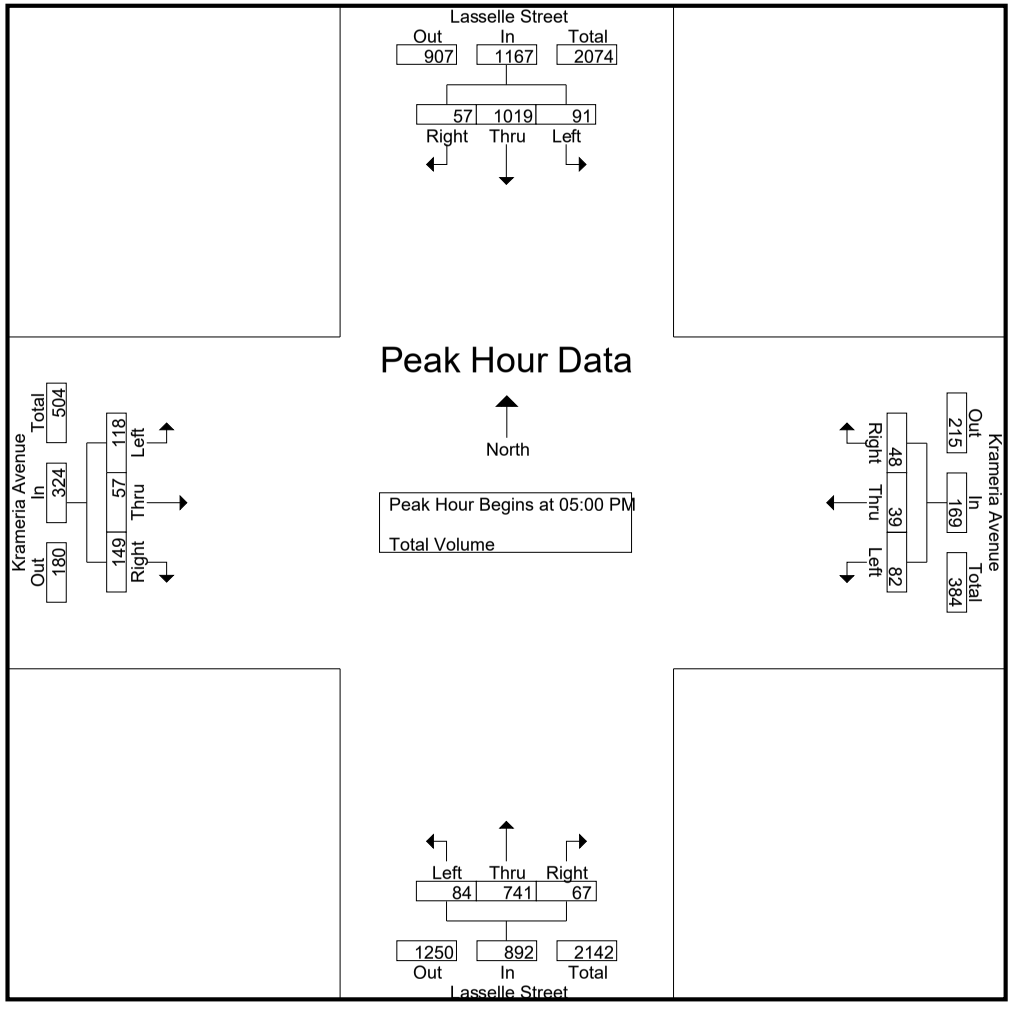

Location: Moreno Valley
N/S: Lasselle Street
E/W: Krameria Avenue

Date: 3/6/2018
Date: Tuesday

PEDESTRIANS

	North Leg Lasselle Street	East Leg Krameria Avenue	South Leg Lasselle Street	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	2	6	8
7:15 AM	0	1	3	0	4
7:30 AM	0	1	0	1	2
7:45 AM	0	0	2	0	2
8:00 AM	0	1	0	2	3
8:15 AM	0	0	1	2	3
8:30 AM	0	0	1	0	1
8:45 AM	0	0	4	1	5
TOTAL VOLUMES:	0	3	13	12	28

	North Leg Lasselle Street	East Leg Krameria Avenue	South Leg Lasselle Street	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	1	1	0	2	4
4:15 PM	1	1	0	7	9
4:30 PM	0	0	1	3	4
4:45 PM	0	1	0	0	1
5:00 PM	0	2	0	0	2
5:15 PM	1	0	0	0	1
5:30 PM	1	1	0	1	3
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	4	6	1	13	24

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Location: Moreno Valley
N/S: Lasselle Street
E/W: Krameria Avenue

Date: 3/6/2018
Date: Tuesday

BICYCLES

	Southbound Lasselle Street			Westbound Krameria Avenue			Northbound Lasselle Street			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	3
7:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	2
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	5	0	0	0	1	0	2	0	0	0	0	8

	Southbound Lasselle Street			Westbound Krameria Avenue			Northbound Lasselle Street			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	1	0	0	2	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	0	2	0	0	2	0	0	0	5

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City of Moreno Valley
N/S: Colt Way
E/W: Krameria Avenue
Weather: Clear

File Name : 10_MRV_Colt_Krameria AM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 1

Groups Printed- Total Volume

	Krameria Avenue Westbound			Colt Way Northbound			Krameria Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	3	28	31	21	4	25	66	15	81	137
07:15 AM	5	54	59	24	15	39	99	20	119	217
07:30 AM	8	53	61	10	10	20	103	7	110	191
07:45 AM	4	58	62	15	22	37	174	12	186	285
Total	20	193	213	70	51	121	442	54	496	830
08:00 AM	31	107	138	13	32	45	145	7	152	335
08:15 AM	9	80	89	8	1	9	21	1	22	120
08:30 AM	1	8	9	5	2	7	17	4	21	37
08:45 AM	1	13	14	10	0	10	18	6	24	48
Total	42	208	250	36	35	71	201	18	219	540
Grand Total	62	401	463	106	86	192	643	72	715	1370
Apprch %	13.4	86.6		55.2	44.8		89.9	10.1		
Total %	4.5	29.3	33.8	7.7	6.3	14	46.9	5.3	52.2	

	Krameria Avenue Westbound			Colt Way Northbound			Krameria Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	5	54	59	**24**	15	39	99	**20**	119	217
07:30 AM	8	53	61	10	10	20	103	7	110	191
07:45 AM	4	58	62	15	22	37	**174**	12	**186**	285
08:00 AM	**31**	**107**	**138**	13	**32**	**45**	145	7	152	**335**
Total Volume	48	272	320	62	79	141	521	46	567	1028
% App. Total	15	85		44	56		91.9	8.1		
PHF	.387	.636	.580	.646	.617	.783	.749	.575	.762	.767

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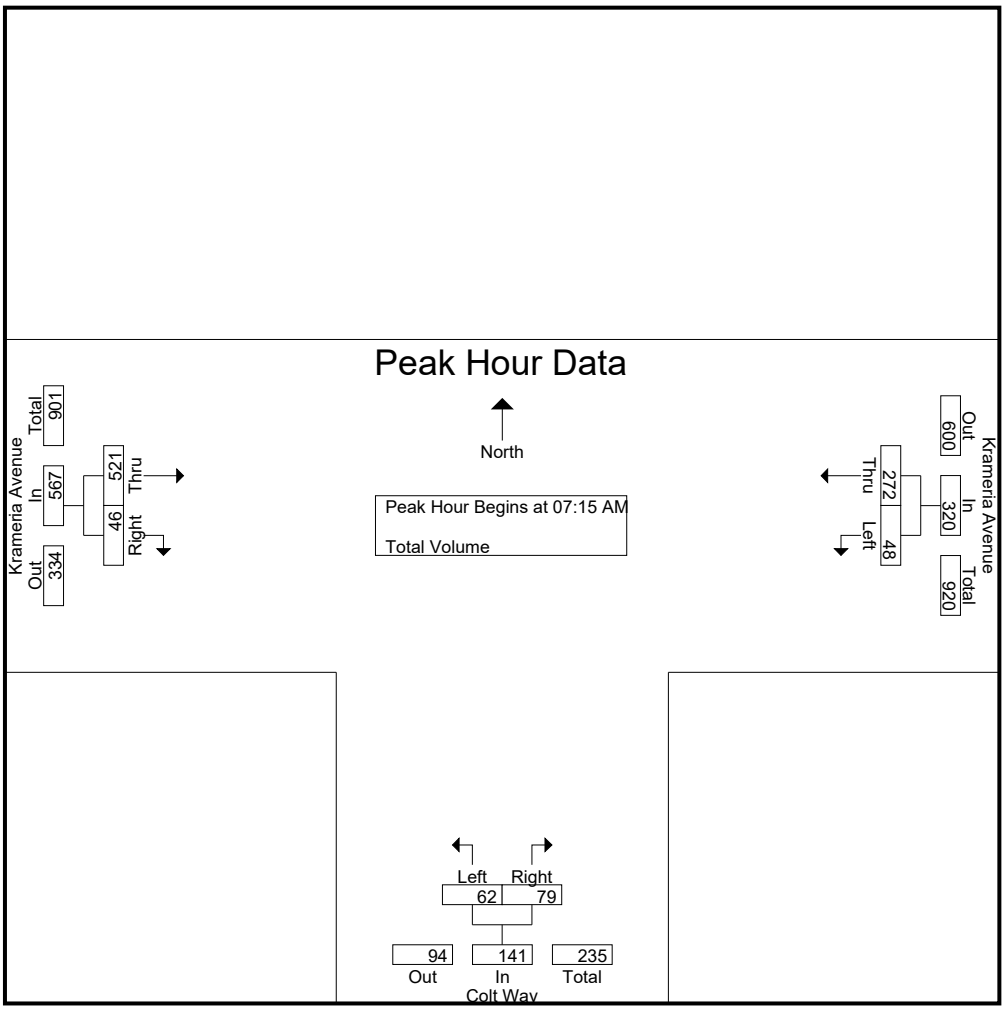
City of Moreno Valley
N/S: Colt Way
E/W: Krameria Avenue
Weather: Clear

File Name : 10_MRV_Colt_Krameria AM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:15 AM			07:15 AM		
+0 mins.	8	53	61	**24**	15	39	99	**20**	119
+15 mins.	4	58	62	10	10	20	103	7	110
+30 mins.	**31**	**107**	**138**	15	22	37	**174**	12	**186**
+45 mins.	9	80	89	13	**32**	**45**	145	7	152
Total Volume	52	298	350	62	79	141	521	46	567
% App. Total	14.9	85.1		44	56		91.9	8.1	
PHF	.419	.696	.634	.646	.617	.783	.749	.575	.762

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City of Moreno Valley
N/S: Colt Way
E/W: Krameria Avenue
Weather: Clear

File Name : 10_MRV_Colt_Krameria PM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 1

Groups Printed- Total Volume

	Krameria Avenue Westbound			Colt Way Northbound			Krameria Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	3	24	27	16	0	16	19	7	26	69
04:15 PM	1	30	31	13	2	15	23	16	39	85
04:30 PM	1	45	46	12	0	12	26	17	43	101
04:45 PM	5	19	24	12	1	13	22	17	39	76
Total	10	118	128	53	3	56	90	57	147	331
05:00 PM	1	31	32	11	0	11	19	23	42	85
05:15 PM	2	41	43	9	3	12	29	16	45	100
05:30 PM	1	32	33	10	2	12	42	16	58	103
05:45 PM	1	20	21	14	5	19	56	21	77	117
Total	5	124	129	44	10	54	146	76	222	405
Grand Total	15	242	257	97	13	110	236	133	369	736
Apprch %	5.8	94.2		88.2	11.8		64	36		
Total %	2	32.9	34.9	13.2	1.8	14.9	32.1	18.1	50.1	

	Krameria Avenue Westbound			Colt Way Northbound			Krameria Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	1	31	32	11	0	11	19	**23**	42	85
05:15 PM	**2**	**41**	**43**	9	3	12	29	16	45	100
05:30 PM	1	32	33	10	2	12	42	16	58	103
05:45 PM	1	20	21	**14**	**5**	**19**	**56**	21	**77**	**117**
Total Volume	5	124	129	44	10	54	146	76	222	405
% App. Total	3.9	96.1		81.5	18.5		65.8	34.2		
PHF	.625	.756	.750	.786	.500	.711	.652	.826	.721	.865

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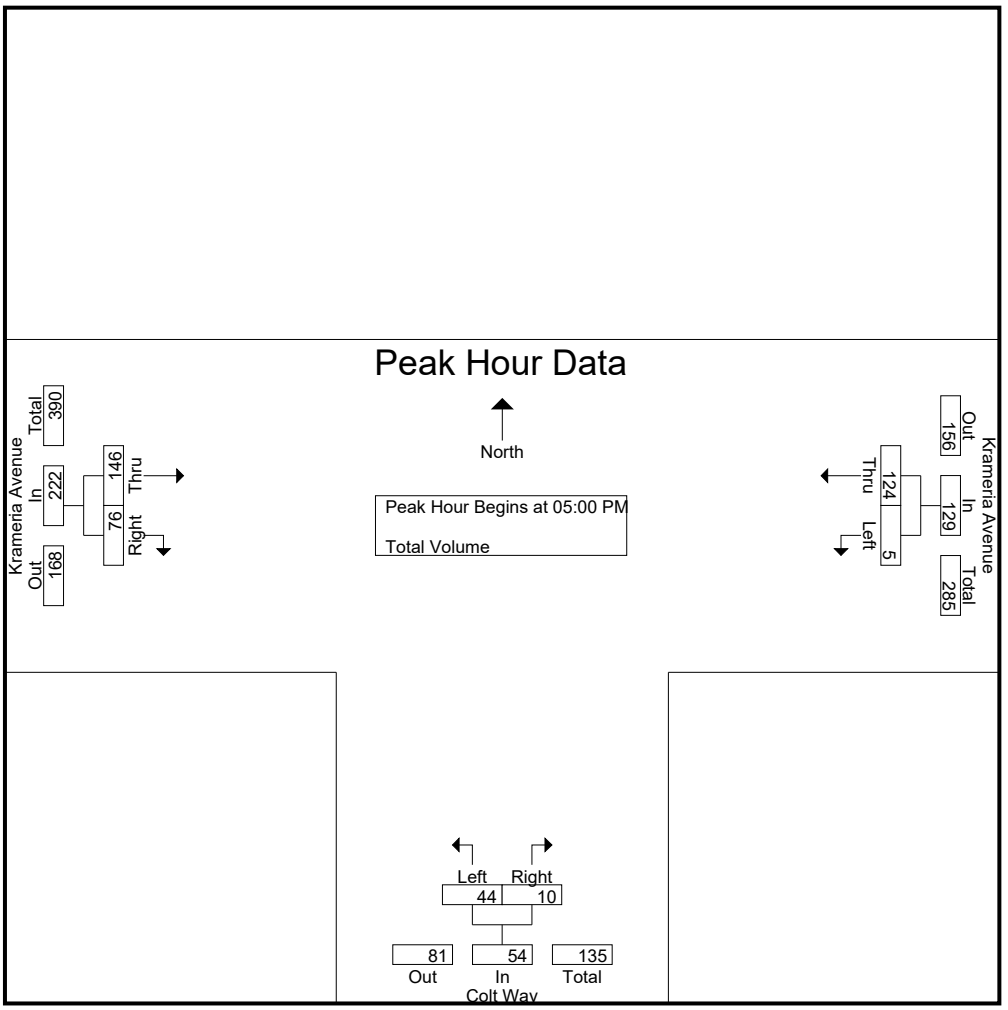
City of Moreno Valley
N/S: Colt Way
E/W: Krameria Avenue
Weather: Clear

File Name : 10_MRV_Colt_Krameria PM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:00 PM			05:00 PM		
+0 mins.	1	**45**	**46**	**16**	0	**16**	19	**23**	42
+15 mins.	**5**	19	24	13	**2**	15	29	16	45
+30 mins.	1	31	32	12	0	12	42	16	58
+45 mins.	2	41	43	12	1	13	**56**	21	**77**
Total Volume	9	136	145	53	3	56	146	76	222
% App. Total	6.2	93.8		94.6	5.4		65.8	34.2	
PHF	.450	.756	.788	.828	.375	.875	.652	.826	.721

Location: Moreno Valley
N/S: Colt Way
E/W: Krameria Avenue

Date: 3/6/2018
Date: Tuesday

PEDESTRIANS

	North Leg Dead End Pedestrians	East Leg Krameria Avenue Pedestrians	South Leg Colt Way Pedestrians	West Leg Dead End Pedestrians	
7:00 AM	0	0	2	0	2
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	2	0	2
8:00 AM	0	0	0	0	0
8:15 AM	0	0	3	0	3
8:30 AM	0	0	4	0	4
8:45 AM	0	0	3	0	3
TOTAL VOLUMES:	0	0	14	0	14

	North Leg Dead End Pedestrians	East Leg Krameria Avenue Pedestrians	South Leg Colt Way Pedestrians	West Leg Dead End Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	2	0	2
5:15 PM	0	0	0	0	0
5:30 PM	0	0	1	0	1
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	3	0	3

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Location: Moreno Valley
N/S: Colt Way
E/W: Krameria Avenue

Date: 3/6/2018
Date: Tuesday

BICYCLES

	Southbound Dead End			Westbound Krameria Avenue			Northbound Colt Way			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	1	1	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	1	1	0	1	0	0	0	0	0	3

	Southbound Dead End			Westbound Krameria Avenue			Northbound Colt Way			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	1	0	0	0	2	0	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	1	0	1	0	2
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	2	0	0	0	0	1	0	0	0	3
TOTAL VOLUMES:	0	0	0	2	1	0	1	0	2	0	4	0	10

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City of Moreno Valley
N/S: Krameria Avenue
E/W: Cahuilla Drive
Weather: Clear

File Name : 12_MRV_Krameria_Cahuilla AM
Site Code : 05118162
Start Date : 9/18/2018
Page No : 1

Groups Printed- Total Volume

	Krameria Avenue Southbound			Krameria Avenue Northbound			Cahuilla Drive Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
07:00 AM	6	1	7	21	13	34	1	6	7	48
07:15 AM	11	0	11	25	37	62	3	9	12	85
07:30 AM	14	3	17	17	42	59	8	7	15	91
07:45 AM	21	6	27	28	72	100	11	15	26	153
Total	52	10	62	91	164	255	23	37	60	377
08:00 AM	20	10	30	48	33	81	4	47	51	162
08:15 AM	6	2	8	28	8	36	2	6	8	52
08:30 AM	3	2	5	8	10	18	2	7	9	32
08:45 AM	6	3	9	4	17	21	7	1	8	38
Total	35	17	52	88	68	156	15	61	76	284
Grand Total	87	27	114	179	232	411	38	98	136	661
Apprch %	76.3	23.7		43.6	56.4		27.9	72.1		
Total %	13.2	4.1	17.2	27.1	35.1	62.2	5.7	14.8	20.6	

	Krameria Avenue Southbound			Krameria Avenue Northbound			Cahuilla Drive Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	11	0	11	25	37	62	3	9	12	85
07:30 AM	14	3	17	17	42	59	8	7	15	91
07:45 AM	**21**	6	27	28	**72**	**100**	**11**	15	26	153
08:00 AM	20	**10**	**30**	**48**	33	81	4	**47**	**51**	**162**
Total Volume	66	19	85	118	184	302	26	78	104	491
% App. Total	77.6	22.4		39.1	60.9		25	75		
PHF	.786	.475	.708	.615	.639	.755	.591	.415	.510	.758

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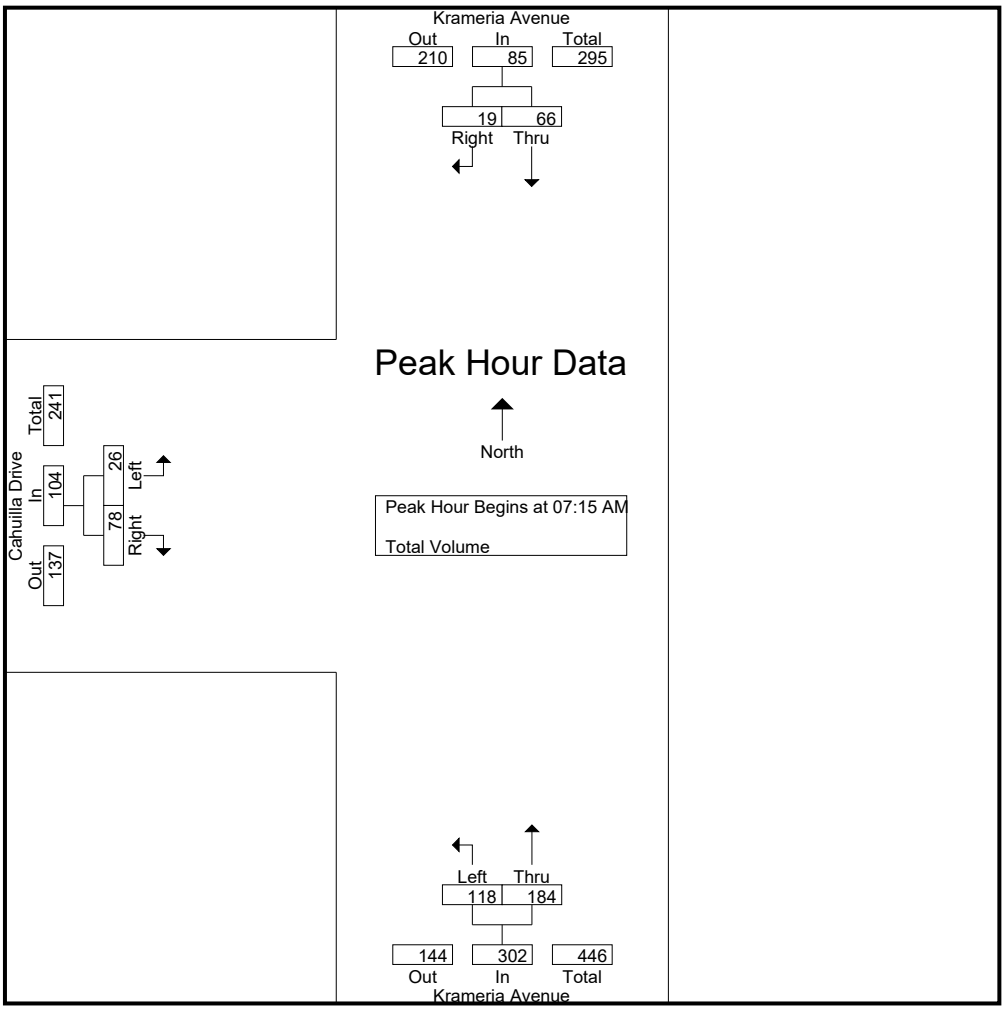
City of Moreno Valley
N/S: Krameria Avenue
E/W: Cahuilla Drive
Weather: Clear

File Name : 12_MRV_Krameria_Cahuilla AM
Site Code : 05118162
Start Date : 9/18/2018
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	11	0	11	25	37	62	3	9	12
+15 mins.	14	3	17	17	42	59	8	7	15
+30 mins.	**21**	6	27	28	**72**	**100**	**11**	15	26
+45 mins.	20	**10**	**30**	**48**	33	81	4	**47**	**51**
Total Volume	66	19	85	118	184	302	26	78	104
% App. Total	77.6	22.4		39.1	60.9		25	75	
PHF	.786	.475	.708	.615	.639	.755	.591	.415	.510

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City of Moreno Valley
N/S: Krameria Avenue
E/W: Cahuilla Drive
Weather: Clear

File Name : 12_MRV_Krameria_Cahuilla PM
Site Code : 05118162
Start Date : 9/18/2018
Page No : 1

Groups Printed- Total Volume

	Krameria Avenue Southbound			Krameria Avenue Northbound			Cahuilla Drive Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
04:00 PM	31	11	42	11	12	23	0	5	5	70
04:15 PM	16	5	21	6	5	11	3	6	9	41
04:30 PM	21	7	28	9	9	18	2	7	9	55
04:45 PM	8	6	14	14	9	23	2	2	4	41
Total	76	29	105	40	35	75	7	20	27	207
05:00 PM	13	5	18	8	11	19	1	6	7	44
05:15 PM	21	8	29	8	10	18	3	9	12	59
05:30 PM	16	6	22	26	28	54	7	21	28	104
05:45 PM	19	6	25	16	48	64	11	13	24	113
Total	69	25	94	58	97	155	22	49	71	320
Grand Total	145	54	199	98	132	230	29	69	98	527
Apprch %	72.9	27.1		42.6	57.4		29.6	70.4		
Total %	27.5	10.2	37.8	18.6	25	43.6	5.5	13.1	18.6	

	Krameria Avenue Southbound			Krameria Avenue Northbound			Cahuilla Drive Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	13	5	18	8	11	19	1	6	7	44
05:15 PM	**21**	**8**	**29**	8	10	18	3	9	12	59
05:30 PM	16	6	22	**26**	28	54	7	**21**	**28**	104
05:45 PM	19	6	25	16	**48**	**64**	**11**	13	24	**113**
Total Volume	69	25	94	58	97	155	22	49	71	320
% App. Total	73.4	26.6		37.4	62.6		31	69		
PHF	.821	.781	.810	.558	.505	.605	.500	.583	.634	.708

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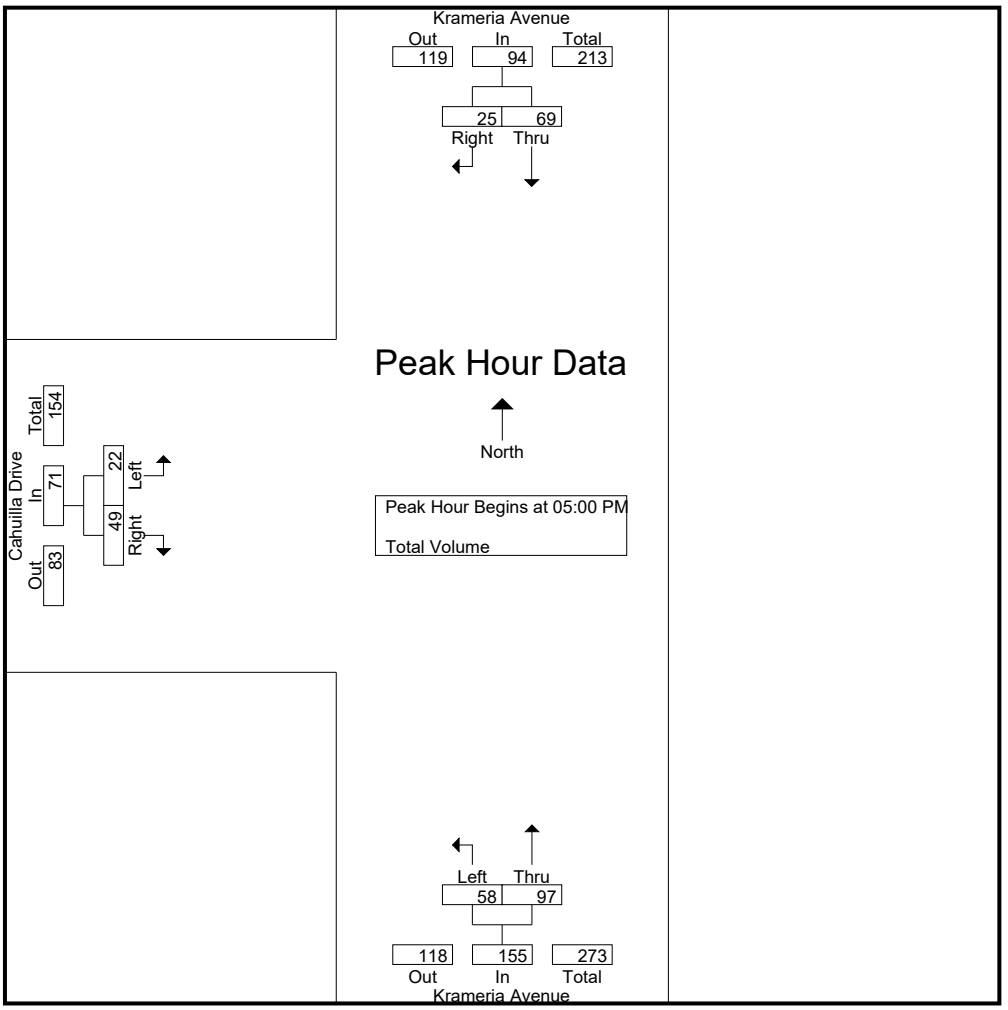
City of Moreno Valley
N/S: Krameria Avenue
E/W: Cahuilla Drive
Weather: Clear

File Name : 12_MRV_Krameria_Cahuilla PM
Site Code : 05118162
Start Date : 9/18/2018
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			05:00 PM			05:00 PM		
+0 mins.	**31**	**11**	**42**	8	11	19	1	6	7
+15 mins.	16	5	21	8	10	18	3	9	12
+30 mins.	21	7	28	**26**	28	54	7	**21**	**28**
+45 mins.	8	6	14	16	**48**	**64**	**11**	13	24
Total Volume	76	29	105	58	97	155	22	49	71
% App. Total	72.4	27.6		37.4	62.6		31	69	
PHF	.613	.659	.625	.558	.505	.605	.500	.583	.634

Location: Moreno Valley
N/S: Krameria Avenue
E/W: Cahuilla Drive

Date: 3/6/2018
Date: Tuesday

PEDESTRIANS

	North Leg Krameria Avenue	East Leg Dead End	South Leg Krameria Avenue	West Leg Cahuilla Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	2	2
7:15 AM	0	0	1	0	1
7:30 AM	1	0	5	6	12
7:45 AM	2	0	3	5	10
8:00 AM	1	0	1	11	13
8:15 AM	4	0	0	3	7
8:30 AM	1	0	6	7	14
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	9	0	16	34	59

	North Leg Krameria Avenue	East Leg Dead End	South Leg Krameria Avenue	West Leg Cahuilla Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	2	4	6
4:15 PM	0	0	5	8	13
4:30 PM	0	0	2	4	6
4:45 PM	0	0	2	1	3
5:00 PM	0	0	3	3	6
5:15 PM	0	0	1	1	2
5:30 PM	0	0	9	8	17
5:45 PM	0	0	3	9	12
TOTAL VOLUMES:	0	0	27	38	65

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Location: Moreno Valley
N/S: Krameria Avenue
E/W: Cahuilla Drive

Date: 3/6/2018
Date: Tuesday

BICYCLES

	Southbound Krameria Avenue			Westbound Dead End			Northbound Krameria Avenue			Eastbound Cahuilla Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Krameria Avenue			Westbound Dead End			Northbound Krameria Avenue			Eastbound Cahuilla Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
4:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	3	0	0	0	0	0	2	0	0	0	0	5

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City of Moreno Valley
N/S: Krameria Avenue
E/W: Quarter Horse Road
Weather: Clear

File Name : 09_MRV_Krameria_Quarter Horse AM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 1

Groups Printed- Total Volume

	Krameria Avenue Southbound				Quarter Horse Road Westbound				Krameria Avenue Northbound				Lasselle Elementary School Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	27	1	28	4	0	3	7	3	60	6	69	0	0	1	1	105
07:15 AM	2	52	0	54	5	0	2	7	1	108	2	111	0	0	1	1	173
07:30 AM	1	54	0	55	1	0	2	3	0	108	2	110	0	0	1	1	169
07:45 AM	1	56	0	57	1	0	1	2	2	194	2	198	0	0	0	0	257
Total	4	189	1	194	11	0	8	19	6	470	12	488	0	0	3	3	704
08:00 AM	1	134	0	135	0	1	1	2	14	152	7	173	0	0	8	8	318
08:15 AM	0	71	0	71	3	0	3	6	0	19	2	21	1	1	6	8	106
08:30 AM	1	3	0	4	1	0	1	2	1	14	4	19	0	0	0	0	25
08:45 AM	0	9	0	9	1	0	0	1	0	15	2	17	0	0	2	2	29
Total	2	217	0	219	5	1	5	11	15	200	15	230	1	1	16	18	478
Grand Total	6	406	1	413	16	1	13	30	21	670	27	718	1	1	19	21	1182
Apprch %	1.5	98.3	0.2		53.3	3.3	43.3		2.9	93.3	3.8		4.8	4.8	90.5		
Total %	0.5	34.3	0.1	34.9	1.4	0.1	1.1	2.5	1.8	56.7	2.3	60.7	0.1	0.1	1.6	1.8	

	Krameria Avenue Southbound				Quarter Horse Road Westbound				Krameria Avenue Northbound				Lasselle Elementary School Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**2**	52	0	54	**5**	0	**2**	**7**	1	108	2	111	0	0	1	1	173
07:30 AM	1	54	0	55	1	0	2	3	0	108	2	110	0	0	1	1	169
07:45 AM	1	56	0	57	1	0	1	2	2	**194**	2	**198**	0	0	0	0	257
08:00 AM	1	**134**	0	**135**	0	**1**	1	2	**14**	152	**7**	173	0	0	**8**	**8**	**318**
Total Volume	5	296	0	301	7	1	6	14	17	562	13	592	0	0	10	10	917
% App. Total	1.7	98.3	0		50	7.1	42.9		2.9	94.9	2.2		0	0	100		
PHF	.625	.552	.000	.557	.350	.250	.750	.500	.304	.724	.464	.747	.000	.000	.313	.313	.721

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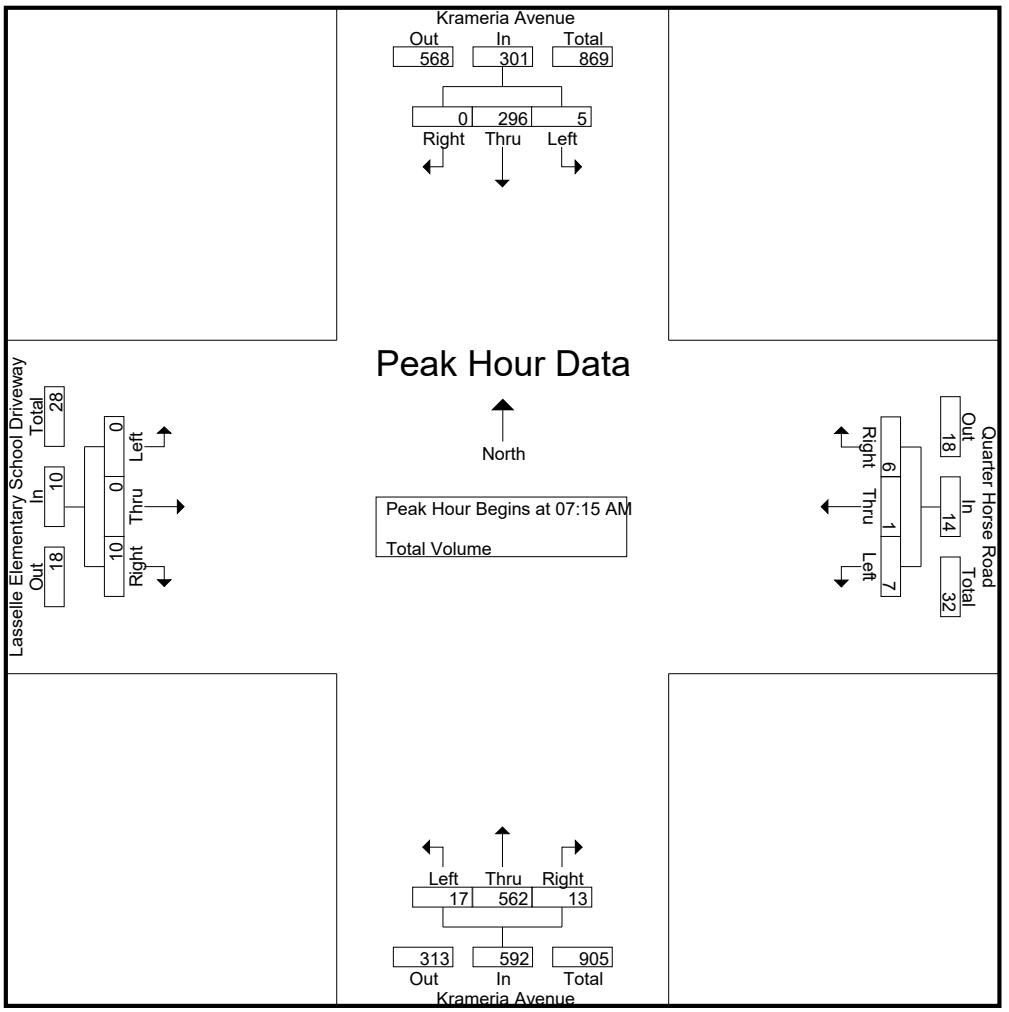
City of Moreno Valley
N/S: Krameria Avenue
E/W: Quarter Horse Road
Weather: Clear

File Name : 09_MRV_Krameria_Quarter Horse AM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:00 AM				07:15 AM				08:00 AM			
+0 mins.	**1**	54	0	55	4	0	**3**	**7**	1	108	2	111	0	0	**8**	**8**
+15 mins.	1	56	0	57	**5**	0	2	7	0	108	2	110	**1**	**1**	6	8
+30 mins.	1	**134**	0	**135**	1	0	2	3	2	**194**	2	**198**	0	0	0	0
+45 mins.	0	71	0	71	1	0	1	2	**14**	152	**7**	173	0	0	2	2
Total Volume	3	315	0	318	11	0	8	19	17	562	13	592	1	1	16	18
% App. Total	0.9	99.1	0		57.9	0	42.1		2.9	94.9	2.2		5.6	5.6	88.9	
PHF	.750	.588	.000	.589	.550	.000	.667	.679	.304	.724	.464	.747	.250	.250	.500	.563

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City of Moreno Valley
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File Name : 09_MRV_Krameria_Quarter Horse PM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 1

Groups Printed- Total Volume

	Krameria Avenue Southbound				Quarter Horse Road Westbound				Krameria Avenue Northbound				Lasselle Elementary School Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	11	1	12	1	0	1	2	1	23	0	24	1	0	0	1	39
04:15 PM	0	19	3	22	0	0	1	1	0	28	0	28	1	0	1	2	53
04:30 PM	0	12	6	18	0	0	0	0	1	39	0	40	1	0	1	2	60
04:45 PM	0	17	2	19	0	0	0	0	0	23	0	23	1	0	0	1	43
Total	0	59	12	71	1	0	2	3	2	113	0	115	4	0	2	6	195
05:00 PM	0	11	2	13	0	0	0	0	0	27	0	27	0	0	2	2	42
05:15 PM	0	25	4	29	0	0	0	0	2	39	0	41	2	0	1	3	73
05:30 PM	1	31	4	36	0	0	0	0	0	25	0	25	1	0	2	3	64
05:45 PM	0	55	2	57	0	0	0	0	0	18	0	18	3	0	2	5	80
Total	1	122	12	135	0	0	0	0	2	109	0	111	6	0	7	13	259
Grand Total	1	181	24	206	1	0	2	3	4	222	0	226	10	0	9	19	454
Apprch %	0.5	87.9	11.7		33.3	0	66.7		1.8	98.2	0		52.6	0	47.4		
Total %	0.2	39.9	5.3	45.4	0.2	0	0.4	0.7	0.9	48.9	0	49.8	2.2	0	2	4.2	

	Krameria Avenue Southbound				Quarter Horse Road Westbound				Krameria Avenue Northbound				Lasselle Elementary School Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	11	2	13	0	0	0	0	0	27	0	27	0	0	**2**	2	42
05:15 PM	0	25	**4**	29	0	0	0	0	**2**	**39**	0	**41**	2	0	1	3	73
05:30 PM	**1**	31	4	36	0	0	0	0	0	25	0	25	1	0	2	3	64
05:45 PM	0	**55**	2	**57**	0	0	0	0	0	18	0	18	**3**	0	2	**5**	**80**
Total Volume	1	122	12	135	0	0	0	0	2	109	0	111	6	0	7	13	259
% App. Total	0.7	90.4	8.9		0	0	0		1.8	98.2	0		46.2	0	53.8		
PHF	.250	.555	.750	.592	.000	.000	.000	.000	.250	.699	.000	.677	.500	.000	.875	.650	.809

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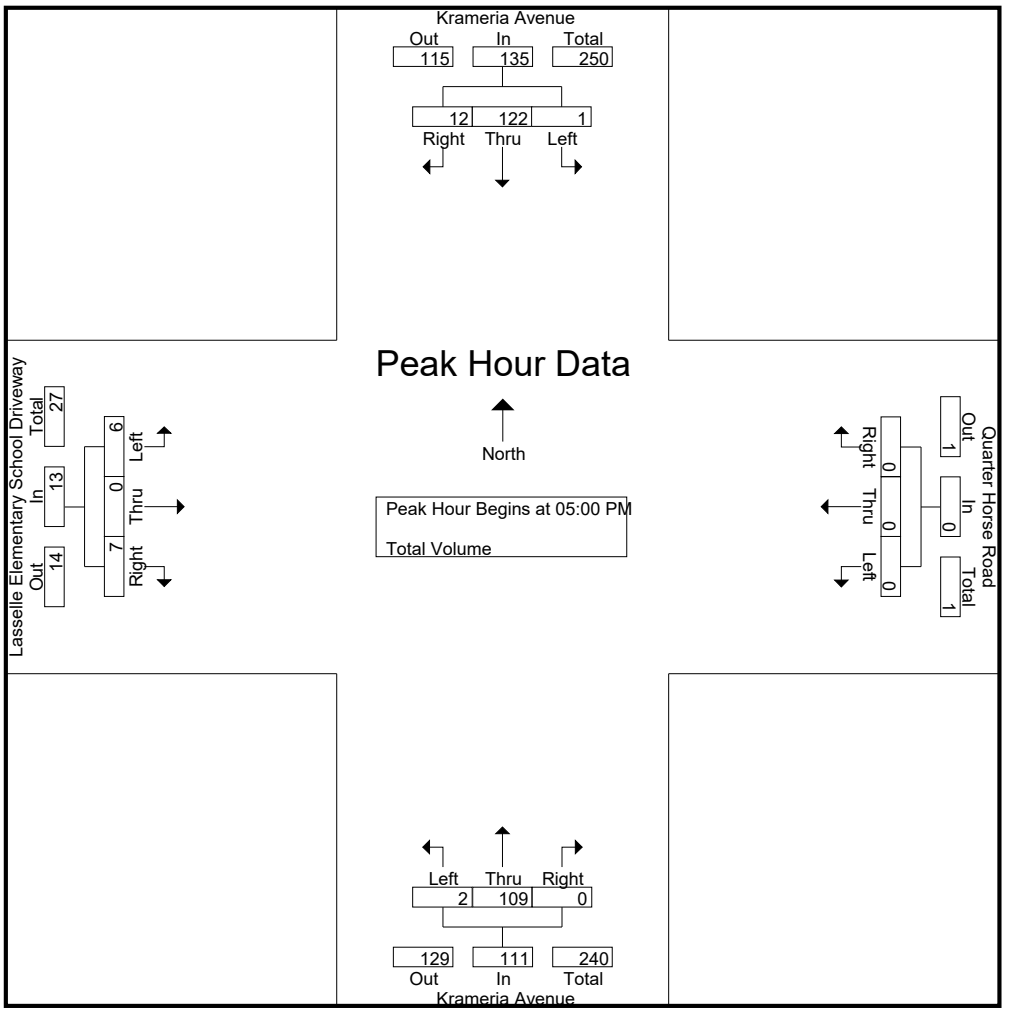
City of Moreno Valley
N/S: Krameria Avenue
E/W: Quarter Horse Road
Weather: Clear

File Name : 09_MRV_Krameria_Quarter Horse PM
Site Code : 05118162
Start Date : 3/6/2018
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				04:00 PM				04:30 PM				05:00 PM			
+0 mins.	0	11	2	13	**1**	0	**1**	**2**	1	**39**	0	40	0	0	**2**	2
+15 mins.	0	25	**4**	29	0	0	1	1	0	23	0	23	2	0	1	3
+30 mins.	**1**	31	4	36	0	0	0	0	0	27	0	27	1	0	2	3
+45 mins.	0	**55**	2	**57**	0	0	0	0	**2**	39	0	**41**	**3**	0	2	**5**
Total Volume	1	122	12	135	1	0	2	3	3	128	0	131	6	0	7	13
% App. Total	0.7	90.4	8.9		33.3	0	66.7		2.3	97.7	0		46.2	0	53.8	
PHF	.250	.555	.750	.592	.250	.000	.500	.375	.375	.821	.000	.799	.500	.000	.875	.650

Location: Moreno Valley
N/S: Krameria Avenue
E/W: Quarter Horse Road

Date: 3/6/2018
Date: Tuesday

PEDESTRIANS

	North Leg Krameria Avenue	East Leg Quarter Horse Road	South Leg Krameria Avenue	West Leg Lasselle Elementary DW	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	1	2	0	0	3
7:15 AM	11	5	0	0	16
7:30 AM	3	5	0	0	8
7:45 AM	10	7	0	0	17
8:00 AM	45	4	0	0	49
8:15 AM	9	3	0	0	12
8:30 AM	0	3	1	1	5
8:45 AM	0	2	0	0	2
TOTAL VOLUMES:	79	31	1	1	112

	North Leg Krameria Avenue	East Leg Quarter Horse Road	South Leg Krameria Avenue	West Leg Lasselle Elementary DW	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	2	2	4
4:45 PM	0	0	0	0	0
5:00 PM	0	0	1	2	3
5:15 PM	0	0	0	1	1
5:30 PM	0	1	0	2	3
5:45 PM	0	1	0	1	2
TOTAL VOLUMES:	0	2	3	8	13

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Location: Moreno Valley
N/S: Krameria Avenue
E/W: Quarter Horse Road

Date: 3/6/2018
Date: Tuesday

BICYCLES

	Southbound Krameria Avenue			Westbound Quarter Horse Road			Northbound Krameria Avenue			Eastbound Lasselle Elementary DW			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	2	0	0	0	0	0	1	0	0	0	0	3
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	2	0	0	0	0	0	1	0	0	0	0	3

	Southbound Krameria Avenue			Westbound Quarter Horse Road			Northbound Krameria Avenue			Eastbound Lasselle Elementary DW			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	0	0	1	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES:	0	4	0	0	0	0	0	3	0	0	0	0	7

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City of Perris
N/S: Evans Road
E/W: Ramona Expressway
Weather: Clear

File Name : 103_PER_Evans_Ramona AM
Site Code : 09818079
Start Date : 2/1/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Evans Road Southbound				Ramona Expressway Westbound				Evans Road Northbound				Ramona Expressway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	57	89	94	240	0	291	89	380	105	161	6	272	74	89	41	204	1096
07:15 AM	57	106	93	256	3	253	91	347	106	142	6	254	82	95	40	217	1074
07:30 AM	69	125	113	307	12	267	70	349	89	124	10	223	46	80	33	159	1038
07:45 AM	22	50	71	143	8	219	75	302	97	123	3	223	52	74	41	167	835
Total	205	370	371	946	23	1030	325	1378	397	550	25	972	254	338	155	747	4043
08:00 AM	31	50	55	136	3	198	44	245	78	86	1	165	58	93	23	174	720
08:15 AM	23	51	56	130	1	136	33	170	52	71	0	123	51	78	30	159	582
08:30 AM	24	32	55	111	2	200	50	252	55	84	2	141	52	102	25	179	683
08:45 AM	23	54	44	121	1	141	30	172	40	60	2	102	35	88	22	145	540
Total	101	187	210	498	7	675	157	839	225	301	5	531	196	361	100	657	2525
Grand Total	306	557	581	1444	30	1705	482	2217	622	851	30	1503	450	699	255	1404	6568
Apprch %	21.2	38.6	40.2		1.4	76.9	21.7		41.4	56.6	2		32.1	49.8	18.2		
Total %	4.7	8.5	8.8	22	0.5	26	7.3	33.8	9.5	13	0.5	22.9	6.9	10.6	3.9	21.4	
Passenger Vehicles	301	547	570	1418	28	1655	478	2161	614	837	30	1481	439	658	252	1349	6409
% Passenger Vehicles	98.4	98.2	98.1	98.2	93.3	97.1	99.2	97.5	98.7	98.4	100	98.5	97.6	94.1	98.8	96.1	97.6
Large 2 Axle Vehicles	3	10	11	24	2	26	3	31	8	14	0	22	8	14	3	25	102
% Large 2 Axle Vehicles	1	1.8	1.9	1.7	6.7	1.5	0.6	1.4	1.3	1.6	0	1.5	1.8	2	1.2	1.8	1.6
3 Axle Vehicles	0	0	0	0	0	12	0	12	0	0	0	0	3	17	0	20	32
% 3 Axle Vehicles	0	0	0	0	0	0.7	0	0.5	0	0	0	0	0.7	2.4	0	1.4	0.5
4+ Axle Trucks	2	0	0	2	0	12	1	13	0	0	0	0	0	10	0	10	25
% 4+ Axle Trucks	0.7	0	0	0.1	0	0.7	0.2	0.6	0	0	0	0	0	1.4	0	0.7	0.4

	Evans Road Southbound				Ramona Expressway Westbound				Evans Road Northbound				Ramona Expressway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	57	89	94	240	0	**291**	89	**380**	105	**161**	6	**272**	74	89	**41**	204	**1096**
07:15 AM	57	106	93	256	3	253	**91**	347	**106**	142	6	254	**82**	**95**	40	**217**	1074
07:30 AM	**69**	**125**	**113**	**307**	**12**	267	70	349	89	124	**10**	223	46	80	33	159	1038
07:45 AM	22	50	71	143	8	219	75	302	97	123	3	223	52	74	41	167	835
Total Volume	205	370	371	946	23	1030	325	1378	397	550	25	972	254	338	155	747	4043
% App. Total	21.7	39.1	39.2		1.7	74.7	23.6		40.8	56.6	2.6		34	45.2	20.7		
PHF	.743	.740	.821	.770	.479	.885	.893	.907	.936	.854	.625	.893	.774	.889	.945	.861	.922

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City of Perris
N/S: Evans Road
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File Name : 103_PER_Evans_Ramona AM
Site Code : 09818079
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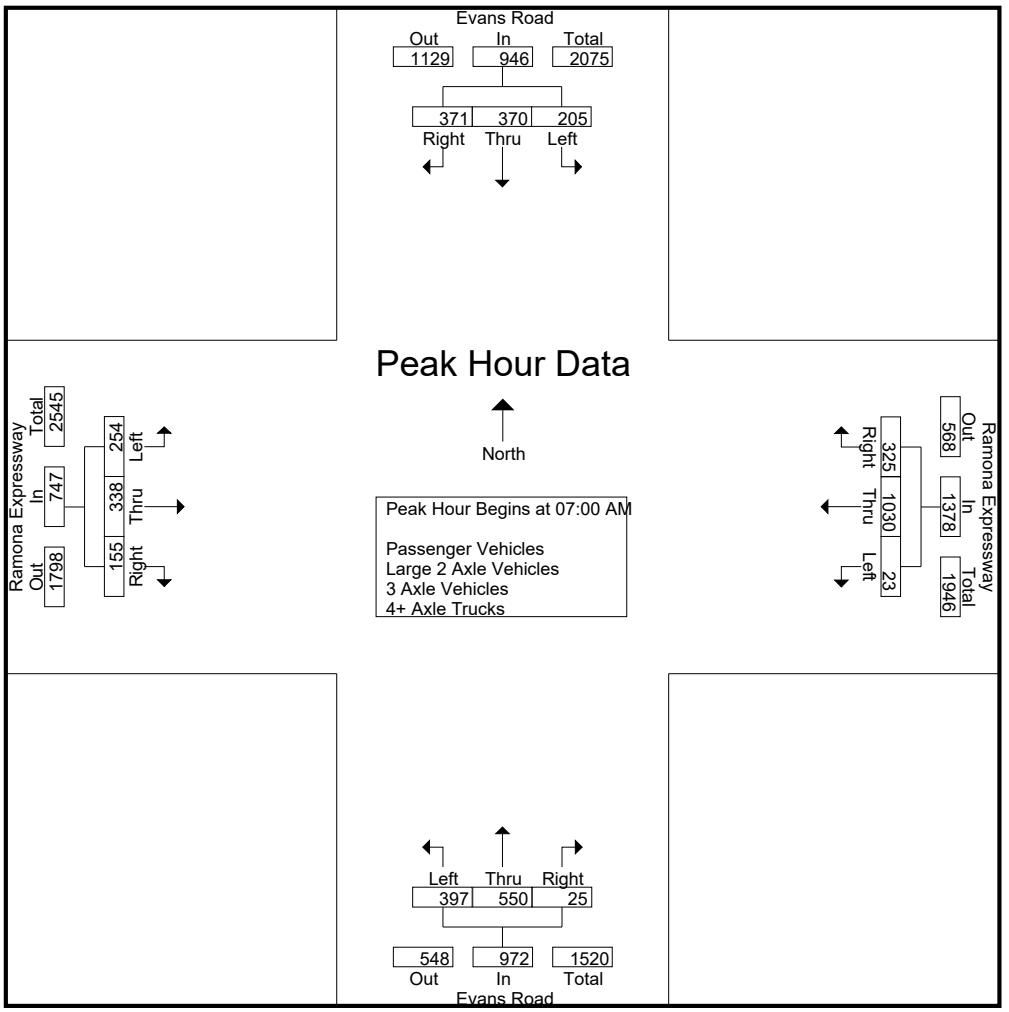

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	57	89	94	240	0	**291**	89	**380**	105	**161**	6	**272**	74	89	**41**	204
+15 mins.	57	106	93	256	3	253	**91**	347	**106**	142	6	254	**82**	**95**	40	**217**
+30 mins.	**69**	**125**	**113**	**307**	**12**	267	70	349	89	124	**10**	223	46	80	33	159
+45 mins.	22	50	71	143	8	219	75	302	97	123	3	223	52	74	41	167
Total Volume	205	370	371	946	23	1030	325	1378	397	550	25	972	254	338	155	747
% App. Total	21.7	39.1	39.2		1.7	74.7	23.6		40.8	56.6	2.6		34	45.2	20.7	
PHF	.743	.740	.821	.770	.479	.885	.893	.907	.936	.854	.625	.893	.774	.889	.945	.861

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City of Perris
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File Name : 103_PER_Evans_Ramona PM
Site Code : 09818079
Start Date : 2/1/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Evans Road Southbound				Ramona Expressway Westbound				Evans Road Northbound				Ramona Expressway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	45	98	52	195	1	107	36	144	36	89	2	127	74	177	79	330	796
04:15 PM	49	109	68	226	2	151	46	199	37	62	4	103	71	205	70	346	874
04:30 PM	66	110	70	246	5	149	45	199	54	84	5	143	96	248	83	427	1015
04:45 PM	46	125	71	242	6	138	42	186	50	74	1	125	79	227	81	387	940
Total	206	442	261	909	14	545	169	728	177	309	12	498	320	857	313	1490	3625
05:00 PM	66	96	66	228	4	122	42	168	47	77	9	133	76	218	77	371	900
05:15 PM	51	101	62	214	3	127	50	180	66	100	2	168	80	195	98	373	935
05:30 PM	69	137	74	280	9	143	47	199	44	113	4	161	82	188	71	341	981
05:45 PM	49	129	74	252	2	162	44	208	61	79	2	142	60	208	93	361	963
Total	235	463	276	974	18	554	183	755	218	369	17	604	298	809	339	1446	3779
Grand Total	441	905	537	1883	32	1099	352	1483	395	678	29	1102	618	1666	652	2936	7404
Apprch %	23.4	48.1	28.5		2.2	74.1	23.7		35.8	61.5	2.6		21	56.7	22.2		
Total %	6	12.2	7.3	25.4	0.4	14.8	4.8	20	5.3	9.2	0.4	14.9	8.3	22.5	8.8	39.7	
Passenger Vehicles	441	899	533	1873	31	1064	351	1446	392	675	28	1095	614	1642	646	2902	7316
% Passenger Vehicles	100	99.3	99.3	99.5	96.9	96.8	99.7	97.5	99.2	99.6	96.6	99.4	99.4	98.6	99.1	98.8	98.8
Large 2 Axle Vehicles	0	6	2	8	1	6	1	8	1	2	1	4	3	8	3	14	34
% Large 2 Axle Vehicles	0	0.7	0.4	0.4	3.1	0.5	0.3	0.5	0.3	0.3	3.4	0.4	0.5	0.5	0.5	0.5	0.5
3 Axle Vehicles	0	0	2	2	0	16	0	16	2	1	0	3	1	6	2	9	30
% 3 Axle Vehicles	0	0	0.4	0.1	0	1.5	0	1.1	0.5	0.1	0	0.3	0.2	0.4	0.3	0.3	0.4
4+ Axle Trucks	0	0	0	0	0	13	0	13	0	0	0	0	0	10	1	11	24
% 4+ Axle Trucks	0	0	0	0	0	1.2	0	0.9	0	0	0	0	0	0.6	0.2	0.4	0.3

	Evans Road Southbound				Ramona Expressway Westbound				Evans Road Northbound				Ramona Expressway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**66**	110	70	**246**	5	**149**	45	**199**	54	84	5	143	**96**	**248**	83	**427**	**1015**
04:45 PM	46	**125**	**71**	242	**6**	138	42	186	50	74	1	125	79	227	81	387	940
05:00 PM	66	96	66	228	4	122	42	168	47	77	**9**	133	76	218	77	371	900
05:15 PM	51	101	62	214	3	127	**50**	180	**66**	**100**	2	**168**	80	195	**98**	373	935
Total Volume	229	432	269	930	18	536	179	733	217	335	17	569	331	888	339	1558	3790
% App. Total	24.6	46.5	28.9		2.5	73.1	24.4		38.1	58.9	3		21.2	57	21.8		
PHF	.867	.864	.947	.945	.750	.899	.895	.921	.822	.838	.472	.847	.862	.895	.865	.912	.933

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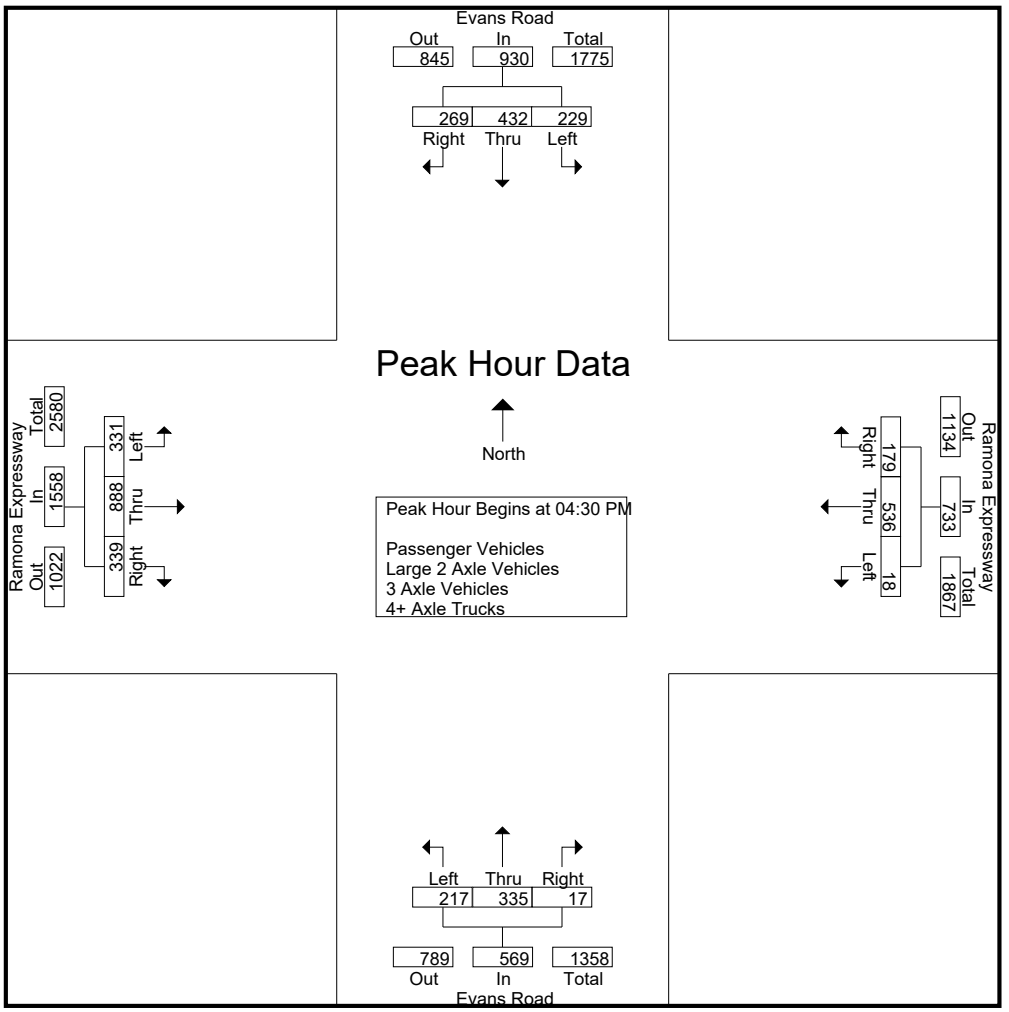
City of Perris
N/S: Evans Road
E/W: Ramona Expressway
Weather: Clear

File Name : 103_PER_Evans_Ramona PM
Site Code : 09818079
Start Date : 2/1/2018
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				04:30 PM			
+0 mins.	66	96	66	228	4	122	42	168	47	77	**9**	133	**96**	**248**	83	**427**
+15 mins.	51	101	62	214	3	127	**50**	180	**66**	100	2	**168**	79	227	81	387
+30 mins.	**69**	**137**	**74**	**280**	**9**	143	47	199	44	**113**	4	161	76	218	77	371
+45 mins.	49	129	74	252	2	**162**	44	**208**	61	79	2	142	80	195	**98**	373
Total Volume	235	463	276	974	18	554	183	755	218	369	17	604	331	888	339	1558
% App. Total	24.1	47.5	28.3		2.4	73.4	24.2		36.1	61.1	2.8		21.2	57	21.8	
PHF	.851	.845	.932	.870	.500	.855	.915	.907	.826	.816	.472	.899	.862	.895	.865	.912

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PO Box 1178
Corona, CA 92878
Phone: 951-268-6268
email: counts@countsunlimited.com

City of Moreno Valley
Krameria Avenue
E/ Perris Boulevard
24 Hour Directional Volume Count

MRV003
Site Code: 051-18162

Start Time	06-Mar-18 Tue	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		15	41			11	53				
12:15		7	58			9	72				
12:30		11	42			4	72				
12:45		12	53	45	194	0	55	24	252	69	446
01:00		8	57			3	61				
01:15		3	51			1	65				
01:30		7	80			4	59				
01:45		7	99	25	287	5	83	13	268	38	555
02:00		5	85			6	75				
02:15		4	**84**			5	**88**				
02:30		8	**105**			6	**108**				
02:45		3	**118**	20	392	5	**101**	22	372	42	764
03:00		7	**86**			6	**117**				
03:15		1	69			14	84				
03:30		9	92			22	78				
03:45		5	75	22	322	23	85	65	364	87	686
04:00		12	85			28	71				
04:15		3	67			52	75				
04:30		18	119			56	74				
04:45		19	82	52	353	51	63	187	283	239	636
05:00		13	88			40	67				
05:15		13	98			50	57				
05:30		6	103			68	79				
05:45		22	85	54	374	71	60	229	263	283	637
06:00		14	71			46	78				
06:15		25	81			63	85				
06:30		48	71			78	54				
06:45		60	72	147	295	99	54	286	271	433	566
07:00		**128**	75			**133**	50				
07:15		**129**	78			**141**	53				
07:30		**110**	58			**148**	56				
07:45		**138**	55	505	266	**135**	45	557	204	1062	470
08:00		60	52			106	33				
08:15		39	38			78	39				
08:30		45	34			59	44				
08:45		33	53	177	177	56	32	299	148	476	325
09:00		37	31			60	29				
09:15		29	31			54	22				
09:30		40	32			56	24				
09:45		51	35	157	129	33	32	203	107	360	236
10:00		39	26			78	12				
10:15		32	19			51	24				
10:30		37	42			50	29				
10:45		45	32	153	119	43	13	222	78	375	197
11:00		35	22			66	19				
11:15		49	22			55	11				
11:30		40	13			61	7				
11:45		33	19	157	76	45	5	227	42	384	118
Total		1514	2984	1514	2984	2334	2652	2334	2652	3848	5636
Combined Total		4498		4498		4986		4986		9484	
AM Peak	-	07:00	-	-	-	07:00	-	-	-	-	-
Vol.	-	505	-	-	-	557	-	-	-	-	-
P.H.F.		0.915				0.941					
PM Peak	-	-	02:15	-	-	-	02:15	-	-	-	-
Vol.	-	-	393	-	-	-	414	-	-	-	-
P.H.F.			0.833				0.885				
Percentage		33.7%	66.3%			46.8%	53.2%				
ADT/AADT		ADT 9,484		AADT 9,484							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: 951-268-6268
email: counts@countsunlimited.com

City of Moreno Valley
Kitching Street
N/ Krameria Avenue
24 Hour Directional Volume Count

MRV005
Site Code: 051-18162

Start Time	06-Mar-18 Tue	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		7	28			6	49				
12:15		1	53			7	42				
12:30		3	33			1	40				
12:45		1	27	12	141	3	32	17	163	29	304
01:00		2	38			4	43				
01:15		1	30			4	43				
01:30		4	36			2	62				
01:45		2	43	9	147	6	**73**	16	221	25	368
02:00		0	**87**			1	**125**				
02:15		3	**118**			1	**106**				
02:30		3	**99**			2	**80**				
02:45		2	**71**	8	375	3	59	7	370	15	745
03:00		2	69			8	70				
03:15		1	46			2	53				
03:30		4	53			7	55				
03:45		2	39	9	207	8	66	25	244	34	451
04:00		6	75			9	61				
04:15		6	61			16	63				
04:30		7	55			31	63				
04:45		20	50	39	241	17	71	73	258	112	499
05:00		8	51			18	54				
05:15		13	33			20	84				
05:30		22	59			31	72				
05:45		19	47	62	190	26	78	95	288	157	478
06:00		24	56			16	67				
06:15		28	40			35	63				
06:30		36	42			51	60				
06:45		39	33	127	171	62	52	164	242	291	413
07:00		79	19			**147**	43				
07:15		**106**	31			**129**	54				
07:30		**104**	24			**91**	47				
07:45		**91**	25	380	99	**132**	36	499	180	879	279
08:00		**103**	15			48	38				
08:15		36	15			48	35				
08:30		46	15			26	35				
08:45		31	25	216	70	28	23	150	131	366	201
09:00		20	13			22	30				
09:15		20	8			47	25				
09:30		53	14			49	27				
09:45		28	13	121	48	27	30	145	112	266	160
10:00		20	4			36	28				
10:15		21	8			39	23				
10:30		46	13			25	18				
10:45		44	13	131	38	48	8	148	77	279	115
11:00		38	10			36	10				
11:15		33	3			39	18				
11:30		51	3			45	8				
11:45		35	5	157	21	44	11	164	47	321	68
Total		1271	1748	1271	1748	1503	2333	1503	2333	2774	4081
Combined Total		3019		3019		3836		3836		6855	
AM Peak	-	07:15	-	-	-	07:00	-	-	-	-	-
Vol.	-	404	-	-	-	499	-	-	-	-	-
P.H.F.		0.953				0.849					
PM Peak	-	-	02:00	-	-	-	01:45	-	-	-	-
Vol.	-	-	375	-	-	-	384	-	-	-	-
P.H.F.			0.794				0.768				
Percentage		42.1%	57.9%			39.2%	60.8%				
ADT/AADT		ADT 6,855		AADT 6,855							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: 951-268-6268
email: counts@countsunlimited.com

City of Moreno Valley
Krameria Avenue
E/ Kitching Street
24 Hour Directional Volume Count

MRV004
Site Code: 051-18162

Start Time	06-Mar-18 Tue	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		8	39			7	52				
12:15		2	73			5	57				
12:30		5	35			2	66				
12:45		6	48	21	195	0	47	14	222	35	417
01:00		4	68			4	67				
01:15		8	54			0	53				
01:30		2	61			3	55				
01:45		2	100	16	283	4	74	11	249	27	532
02:00		2	**144**			5	104				
02:15		1	**134**			4	**104**				
02:30		5	**121**			8	**95**				
02:45		2	**121**	10	520	1	**90**	18	393	28	913
03:00		3	101			4	**142**				
03:15		2	65			11	95				
03:30		5	82			8	61				
03:45		2	75	12	323	11	78	34	376	46	699
04:00		8	74			20	92				
04:15		1	51			26	83				
04:30		10	91			23	63				
04:45		14	84	33	300	35	64	104	302	137	602
05:00		10	88			19	59				
05:15		12	109			28	50				
05:30		11	93			48	68				
05:45		19	89	52	379	39	53	134	230	186	609
06:00		14	81			38	61				
06:15		49	77			49	61				
06:30		64	81			56	49				
06:45		96	67	223	306	98	54	241	225	464	531
07:00		**263**	57			**150**	41				
07:15		**213**	81			**234**	41				
07:30		**100**	35			**166**	51				
07:45		**122**	55	698	228	**111**	37	661	170	1359	398
08:00		58	57			84	28				
08:15		43	42			83	37				
08:30		34	47			68	43				
08:45		33	39	168	185	42	33	277	141	445	326
09:00		40	28			57	24				
09:15		28	34			55	19				
09:30		53	26			48	25				
09:45		45	37	166	125	42	25	202	93	368	218
10:00		38	31			59	14				
10:15		29	17			44	9				
10:30		28	23			56	17				
10:45		51	16	146	87	40	11	199	51	345	138
11:00		35	15			59	16				
11:15		44	20			49	3				
11:30		41	11			53	7				
11:45		32	14	152	60	56	7	217	33	369	93
Total		1697	2991	1697	2991	2112	2485	2112	2485	3809	5476
Combined Total		4688		4688		4597		4597		9285	
AM Peak	-	07:00	-	-	-	07:00	-	-	-	-	-
Vol.	-	698	-	-	-	661	-	-	-	-	-
P.H.F.		0.663				0.706					
PM Peak	-	-	02:00	-	-	-	02:15	-	-	-	-
Vol.	-	-	520	-	-	-	431	-	-	-	-
P.H.F.			0.903				0.759				
Percentage		36.2%	63.8%			45.9%	54.1%				
ADT/AADT		ADT 9,285		AADT 9,285							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: 951-268-6268
email: counts@countsunlimited.com

City of Moreno Valley
Krameria Avenue
E/ Lasselle Street
24 Hour Directional Volume Count

MRV006
Site Code: 051-18162

Start Time	06-Mar-18 Tue	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		6	34			5	48				
12:15		1	51			0	66				
12:30		2	26			0	91				
12:45		3	33	12	144	2	45	7	250	19	394
01:00		5	26			3	30				
01:15		1	24			1	18				
01:30		2	48			0	24				
01:45		1	**68**	9	166	1	31	5	103	14	269
02:00		2	**83**			0	39				
02:15		1	**113**			3	**35**				
02:30		0	**114**			3	**153**				
02:45		0	65	3	375	0	**110**	6	337	9	712
03:00		1	47			1	**43**				
03:15		2	36			3	34				
03:30		2	44			3	46				
03:45		1	42	6	169	5	43	12	166	18	335
04:00		4	31			4	46				
04:15		0	41			16	37				
04:30		1	44			3	56				
04:45		4	34	9	150	18	34	41	173	50	323
05:00		3	43			11	50				
05:15		5	55			10	42				
05:30		3	54			7	39				
05:45		9	77	20	229	29	39	57	170	77	399
06:00		7	43			16	39				
06:15		11	46			21	16				
06:30		24	36			23	21				
06:45		38	23	80	148	37	14	97	90	177	238
07:00		79	33			60	39				
07:15		**139**	33			**85**	11				
07:30		**110**	20			**56**	24				
07:45		**196**	23	524	109	**74**	12	275	86	799	195
08:00		**109**	26			**142**	21				
08:15		20	22			50	26				
08:30		20	32			17	50				
08:45		25	23	174	103	28	20	237	117	411	220
09:00		26	18			12	18				
09:15		55	16			46	11				
09:30		35	10			29	9				
09:45		55	14	171	58	33	8	120	46	291	104
10:00		48	16			57	6				
10:15		23	11			27	5				
10:30		28	11			24	2				
10:45		30	8	129	46	19	4	127	17	256	63
11:00		27	5			54	1				
11:15		17	7			28	1				
11:30		20	4			19	1				
11:45		13	3	77	19	33	0	134	3	211	22
Total		1214	1716	1214	1716	1118	1558	1118	1558	2332	3274
Combined Total		2930		2930		2676		2676		5606	
AM Peak	-	07:15	-	-	-	07:15	-	-	-	-	-
Vol.	-	554	-	-	-	357	-	-	-	-	-
P.H.F.		0.707				0.629					
PM Peak	-	-	01:45	-	-	-	02:15	-	-	-	-
Vol.	-	-	378	-	-	-	341	-	-	-	-
P.H.F.			0.829				0.557				
Percentage		41.4%	58.6%			41.8%	58.2%				
ADT/AADT		ADT 5,606		AADT 5,606							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: 951-268-6268
email: counts@countsunlimited.com

City of Moreno Valley
Lasselle Street
S/ Iris Avenue
24 Hour Directional Volume Count

MRV009
Site Code: 051-18162

Start Time	06-Mar-18 Tue	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		26	253			39	191				
12:15		21	275			26	193				
12:30		11	337			22	206				
12:45		11	249	69	1114	19	192	106	782	175	1896
01:00		12	197			25	218				
01:15		15	168			8	230				
01:30		11	206			19	272				
01:45		7	247	45	818	16	336	68	1056	113	1874
02:00		8	260			7	308				
02:15		12	273			10	257				
02:30		15	**293**			9	266				
02:45		12	**296**	47	1122	8	311	34	1142	81	2264
03:00		19	**383**			12	290				
03:15		14	**359**			28	312				
03:30		20	252			20	306				
03:45		27	295	80	1289	22	281	82	1189	162	2478
04:00		35	324			30	289				
04:15		45	305			38	289				
04:30		66	295			44	306				
04:45		69	307	215	1231	38	284	150	1168	365	2399
05:00		53	280			35	**356**				
05:15		78	308			39	**337**				
05:30		83	260			77	**413**				
05:45		122	280	336	1128	65	**404**	216	1510	552	2638
06:00		153	224			76	319				
06:15		196	208			108	316				
06:30		267	237			146	251				
06:45		262	182	878	851	222	224	552	1110	1430	1961
07:00		299	200			**370**	232				
07:15		**386**	169			**352**	189				
07:30		**321**	154			**368**	210				
07:45		**319**	166	1325	689	**415**	178	1505	809	2830	1498
08:00		**318**	184			201	162				
08:15		225	159			168	163				
08:30		211	224			170	152				
08:45		187	154	941	721	194	152	733	629	1674	1350
09:00		198	113			204	124				
09:15		220	97			259	122				
09:30		224	87			168	115				
09:45		211	80	853	377	184	115	815	476	1668	853
10:00		230	52			203	106				
10:15		199	45			154	74				
10:30		171	41			146	64				
10:45		179	58	779	196	196	67	699	311	1478	507
11:00		298	34			174	54				
11:15		200	36			162	44				
11:30		170	19			165	45				
11:45		187	22	855	111	161	28	662	171	1517	282
Total		6423	9647	6423	9647	5622	10353	5622	10353	12045	20000
Combined Total		16070		16070		15975		15975		32045	
AM Peak	-	07:15	-	-	-	07:00	-	-	-	-	-
Vol.	-	1344	-	-	-	1505	-	-	-	-	-
P.H.F.		0.870				0.907					
PM Peak	-	-	02:30	-	-	-	05:00	-	-	-	-
Vol.	-	-	1331	-	-	-	1510	-	-	-	-
P.H.F.			0.869				0.914				
Percentage		40.0%	60.0%			35.2%	64.8%				
ADT/AADT		ADT 32,045		AADT 32,045							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: 951-268-6268
email: counts@countsunlimited.com

City of Moreno Valley
Lasselle Street
N/ Krameria Avenue
24 Hour Directional Volume Count

MRV008
Site Code: 051-18162

Start Time	06-Mar-18 Tue	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		23	150			32	161				
12:15		19	127			24	141				
12:30		11	169			19	147				
12:45		11	164	64	610	18	159	93	608	157	1218
01:00		11	151			20	158				
01:15		12	138			6	164				
01:30		9	207			17	172				
01:45		7	234	39	730	16	173	59	667	98	1397
02:00		8	248			8	211				
02:15		12	251			9	224				
02:30		15	**243**			8	225				
02:45		11	**242**	46	984	9	263	34	923	80	1907
03:00		18	**321**			11	242				
03:15		16	**319**			25	247				
03:30		16	204			19	214				
03:45		29	234	79	1078	21	243	76	946	155	2024
04:00		31	203			31	244				
04:15		47	202			33	243				
04:30		62	200			42	**278**				
04:45		67	241	207	846	44	**271**	150	1036	357	1882
05:00		50	183			32	**287**				
05:15		67	217			37	**302**				
05:30		85	251			75	261				
05:45		123	232	325	883	59	274	203	1124	528	2007
06:00		138	194			72	272				
06:15		193	194			101	283				
06:30		256	204			130	219				
06:45		259	156	846	748	**190**	193	493	967	1339	1715
07:00		**276**	158			**300**	210				
07:15		**390**	142			**211**	183				
07:30		**324**	113			**179**	195				
07:45		**353**	120	1343	533	184	156	874	744	2217	1277
08:00		262	103			133	169				
08:15		209	86			124	144				
08:30		183	92			118	169				
08:45		169	87	823	368	134	127	509	609	1332	977
09:00		169	80			114	119				
09:15		183	83			123	118				
09:30		153	71			99	97				
09:45		152	84	657	318	100	108	436	442	1093	760
10:00		141	51			120	103				
10:15		155	45			130	69				
10:30		162	42			89	63				
10:45		152	55	610	193	118	60	457	295	1067	488
11:00		155	36			148	46				
11:15		143	35			128	42				
11:30		126	20			136	41				
11:45		135	21	559	112	123	25	535	154	1094	266
Total		5598	7403	5598	7403	3919	8515	3919	8515	9517	15918
Combined Total		13001		13001		12434		12434		25435	
AM Peak	-	07:00	-	-	-	06:45	-	-	-	-	-
Vol.	-	1343	-	-	-	880	-	-	-	-	-
P.H.F.		0.861				0.733					
PM Peak	-	-	02:30	-	-	-	04:30	-	-	-	-
Vol.	-	-	1125	-	-	-	1138	-	-	-	-
P.H.F.			0.876				0.942				
Percentage		43.1%	56.9%			31.5%	68.5%				
ADT/AADT		ADT 25,435		AADT 25,435							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: 951-268-6268
email: counts@countsunlimited.com

City of Moreno Valley
Krameria Avenue
E/ Spirit Road
24 Hour Directional Volume Count

MRV007
Site Code: 051-18162

Start Time	06-Mar-18 Tue	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		3	18			2	32				
12:15		0	46			0	58				
12:30		0	20			0	80				
12:45		0	15	3	99	0	37	2	207	5	306
01:00		0	10			0	18				
01:15		0	15			0	8				
01:30		1	36			0	13				
01:45		0	**62**	1	123	1	23	1	62	2	185
02:00		0	**84**			0	25				
02:15		0	**94**			0	19				
02:30		0	**101**			0	**186**				
02:45		0	49	0	328	0	**97**	0	327	0	655
03:00		0	26			0	**31**				
03:15		1	15			0	**25**				
03:30		0	23			0	36				
03:45		0	20	1	84	1	24	1	116	2	200
04:00		0	12			0	28				
04:15		0	24			2	29				
04:30		0	16			1	36				
04:45		0	16	0	68	3	26	6	119	6	187
05:00		1	16			1	30				
05:15		1	31			1	38				
05:30		2	41			1	23				
05:45		4	51	8	139	6	25	9	116	17	255
06:00		4	25			2	18				
06:15		7	14			5	7				
06:30		16	15			3	2				
06:45		26	3	53	57	13	3	23	30	76	87
07:00		71	9			37	17				
07:15		**128**	11			**65**	3				
07:30		**111**	6			**49**	14				
07:45		**220**	9	530	35	**68**	10	219	44	749	79
08:00		**115**	7			**167**	16				
08:15		18	12			35	25				
08:30		18	12			6	39				
08:45		18	7	169	38	14	14	222	94	391	132
09:00		21	7			5	11				
09:15		49	5			42	3				
09:30		30	4			20	5				
09:45		52	6	152	22	18	5	85	24	237	46
10:00		45	3			54	0				
10:15		11	1			12	0				
10:30		25	4			11	0				
10:45		21	2	102	10	10	1	87	1	189	11
11:00		22	0			49	0				
11:15		11	0			16	1				
11:30		13	0			12	0				
11:45		11	0	57	0	24	0	101	1	158	1
Total		1076	1003	1076	1003	756	1141	756	1141	1832	2144
Combined Total		2079		2079		1897		1897		3976	
AM Peak	-	07:15	-	-	-	07:15	-	-	-	-	-
Vol.	-	574	-	-	-	349	-	-	-	-	-
P.H.F.		0.652				0.522					
PM Peak	-	-	01:45	-	-	-	02:30	-	-	-	-
Vol.	-	-	341	-	-	-	339	-	-	-	-
P.H.F.			0.844				0.456				
Percentage		51.8%	48.2%			39.9%	60.1%				
ADT/AADT		ADT 3,976		AADT 3,976							

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APPENDIX 3.2:

EXISTING (2018) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings
1: Perris Bl. & Krameria Av.

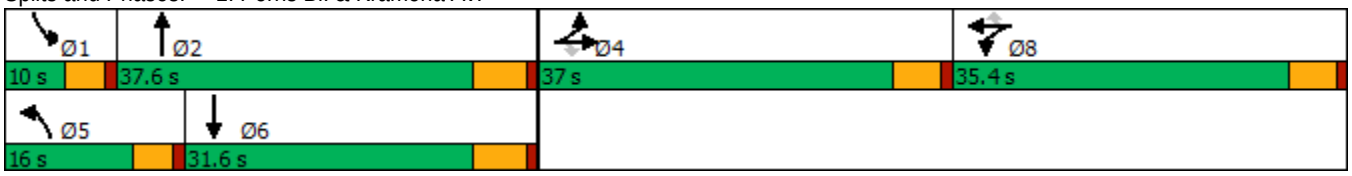
09/20/2018

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	191	307	121	67	304	1003	92	656
Future Volume (vph)	191	307	121	67	304	1003	92	656
Turn Type	NA	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4		8		5	2	1	6
Permitted Phases		4		8				
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	35.4	35.4	35.4	35.4	9.6	32.8	9.6	26.8
Total Split (s)	37.0	37.0	35.4	35.4	16.0	37.6	10.0	31.6
Total Split (%)	30.8%	30.8%	29.5%	29.5%	13.3%	31.3%	8.3%	26.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.4	-1.4	-1.4	-1.4	-0.6	-1.8	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min

Intersection Summary

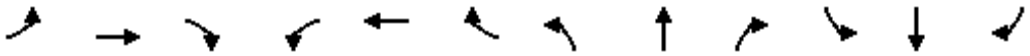
Cycle Length: 120
Actuated Cycle Length: 110.1
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Perris Bl. & Krameria Av.



HCM 6th Signalized Intersection Summary
1: Perris Bl. & Krameria Av.

09/20/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	273	191	307	74	121	67	304	1003	198	92	656	102
Future Volume (veh/h)	273	191	307	74	121	67	304	1003	198	92	656	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	333	233	267	90	148	54	371	1223	176	112	800	108
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	334	234	486	116	191	266	202	1401	202	101	1153	154
Arrive On Green	0.31	0.31	0.31	0.17	0.17	0.17	0.11	0.31	0.29	0.06	0.25	0.24
Sat Flow, veh/h	1069	748	1556	694	1141	1585	1781	4499	647	1781	4529	607
Grp Volume(v), veh/h	566	0	267	238	0	54	371	925	474	112	600	308
Grp Sat Flow(s),veh/h/ln	1817	0	1556	1836	0	1585	1781	1702	1743	1781	1702	1731
Q Serve(g_s), s	32.8	0.0	15.0	13.1	0.0	3.1	12.0	27.1	27.2	6.0	16.8	17.1
Cycle Q Clear(g_c), s	32.8	0.0	15.0	13.1	0.0	3.1	12.0	27.1	27.2	6.0	16.8	17.1
Prop In Lane	0.59		1.00	0.38		1.00	1.00		0.37	1.00		0.35
Lane Grp Cap(c), veh/h	568	0	486	308	0	266	202	1060	543	101	867	441
V/C Ratio(X)	1.00	0.00	0.55	0.77	0.00	0.20	1.83	0.87	0.87	1.11	0.69	0.70
Avail Cap(c_a), veh/h	568	0	486	546	0	471	202	1083	555	101	890	453
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	0.0	30.1	42.0	0.0	37.9	46.8	34.4	34.7	49.8	35.6	36.0
Incr Delay (d2), s/veh	36.9	0.0	1.3	4.1	0.0	0.4	393.3	7.9	14.1	121.0	2.2	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.6	0.0	5.6	6.1	0.0	1.2	27.2	11.7	13.0	6.0	6.9	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.1	0.0	31.4	46.2	0.0	38.2	440.0	42.3	48.8	170.8	37.8	40.6
LnGrp LOS	E	A	C	D	A	D	F	D	D	F	D	D
Approach Vol, veh/h		833			292			1770			1020	
Approach Delay, s/veh		59.7			44.7			127.4			53.3	
Approach LOS		E			D			F			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	36.9		37.0	16.0	30.9		21.7				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		5.4				
Max Green Setting (Gmax), s	5.4	31.8		31.6	11.4	25.8		30.0				
Max Q Clear Time (g_c+I1), s	8.0	29.2		34.8	14.0	19.1		15.1				
Green Ext Time (p_c), s	0.0	1.9		0.0	0.0	2.9		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		87.5	
HCM 6th LOS		F	

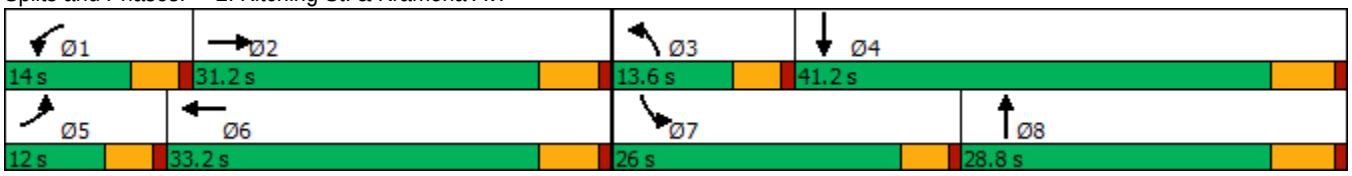
Timings
2: Kitching St. & Krameria Av.

09/20/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	71	408	84	411	54	112	253	144
Future Volume (vph)	71	408	84	411	54	112	253	144
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	28.4	9.6	31.4	9.6	28.8	9.6	29.8
Total Split (s)	12.0	31.2	14.0	33.2	13.6	28.8	26.0	41.2
Total Split (%)	12.0%	31.2%	14.0%	33.2%	13.6%	28.8%	26.0%	41.2%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.4	-0.6	-1.8	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 74.6
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kitching St. & Krameria Av.



HCM 6th Signalized Intersection Summary
2: Kitching St. & Krameria Av.

09/20/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	408	109	84	411	181	54	112	67	253	144	80
Future Volume (veh/h)	71	408	109	84	411	181	54	112	67	253	144	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	81	464	107	95	467	156	61	127	49	288	164	61
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	119	781	178	137	744	247	105	554	203	350	909	324
Arrive On Green	0.07	0.27	0.25	0.08	0.28	0.26	0.06	0.22	0.19	0.20	0.36	0.33
Sat Flow, veh/h	1781	2848	651	1781	2618	868	1781	2528	929	1781	2550	909
Grp Volume(v), veh/h	81	288	283	95	316	307	61	87	89	288	112	113
Grp Sat Flow(s),veh/h/ln	1781	1777	1722	1781	1777	1709	1781	1777	1680	1781	1777	1683
Q Serve(g_s), s	3.0	9.6	9.8	3.6	10.6	10.8	2.3	2.8	3.0	10.6	3.0	3.2
Cycle Q Clear(g_c), s	3.0	9.6	9.8	3.6	10.6	10.8	2.3	2.8	3.0	10.6	3.0	3.2
Prop In Lane	1.00		0.38	1.00		0.51	1.00		0.55	1.00		0.54
Lane Grp Cap(c), veh/h	119	487	472	137	505	486	105	389	368	350	633	599
V/C Ratio(X)	0.68	0.59	0.60	0.69	0.63	0.63	0.58	0.22	0.24	0.82	0.18	0.19
Avail Cap(c_a), veh/h	208	706	684	260	758	729	250	644	609	573	966	914
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	21.5	21.8	30.8	21.3	21.7	31.4	22.0	22.5	26.4	15.1	15.6
Incr Delay (d2), s/veh	2.5	1.1	1.2	2.3	1.3	1.4	1.9	0.3	0.3	2.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.7	3.7	1.5	4.1	4.1	1.0	1.1	1.1	4.2	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.8	22.7	23.1	33.1	22.6	23.1	33.3	22.2	22.8	28.4	15.3	15.7
LnGrp LOS	C	C	C	C	C	C	C	C	C	C	B	B
Approach Vol, veh/h		652			718			237			513	
Approach Delay, s/veh		24.2			24.2			25.3			22.7	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	22.8	8.0	28.4	8.6	23.5	17.4	19.0
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	9.4	25.8	9.0	35.4	7.4	27.8	21.4	23.0
Max Q Clear Time (g_c+I1), s	5.6	11.8	4.3	5.2	5.0	12.8	12.6	5.0
Green Ext Time (p_c), s	0.0	2.8	0.0	1.2	0.0	3.2	0.3	0.7

Intersection Summary	
HCM 6th Ctrl Delay	24.0
HCM 6th LOS	C

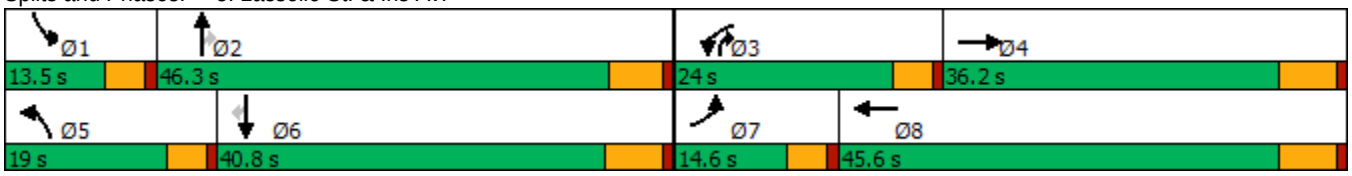
Timings
3: Lasselle St. & Iris Av.

09/20/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	134	478	510	583	369	582	471	116	560	97
Future Volume (vph)	134	478	510	583	369	582	471	116	560	97
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	3	1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	3	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	36.2	9.6	36.2	9.6	41.8	9.6	9.6	40.2	40.2
Total Split (s)	14.6	36.2	24.0	45.6	19.0	46.3	24.0	13.5	40.8	40.8
Total Split (%)	12.2%	30.2%	20.0%	38.0%	15.8%	38.6%	20.0%	11.3%	34.0%	34.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.8	3.6	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.2	-0.6	-2.2	-0.6	-1.8	-0.6	-0.6	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min	Min

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 104.5
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Lasselle St. & Iris Av.



HCM 6th Signalized Intersection Summary
3: Lasselle St. & Iris Av.

09/20/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	478	316	510	583	98	369	582	471	116	560	97
Future Volume (veh/h)	134	478	316	510	583	98	369	582	471	116	560	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	537	207	573	655	67	415	654	300	130	629	49
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	233	862	322	647	1672	169	491	1279	838	210	1004	426
Arrive On Green	0.07	0.24	0.21	0.19	0.36	0.33	0.14	0.36	0.35	0.06	0.28	0.28
Sat Flow, veh/h	3456	3657	1367	3456	4703	477	3456	3554	1552	3456	3554	1506
Grp Volume(v), veh/h	151	499	245	573	472	250	415	654	300	130	629	49
Grp Sat Flow(s),veh/h/ln	1728	1702	1620	1728	1702	1776	1728	1777	1552	1728	1777	1506
Q Serve(g_s), s	4.5	13.8	14.4	16.9	10.9	11.1	12.3	15.1	11.7	3.9	16.2	2.5
Cycle Q Clear(g_c), s	4.5	13.8	14.4	16.9	10.9	11.1	12.3	15.1	11.7	3.9	16.2	2.5
Prop In Lane	1.00		0.84	1.00		0.27	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	233	802	382	647	1210	631	491	1279	838	210	1004	426
V/C Ratio(X)	0.65	0.62	0.64	0.89	0.39	0.40	0.85	0.51	0.36	0.62	0.63	0.12
Avail Cap(c_a), veh/h	349	1045	497	659	1350	704	494	1433	905	313	1247	529
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.7	35.9	37.0	41.5	25.3	25.6	43.9	26.3	14.0	48.1	32.8	27.9
Incr Delay (d2), s/veh	1.1	0.8	1.8	13.1	0.2	0.4	12.1	0.3	0.3	1.1	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	5.5	5.7	8.0	4.1	4.5	5.9	6.1	3.7	1.6	6.6	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.8	36.7	38.8	54.6	25.5	26.0	55.9	26.6	14.3	49.2	33.5	28.0
LnGrp LOS	D	D	D	D	C	C	E	C	B	D	C	C
Approach Vol, veh/h		895			1295			1369			808	
Approach Delay, s/veh		39.3			38.5			32.8			35.7	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	42.2	23.6	28.7	18.9	33.6	11.1	41.3
Change Period (Y+Rc), s	4.6	* 6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	8.9	* 41	19.4	30.0	14.4	34.6	10.0	39.4
Max Q Clear Time (g_c+I1), s	5.9	17.1	18.9	16.4	14.3	18.2	6.5	13.1
Green Ext Time (p_c), s	0.1	5.3	0.1	3.6	0.0	3.6	0.1	4.3

Intersection Summary	
HCM 6th Ctrl Delay	36.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	70	1225	150	0	896
Future Vol, veh/h	0	70	1225	150	0	896
Conflicting Peds, #/hr	0	0	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	140	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	80	1392	170	0	1018

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	699	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	382	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	381	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	381	-
HCM Lane V/C Ratio	-	-	0.209	-
HCM Control Delay (s)	-	-	16.9	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.8	-

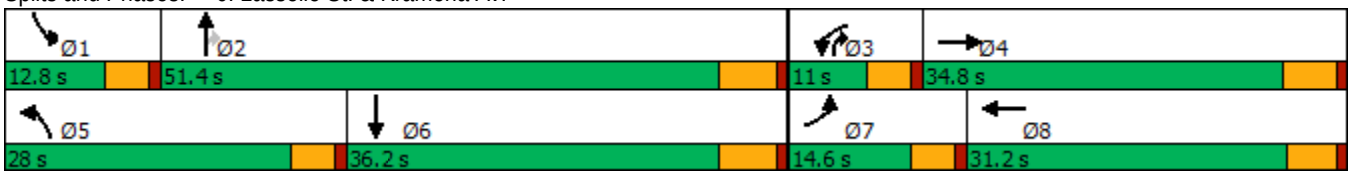
Timings
6: Lasselle St. & Krameria Av.

09/20/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	254	241	97	149	322	1018	237	89	722
Future Volume (vph)	254	241	97	149	322	1018	237	89	722
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	9.6	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	14.6	34.8	11.0	31.2	28.0	51.4	11.0	12.8	36.2
Total Split (%)	13.3%	31.6%	10.0%	28.4%	25.5%	46.7%	10.0%	11.6%	32.9%
Yellow Time (s)	3.6	4.4	3.6	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.1	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 99.2
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

09/20/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	254	241	332	97	149	88	322	1018	237	89	722	107
Future Volume (veh/h)	254	241	332	97	149	88	322	1018	237	89	722	107
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	295	280	210	113	173	75	374	1184	191	103	840	97
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	383	412	299	132	417	173	415	1656	826	141	999	115
Arrive On Green	0.11	0.21	0.20	0.07	0.17	0.16	0.23	0.47	0.45	0.08	0.31	0.29
Sat Flow, veh/h	3456	1955	1418	1781	2438	1011	1781	3554	1562	1781	3201	370
Grp Volume(v), veh/h	295	254	236	113	124	124	374	1184	191	103	466	471
Grp Sat Flow(s),veh/h/ln	1728	1777	1597	1781	1777	1672	1781	1777	1562	1781	1777	1794
Q Serve(g_s), s	7.8	12.4	13.0	5.9	5.9	6.3	19.2	25.1	6.2	5.3	23.0	23.1
Cycle Q Clear(g_c), s	7.8	12.4	13.0	5.9	5.9	6.3	19.2	25.1	6.2	5.3	23.0	23.1
Prop In Lane	1.00		0.89	1.00		0.60	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	383	374	337	132	304	286	415	1656	826	141	554	560
V/C Ratio(X)	0.77	0.68	0.70	0.85	0.41	0.43	0.90	0.71	0.23	0.73	0.84	0.84
Avail Cap(c_a), veh/h	389	581	522	132	513	483	454	1789	884	166	608	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	34.2	35.0	43.1	34.8	35.2	35.1	20.1	12.0	42.4	30.2	30.4
Incr Delay (d2), s/veh	8.2	2.1	2.7	37.0	0.9	1.0	18.8	1.3	0.1	9.7	9.6	9.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	5.3	5.1	3.9	2.6	2.6	10.0	9.5	2.0	2.6	10.6	10.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.9	36.4	37.7	80.1	35.6	36.3	53.8	21.4	12.1	52.1	39.9	40.0
LnGrp LOS	D	D	D	F	D	D	D	C	B	D	D	D
Approach Vol, veh/h		785			361			1749			1040	
Approach Delay, s/veh		41.5			49.8			27.3			41.1	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	47.9	11.0	23.8	25.9	33.4	14.4	20.4
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	8.2	45.6	6.4	29.4	23.4	30.4	10.0	* 26
Max Q Clear Time (g_c+I1), s	7.3	27.1	7.9	15.0	21.2	25.1	9.8	8.3
Green Ext Time (p_c), s	0.0	8.4	0.0	2.4	0.2	2.5	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	35.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

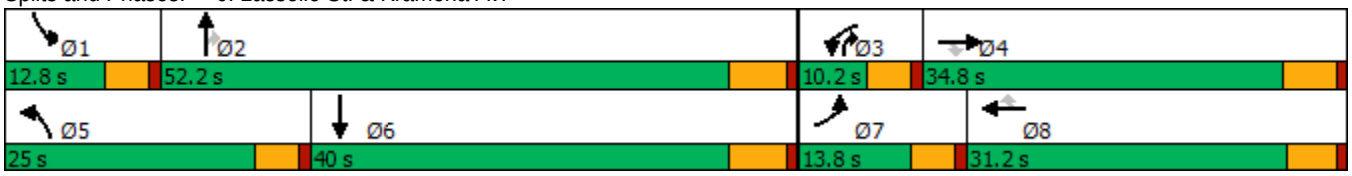
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	254	241	332	97	149	88	322	1018	237	89	722
Future Volume (vph)	254	241	332	97	149	88	322	1018	237	89	722
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	34.4	9.6	31.1	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	13.8	34.8	34.8	10.2	31.2	31.2	25.0	52.2	10.2	12.8	40.0
Total Split (%)	12.5%	31.6%	31.6%	9.3%	28.4%	28.4%	22.7%	47.5%	9.3%	11.6%	36.4%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.1	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.1	0.0	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	5.4	4.0	4.0	5.1	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min

Intersection Summary

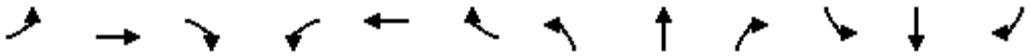
Cycle Length: 110
Actuated Cycle Length: 99.1
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	254	241	332	97	149	88	322	1018	237	89	722	107
Future Volume (veh/h)	254	241	332	97	149	88	322	1018	237	89	722	107
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	295	280	210	113	173	75	374	1184	191	103	840	97
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	189	390	303	119	311	242	405	1678	817	141	1036	120
Arrive On Green	0.11	0.21	0.19	0.07	0.17	0.15	0.23	0.47	0.46	0.08	0.32	0.30
Sat Flow, veh/h	1781	1870	1568	1781	1870	1564	1781	3554	1547	1781	3196	369
Grp Volume(v), veh/h	295	280	210	113	173	75	374	1184	191	103	467	470
Grp Sat Flow(s),veh/h/ln	1781	1870	1568	1781	1870	1564	1781	1777	1547	1781	1777	1788
Q Serve(g_s), s	9.8	12.9	11.5	5.8	7.9	3.9	19.0	24.4	6.2	5.2	22.3	22.3
Cycle Q Clear(g_c), s	9.8	12.9	11.5	5.8	7.9	3.9	19.0	24.4	6.2	5.2	22.3	22.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	189	390	303	119	311	242	405	1678	817	141	576	580
V/C Ratio(X)	1.56	0.72	0.69	0.95	0.56	0.31	0.92	0.71	0.23	0.73	0.81	0.81
Avail Cap(c_a), veh/h	189	623	499	119	550	441	405	1853	893	170	692	696
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.3	34.1	34.7	43.0	35.4	34.7	35.0	19.3	11.8	41.6	28.6	28.8
Incr Delay (d2), s/veh	277.3	2.5	2.8	64.8	1.6	0.7	26.4	1.1	0.1	8.9	6.1	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.7	5.9	4.5	4.7	3.6	1.5	10.7	9.1	2.0	2.5	9.7	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	318.6	36.5	37.6	107.8	37.0	35.4	61.3	20.4	12.0	50.6	34.8	34.9
LnGrp LOS	F	D	D	F	D	D	E	C	B	D	C	C
Approach Vol, veh/h		785			361			1749			1040	
Approach Delay, s/veh		142.8			58.8			28.3			36.4	
Approach LOS		F			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	47.7	10.2	23.3	25.0	34.0	13.8	19.7
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	8.2	46.4	5.6	29.4	20.4	34.2	9.2	* 26
Max Q Clear Time (g_c+I1), s	7.2	26.4	7.8	14.9	21.0	24.3	11.8	9.9
Green Ext Time (p_c), s	0.0	8.7	0.0	1.9	0.0	3.9	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	56.1
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	521	46	48	272	0	62	0	79	0	0	0
Future Vol, veh/h	0	521	46	48	272	0	62	0	79	0	0	0
Conflicting Peds, #/hr	0	0	2	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	677	60	62	353	0	81	0	103	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	-	0	0	739	0	0	1010	1186	371
Stage 1	-	-	-	-	-	-	709	709	-
Stage 2	-	-	-	-	-	-	301	477	-
Critical Hdwy	-	-	-	4.14	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	-	-	-	2.22	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	0	-	-	863	-	0	236	187	626
Stage 1	0	-	-	-	-	0	449	435	-
Stage 2	0	-	-	-	-	0	725	554	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	861	-	-	219	0	625
Mov Cap-2 Maneuver	-	-	-	-	-	-	372	0	-
Stage 1	-	-	-	-	-	-	416	0	-
Stage 2	-	-	-	-	-	-	725	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	17
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	481	-	-	861	-
HCM Lane V/C Ratio	0.381	-	-	0.072	-
HCM Control Delay (s)	17	-	-	9.5	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.8	-	-	0.2	-

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	78	118	184	66	19
Future Vol, veh/h	26	78	118	184	66	19
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	103	155	242	87	25
Number of Lanes	1	0	0	2	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	1
HCM Control Delay	9.4	10.6	7.8
HCM LOS	A	B	A

Lane	NBLn1	NBLn2	EBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	66%	0%	25%	0%	0%	0%
Vol Thru, %	34%	100%	0%	100%	100%	0%
Vol Right, %	0%	0%	75%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	179	123	104	33	33	19
LT Vol	118	0	26	0	0	0
Through Vol	61	123	0	33	33	0
RT Vol	0	0	78	0	0	19
Lane Flow Rate	236	161	137	43	43	25
Geometry Grp	8	8	7	7	7	7
Degree of Util (X)	0.36	0.231	0.202	0.064	0.064	0.02
Departure Headway (Hd)	5.487	5.157	5.311	5.312	5.312	2.858
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	654	694	673	672	672	1238
Service Time	3.236	2.905	3.06	3.064	3.064	0.609
HCM Lane V/C Ratio	0.361	0.232	0.204	0.064	0.064	0.02
HCM Control Delay	11.3	9.5	9.4	8.4	8.4	5.7
HCM Lane LOS	B	A	A	A	A	A
HCM 95th-tile Q	1.6	0.9	0.8	0.2	0.2	0.1

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	10	7	1	6	17	562	13	5	296	0
Future Vol, veh/h	0	0	10	7	1	6	17	562	13	5	296	0
Conflicting Peds, #/hr	0	0	0	0	0	69	0	0	21	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	100	-	0
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	14	10	1	8	24	781	18	7	411	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	933	1293	411	1291	1284	490	411	0	0	820	0	0
Stage 1	425	425	-	859	859	-	-	-	-	-	-	-
Stage 2	508	868	-	432	425	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.23	7.33	6.53	6.93	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	233	162	640	130	164	525	1146	-	-	807	-	-
Stage 1	606	586	-	318	372	-	-	-	-	-	-	-
Stage 2	517	369	-	601	586	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	208	154	640	122	156	481	1146	-	-	791	-	-
Mov Cap-2 Maneuver	328	262	-	229	265	-	-	-	-	-	-	-
Stage 1	593	581	-	305	357	-	-	-	-	-	-	-
Stage 2	463	354	-	583	581	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	17.9	0.2	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1146	-	-	640	299	791	-	-
HCM Lane V/C Ratio	0.021	-	-	0.022	0.065	0.009	-	-
HCM Control Delay (s)	8.2	-	-	10.8	17.9	9.6	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.2	0	-	-

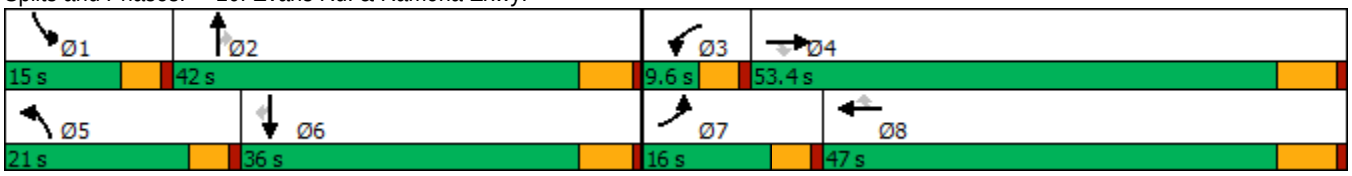
Timings
10: Evans Rd. & Ramona Exwy.

09/20/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	254	338	155	23	1030	325	397	550	25	205	370	371
Future Volume (vph)	254	338	155	23	1030	325	397	550	25	205	370	371
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	33.5	33.5	9.6	36.5	36.5	9.6	38.8	38.8	9.6	34.8	34.8
Total Split (s)	16.0	53.4	53.4	9.6	47.0	47.0	21.0	42.0	42.0	15.0	36.0	36.0
Total Split (%)	13.3%	44.5%	44.5%	8.0%	39.2%	39.2%	17.5%	35.0%	35.0%	12.5%	30.0%	30.0%
Yellow Time (s)	3.6	5.5	5.5	3.6	5.5	5.5	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.5	-2.5	-0.6	-2.5	-2.5	-0.6	-1.8	-1.8	-0.6	-1.8	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 108.9
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Evans Rd. & Ramona Exwy.



HCM 6th Signalized Intersection Summary
10: Evans Rd. & Ramona Exwy.

09/20/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	254	338	155	23	1030	325	397	550	25	205	370	371
Future Volume (veh/h)	254	338	155	23	1030	325	397	550	25	205	370	371
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	276	367	0	25	1120	353	432	598	27	223	402	403
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	346	2170		99	1256	560	494	1161	518	295	956	426
Arrive On Green	0.10	0.42	0.00	0.03	0.35	0.35	0.14	0.33	0.33	0.09	0.27	0.27
Sat Flow, veh/h	3456	5106	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	276	367	0	25	1120	353	432	598	27	223	402	403
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	9.3	5.3	0.0	0.8	35.4	22.0	14.6	16.2	1.4	7.5	11.1	29.6
Cycle Q Clear(g_c), s	9.3	5.3	0.0	0.8	35.4	22.0	14.6	16.2	1.4	7.5	11.1	29.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	346	2170		99	1256	560	494	1161	518	295	956	426
V/C Ratio(X)	0.80	0.17		0.25	0.89	0.63	0.87	0.52	0.05	0.76	0.42	0.95
Avail Cap(c_a), veh/h	349	2170		163	1285	573	494	1161	518	320	956	426
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.4	21.2	0.0	56.5	36.3	32.0	49.9	32.4	27.4	53.2	35.8	42.6
Incr Delay (d2), s/veh	11.3	0.0	0.0	0.5	8.1	2.1	15.4	0.4	0.0	7.9	0.3	30.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	2.0	0.0	0.4	15.6	8.2	7.2	6.8	0.5	3.5	4.7	14.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.7	21.2	0.0	57.0	44.4	34.1	65.3	32.8	27.5	61.1	36.1	72.6
LnGrp LOS	E	C		E	D	C	E	C	C	E	D	E
Approach Vol, veh/h		643	A		1498			1057			1028	
Approach Delay, s/veh		39.4			42.2			46.0			55.9	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.1	42.9	7.4	54.5	21.0	36.0	15.9	46.1
Change Period (Y+Rc), s	4.6	5.8	4.6	6.5	4.6	5.8	4.6	6.5
Max Green Setting (Gmax), s	10.4	36.2	5.0	46.9	16.4	30.2	11.4	40.5
Max Q Clear Time (g_c+I1), s	9.5	18.2	2.8	7.3	16.6	31.6	11.3	37.4
Green Ext Time (p_c), s	0.0	3.5	0.0	2.2	0.0	0.0	0.0	2.2

Intersection Summary	
HCM 6th Ctrl Delay	46.0
HCM 6th LOS	D

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Timings
1: Perris Bl. & Krameria Av.

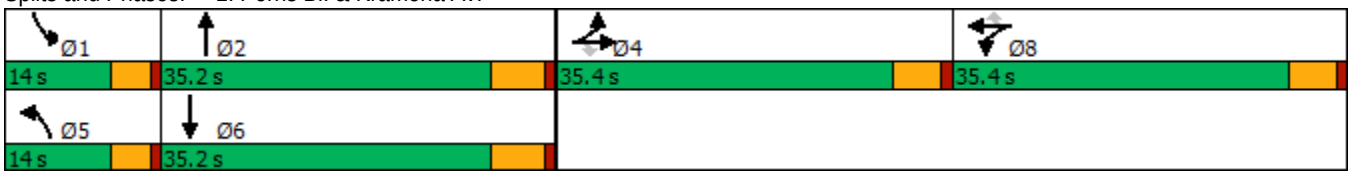
09/20/2018

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	49	140	28	55	89	797	92	998
Future Volume (vph)	49	140	28	55	89	797	92	998
Turn Type	NA	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4		8		5	2	1	6
Permitted Phases		4		8				
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	35.4	35.4	35.4	35.4	9.6	32.8	9.6	26.8
Total Split (s)	35.4	35.4	35.4	35.4	14.0	35.2	14.0	35.2
Total Split (%)	29.5%	29.5%	29.5%	29.5%	11.7%	29.3%	11.7%	29.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.4	-1.4	-1.4	-1.4	-0.6	-1.8	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 83.6
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Perris Bl. & Krameria Av.



HCM 6th Signalized Intersection Summary
1: Perris Bl. & Krameria Av.

09/20/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	49	140	54	28	55	89	797	48	92	998	60
Future Volume (veh/h)	125	49	140	54	28	55	89	797	48	92	998	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	137	54	73	59	31	27	98	876	37	101	1097	58
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	235	93	286	190	100	253	141	1691	71	145	1679	89
Arrive On Green	0.18	0.18	0.18	0.16	0.16	0.16	0.08	0.34	0.31	0.08	0.34	0.31
Sat Flow, veh/h	1295	510	1575	1187	624	1579	1781	5021	212	1781	4956	262
Grp Volume(v), veh/h	191	0	73	90	0	27	98	593	320	101	753	402
Grp Sat Flow(s),veh/h/ln	1806	0	1575	1811	0	1579	1781	1702	1829	1781	1702	1814
Q Serve(g_s), s	6.4	0.0	2.6	2.9	0.0	1.0	3.6	9.3	9.4	3.7	12.5	12.6
Cycle Q Clear(g_c), s	6.4	0.0	2.6	2.9	0.0	1.0	3.6	9.3	9.4	3.7	12.5	12.6
Prop In Lane	0.72		1.00	0.66		1.00	1.00		0.12	1.00		0.14
Lane Grp Cap(c), veh/h	327	0	286	290	0	253	141	1146	616	145	1153	615
V/C Ratio(X)	0.58	0.00	0.26	0.31	0.00	0.11	0.69	0.52	0.52	0.70	0.65	0.65
Avail Cap(c_a), veh/h	852	0	743	855	0	745	268	1596	857	268	1596	851
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	23.4	24.7	0.0	23.9	29.8	17.7	17.8	29.8	18.7	18.8
Incr Delay (d2), s/veh	1.6	0.0	0.5	0.6	0.0	0.2	2.3	0.4	0.7	2.2	0.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.9	1.2	0.0	0.3	1.5	3.2	3.5	1.5	4.3	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	0.0	23.9	25.3	0.0	24.1	32.1	18.1	18.5	32.0	19.3	20.0
LnGrp LOS	C	A	C	C	A	C	C	B	B	C	B	B
Approach Vol, veh/h		264			117			1011			1256	
Approach Delay, s/veh		25.8			25.0			19.6			20.5	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	26.4		16.1	9.3	26.5		14.6				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		5.4				
Max Green Setting (Gmax), s	9.4	29.4		30.0	9.4	29.4		30.0				
Max Q Clear Time (g_c+I1), s	5.7	11.4		8.4	5.6	14.6		4.9				
Green Ext Time (p_c), s	0.0	5.2		1.2	0.0	6.2		0.5				

Intersection Summary												
HCM 6th Ctrl Delay			20.9									
HCM 6th LOS			C									

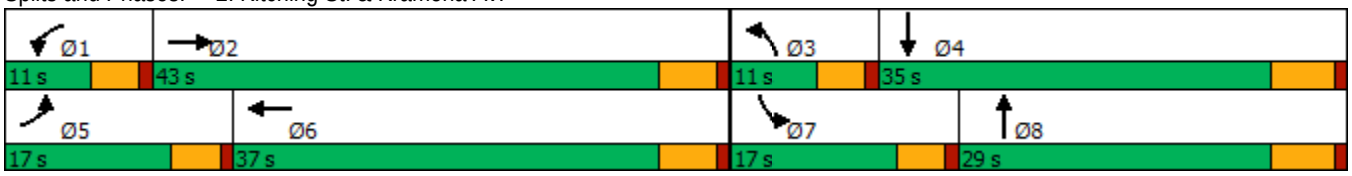
Timings
2: Kitching St. & Krameria Av.

09/20/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	83	232	19	202	25	73	81	78
Future Volume (vph)	83	232	19	202	25	73	81	78
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	28.4	9.6	31.4	9.6	28.8	9.6	29.8
Total Split (s)	17.0	43.0	11.0	37.0	11.0	29.0	17.0	35.0
Total Split (%)	17.0%	43.0%	11.0%	37.0%	11.0%	29.0%	17.0%	35.0%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.4	-0.6	-1.8	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 58
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kitching St. & Krameria Av.



HCM 6th Signalized Intersection Summary
2: Kitching St. & Krameria Av.

09/20/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	232	32	19	202	81	25	73	17	81	78	84
Future Volume (veh/h)	83	232	32	19	202	81	25	73	17	81	78	84
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	86	239	27	20	208	66	26	75	12	84	80	51
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	940	105	66	654	201	77	788	123	147	633	370
Arrive On Green	0.08	0.29	0.26	0.04	0.25	0.22	0.04	0.26	0.22	0.08	0.30	0.26
Sat Flow, veh/h	1781	3217	359	1781	2664	820	1781	3078	481	1781	2143	1251
Grp Volume(v), veh/h	86	131	135	20	137	137	26	43	44	84	65	66
Grp Sat Flow(s),veh/h/ln	1781	1777	1799	1781	1777	1707	1781	1777	1783	1781	1777	1617
Q Serve(g_s), s	2.2	2.7	2.8	0.5	3.0	3.2	0.7	0.9	0.9	2.2	1.3	1.5
Cycle Q Clear(g_c), s	2.2	2.7	2.8	0.5	3.0	3.2	0.7	0.9	0.9	2.2	1.3	1.5
Prop In Lane	1.00		0.20	1.00		0.48	1.00		0.27	1.00		0.77
Lane Grp Cap(c), veh/h	149	519	526	66	436	419	77	455	456	147	525	478
V/C Ratio(X)	0.58	0.25	0.26	0.30	0.31	0.33	0.34	0.09	0.10	0.57	0.12	0.14
Avail Cap(c_a), veh/h	481	1440	1458	259	1218	1170	259	923	926	481	1144	1041
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	13.0	13.1	22.6	14.8	15.2	22.4	13.7	13.9	21.3	12.4	13.0
Incr Delay (d2), s/veh	1.3	0.3	0.3	1.0	0.4	0.5	1.0	0.1	0.1	1.3	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.9	0.9	0.2	1.0	1.1	0.3	0.3	0.3	0.8	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.6	13.3	13.4	23.5	15.2	15.6	23.3	13.7	13.9	22.6	12.5	13.1
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		352			294			113			215	
Approach Delay, s/veh		15.6			16.0			16.0			16.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	18.1	6.1	18.2	8.0	15.8	8.0	16.3
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	6.4	37.6	6.4	29.2	12.4	31.6	12.4	23.2
Max Q Clear Time (g_c+I1), s	2.5	4.8	2.7	3.5	4.2	5.2	4.2	2.9
Green Ext Time (p_c), s	0.0	1.5	0.0	0.6	0.0	1.5	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	16.0
HCM 6th LOS	B

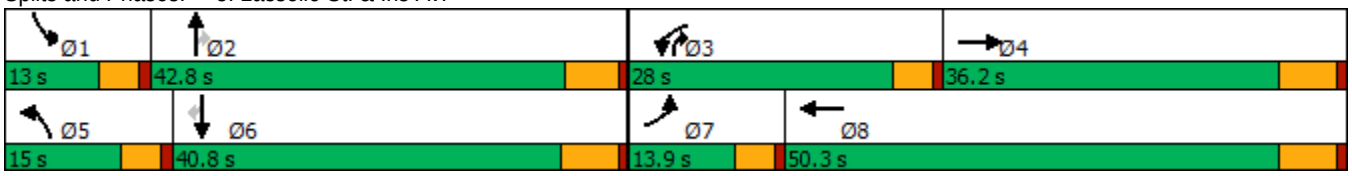
Timings
3: Lasselle St. & Iris Av.

09/20/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	142	396	587	554	248	538	402	192	666	96
Future Volume (vph)	142	396	587	554	248	538	402	192	666	96
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	3	1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	3	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	36.2	9.6	36.2	9.6	41.8	9.6	9.6	40.2	40.2
Total Split (s)	13.9	36.2	28.0	50.3	15.0	42.8	28.0	13.0	40.8	40.8
Total Split (%)	11.6%	30.2%	23.3%	41.9%	12.5%	35.7%	23.3%	10.8%	34.0%	34.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.8	3.6	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.2	-0.6	-2.2	-0.6	-1.8	-0.6	-0.6	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min	Min

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 99.7
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Lasselle St. & Iris Av.



HCM 6th Signalized Intersection Summary
3: Lasselle St. & Iris Av.

09/20/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	396	316	587	554	91	248	538	402	192	666	96
Future Volume (veh/h)	142	396	316	587	554	91	248	538	402	192	666	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.95	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	149	417	246	618	583	68	261	566	220	202	701	49
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	875	400	699	1814	208	340	1086	770	281	1039	447
Arrive On Green	0.07	0.26	0.24	0.20	0.39	0.37	0.10	0.31	0.29	0.08	0.29	0.29
Sat Flow, veh/h	3456	3404	1556	3456	4617	530	3456	3554	1526	3456	3554	1530
Grp Volume(v), veh/h	149	417	246	618	427	224	261	566	220	202	701	49
Grp Sat Flow(s),veh/h/ln	1728	1702	1556	1728	1702	1743	1728	1777	1526	1728	1777	1530
Q Serve(g_s), s	4.5	11.1	15.1	18.5	9.3	9.6	7.9	14.0	9.0	6.1	18.5	2.5
Cycle Q Clear(g_c), s	4.5	11.1	15.1	18.5	9.3	9.6	7.9	14.0	9.0	6.1	18.5	2.5
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	229	875	400	699	1338	685	340	1086	770	281	1039	447
V/C Ratio(X)	0.65	0.48	0.62	0.88	0.32	0.33	0.77	0.52	0.29	0.72	0.67	0.11
Avail Cap(c_a), veh/h	321	1028	470	777	1477	756	356	1293	858	292	1226	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.6	33.6	36.0	41.3	22.5	22.8	46.9	30.6	15.8	47.8	33.3	27.6
Incr Delay (d2), s/veh	1.2	0.4	1.8	10.2	0.1	0.3	8.3	0.4	0.2	6.8	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	4.4	5.7	8.5	3.5	3.7	3.7	5.8	2.9	2.8	7.7	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.8	34.0	37.8	51.6	22.6	23.1	55.2	31.0	16.0	54.6	34.4	27.7
LnGrp LOS	D	C	D	D	C	C	E	C	B	D	C	C
Approach Vol, veh/h		812			1269			1047			952	
Approach Delay, s/veh		38.0			36.8			33.9			38.4	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	37.0	25.6	31.4	14.5	35.2	11.1	45.9
Change Period (Y+Rc), s	4.6	* 6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	8.4	* 37	23.4	30.0	10.4	34.6	9.3	44.1
Max Q Clear Time (g_c+I1), s	8.1	16.0	20.5	17.1	9.9	20.5	6.5	11.6
Green Ext Time (p_c), s	0.0	4.2	0.4	3.2	0.0	3.7	0.1	4.0

Intersection Summary	
HCM 6th Ctrl Delay	36.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	103	832	75	0	1173
Future Vol, veh/h	0	103	832	75	0	1173
Conflicting Peds, #/hr	0	0	0	2	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	140	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	106	858	77	0	1209

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	431	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	573	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	572	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	572	-
HCM Lane V/C Ratio	-	-	0.186	-
HCM Control Delay (s)	-	-	12.7	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.7	-

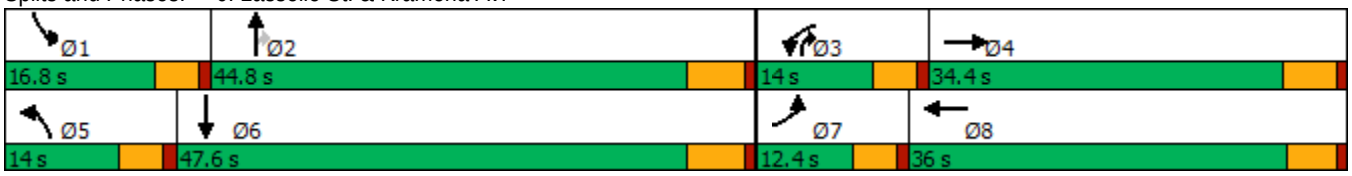
Timings
6: Lasselle St. & Krameria Av.

09/20/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	118	59	82	39	84	741	69	94	1019
Future Volume (vph)	118	59	82	39	84	741	69	94	1019
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	9.6	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	12.4	34.4	14.0	36.0	14.0	44.8	14.0	16.8	47.6
Total Split (%)	11.3%	31.3%	12.7%	32.7%	12.7%	40.7%	12.7%	15.3%	43.3%
Yellow Time (s)	3.6	4.4	3.6	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.1	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 78.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

09/20/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	59	149	82	39	48	84	741	69	94	1019	57
Future Volume (veh/h)	118	59	149	82	39	48	84	741	69	94	1019	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	62	62	86	41	18	88	780	53	99	1073	48
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	269	330	292	126	425	174	129	1486	745	143	1477	66
Arrive On Green	0.08	0.18	0.16	0.07	0.17	0.16	0.07	0.42	0.40	0.08	0.43	0.40
Sat Flow, veh/h	3456	1784	1579	1781	2446	1000	1781	3554	1581	1781	3464	155
Grp Volume(v), veh/h	124	62	62	86	29	30	88	780	53	99	550	571
Grp Sat Flow(s),veh/h/ln	1728	1777	1586	1781	1777	1670	1781	1777	1581	1781	1777	1842
Q Serve(g_s), s	2.2	1.9	2.2	3.1	0.9	1.0	3.1	10.7	1.2	3.5	16.8	16.8
Cycle Q Clear(g_c), s	2.2	1.9	2.2	3.1	0.9	1.0	3.1	10.7	1.2	3.5	16.8	16.8
Prop In Lane	1.00		1.00	1.00		0.60	1.00		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	269	329	293	126	308	290	129	1486	745	143	758	786
V/C Ratio(X)	0.46	0.19	0.21	0.68	0.09	0.10	0.68	0.52	0.07	0.69	0.73	0.73
Avail Cap(c_a), veh/h	445	828	739	273	872	819	273	2223	1073	350	1188	1232
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	22.4	23.2	29.6	22.6	23.0	29.5	14.1	9.4	29.2	15.5	15.6
Incr Delay (d2), s/veh	0.5	0.3	0.4	2.4	0.1	0.2	2.4	0.3	0.0	2.2	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.8	0.8	1.3	0.4	0.4	1.3	3.5	0.4	1.5	5.7	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	22.7	23.5	32.0	22.8	23.1	31.9	14.4	9.5	31.4	16.9	16.9
LnGrp LOS	C	C	C	C	C	C	C	B	A	C	B	B
Approach Vol, veh/h		248			145			921			1220	
Approach Delay, s/veh		26.2			28.3			15.8			18.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	31.3	8.6	16.1	8.7	31.8	9.1	15.6
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	12.2	39.0	9.4	29.0	9.4	41.8	7.8	* 31
Max Q Clear Time (g_c+I1), s	5.5	12.7	5.1	4.2	5.1	18.8	4.2	3.0
Green Ext Time (p_c), s	0.1	5.4	0.0	0.6	0.0	7.2	0.1	0.2

Intersection Summary	
HCM 6th Ctrl Delay	18.6
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

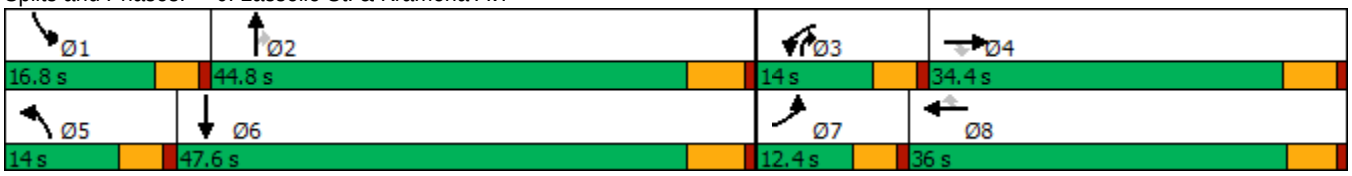
Timings
6: Lasselle St. & Krameria Av.

10/25/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	118	59	149	82	39	48	84	741	69	94	1019
Future Volume (vph)	118	59	149	82	39	48	84	741	69	94	1019
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	34.4	9.6	31.1	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	12.4	34.4	34.4	14.0	36.0	36.0	14.0	44.8	14.0	16.8	47.6
Total Split (%)	11.3%	31.3%	31.3%	12.7%	32.7%	32.7%	12.7%	40.7%	12.7%	15.3%	43.3%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.1	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.1	0.0	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	5.4	4.0	4.0	5.1	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 78.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

10/25/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	59	149	82	39	48	84	741	69	94	1019	57
Future Volume (veh/h)	118	59	149	82	39	48	84	741	69	94	1019	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	62	62	86	41	18	88	780	53	99	1073	48
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	371	282	126	314	236	128	1469	737	143	1460	65
Arrive On Green	0.10	0.20	0.18	0.07	0.17	0.15	0.07	0.41	0.40	0.08	0.42	0.39
Sat Flow, veh/h	1781	1870	1585	1781	1870	1558	1781	3554	1579	1781	3464	155
Grp Volume(v), veh/h	124	62	62	86	41	18	88	780	53	99	550	571
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1558	1781	1777	1579	1781	1777	1842
Q Serve(g_s), s	4.6	1.9	2.3	3.2	1.3	0.7	3.3	11.1	1.3	3.7	17.5	17.5
Cycle Q Clear(g_c), s	4.6	1.9	2.3	3.2	1.3	0.7	3.3	11.1	1.3	3.7	17.5	17.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	172	371	282	126	314	236	128	1469	737	143	749	776
V/C Ratio(X)	0.72	0.17	0.22	0.68	0.13	0.08	0.68	0.53	0.07	0.69	0.73	0.74
Avail Cap(c_a), veh/h	222	843	681	264	887	713	264	2149	1039	338	1148	1190
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	22.4	23.7	30.6	23.9	24.6	30.6	14.9	9.9	30.2	16.4	16.4
Incr Delay (d2), s/veh	4.9	0.2	0.4	2.4	0.2	0.1	2.4	0.3	0.0	2.2	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.8	0.8	1.4	0.5	0.2	1.4	3.8	0.4	1.5	6.1	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.4	22.6	24.1	33.0	24.1	24.7	33.0	15.2	10.0	32.5	17.8	17.8
LnGrp LOS	C	C	C	C	C	C	C	B	A	C	B	B
Approach Vol, veh/h		248			145			921			1220	
Approach Delay, s/veh		28.9			29.5			16.6			19.0	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	31.9	8.8	17.4	8.9	32.4	10.5	15.6
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	12.2	39.0	9.4	29.0	9.4	41.8	7.8	* 31
Max Q Clear Time (g_c+I1), s	5.7	13.1	5.2	4.3	5.3	19.5	6.6	3.3
Green Ext Time (p_c), s	0.0	5.4	0.0	0.4	0.0	7.1	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	19.7
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	146	76	5	125	0	44	10	79	0	0	0
Future Vol, veh/h	0	146	76	5	125	0	44	10	79	0	0	0
Conflicting Peds, #/hr	0	0	3	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	168	87	6	144	0	51	11	91	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	-	0	0	258	0	0	299	371	131
Stage 1	-	-	-	-	-	-	215	215	-
Stage 2	-	-	-	-	-	-	84	156	-
Critical Hdwy	-	-	-	4.14	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	-	-	-	2.22	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	0	-	-	1304	-	0	668	557	894
Stage 1	0	-	-	-	-	0	800	724	-
Stage 2	0	-	-	-	-	0	930	768	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	1300	-	-	663	0	891
Mov Cap-2 Maneuver	-	-	-	-	-	-	736	0	-
Stage 1	-	-	-	-	-	-	794	0	-
Stage 2	-	-	-	-	-	-	930	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	829	-	-	1300	-
HCM Lane V/C Ratio	0.184	-	-	0.004	-
HCM Control Delay (s)	10.3	-	-	7.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.7	-	-	0	-

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	49	58	97	69	25
Future Vol, veh/h	22	49	58	97	69	25
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	69	82	137	97	35
Number of Lanes	1	0	0	2	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	1
HCM Control Delay	8.5	9	7.4
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	64%	0%	31%	0%	0%	0%
Vol Thru, %	36%	100%	0%	100%	100%	0%
Vol Right, %	0%	0%	69%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	90	65	71	35	35	25
LT Vol	58	0	22	0	0	0
Through Vol	32	65	0	35	35	0
RT Vol	0	0	49	0	0	25
Lane Flow Rate	127	91	100	49	49	35
Geometry Grp	8	8	7	7	7	7
Degree of Util (X)	0.19	0.128	0.139	0.067	0.067	0.025
Departure Headway (Hd)	5.376	5.054	5.003	5	5	2.554
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	668	710	718	718	718	1399
Service Time	3.101	2.778	2.727	2.722	2.722	0.275
HCM Lane V/C Ratio	0.19	0.128	0.139	0.068	0.068	0.025
HCM Control Delay	9.4	8.5	8.5	8.1	8.1	5.3
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.7	0.4	0.5	0.2	0.2	0.1

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	7	0	0	0	2	109	0	1	122	12
Future Vol, veh/h	6	0	7	0	0	0	2	109	0	1	122	12
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	2	0	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	100	-	0
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	0	9	0	0	0	2	135	0	1	151	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	231	300	158	307	315	70	172	0	0	137	0	0
Stage 1	159	159	-	141	141	-	-	-	-	-	-	-
Stage 2	72	141	-	166	174	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.23	7.33	6.53	6.93	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	714	612	887	634	600	979	1404	-	-	1446	-	-
Stage 1	843	766	-	848	780	-	-	-	-	-	-	-
Stage 2	930	780	-	835	754	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	709	606	881	625	594	977	1396	-	-	1443	-	-
Mov Cap-2 Maneuver	721	627	-	666	619	-	-	-	-	-	-	-
Stage 1	837	761	-	845	778	-	-	-	-	-	-	-
Stage 2	929	778	-	825	749	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.6	0	0.1	0.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1396	-	-	799	-	1443	-	-
HCM Lane V/C Ratio	0.002	-	-	0.02	-	0.001	-	-
HCM Control Delay (s)	7.6	-	-	9.6	0	7.5	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

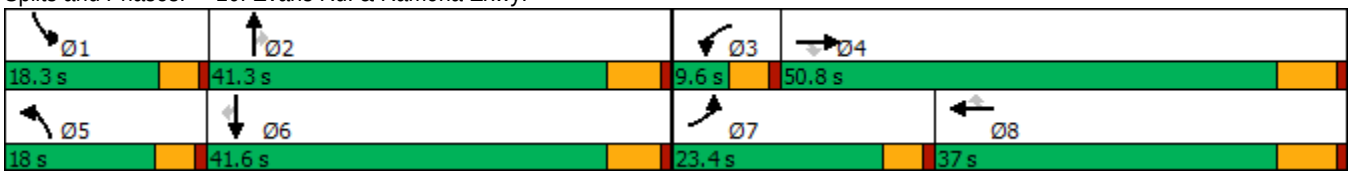
Timings
10: Evans Rd. & Ramona Exwy.

09/20/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	331	888	339	18	536	179	217	335	17	229	432	269
Future Volume (vph)	331	888	339	18	536	179	217	335	17	229	432	269
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	33.5	33.5	9.6	36.5	36.5	9.6	38.8	38.8	9.6	34.8	34.8
Total Split (s)	23.4	50.8	50.8	9.6	37.0	37.0	18.0	41.3	41.3	18.3	41.6	41.6
Total Split (%)	19.5%	42.3%	42.3%	8.0%	30.8%	30.8%	15.0%	34.4%	34.4%	15.3%	34.7%	34.7%
Yellow Time (s)	3.6	5.5	5.5	3.6	5.5	5.5	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.5	-2.5	-0.6	-2.5	-2.5	-0.6	-1.8	-1.8	-0.6	-1.8	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 87.6
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Evans Rd. & Ramona Exwy.



HCM 6th Signalized Intersection Summary
10: Evans Rd. & Ramona Exwy.

09/20/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	331	888	339	18	536	179	217	335	17	229	432	269
Future Volume (veh/h)	331	888	339	18	536	179	217	335	17	229	432	269
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	356	955	0	19	576	192	233	360	18	246	465	289
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	490	1891		105	921	411	358	944	421	372	959	428
Arrive On Green	0.14	0.37	0.00	0.03	0.26	0.26	0.10	0.27	0.27	0.11	0.27	0.27
Sat Flow, veh/h	3456	5106	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	356	955	0	19	576	192	233	360	18	246	465	289
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	7.0	10.3	0.0	0.4	10.2	7.2	4.6	5.9	0.6	4.8	7.8	11.5
Cycle Q Clear(g_c), s	7.0	10.3	0.0	0.4	10.2	7.2	4.6	5.9	0.6	4.8	7.8	11.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	490	1891		105	921	411	358	944	421	372	959	428
V/C Ratio(X)	0.73	0.50		0.18	0.63	0.47	0.65	0.38	0.04	0.66	0.49	0.68
Avail Cap(c_a), veh/h	946	3370		273	1654	738	682	1869	834	697	1885	841
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.1	17.3	0.0	33.5	23.2	22.1	30.5	21.3	19.3	30.4	21.8	23.1
Incr Delay (d2), s/veh	0.8	0.2	0.0	0.3	0.7	0.8	0.7	0.3	0.0	0.8	0.4	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	3.3	0.0	0.1	3.7	2.4	1.8	2.2	0.2	1.9	2.9	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.9	17.5	0.0	33.8	23.9	23.0	31.3	21.5	19.4	31.1	22.1	25.0
LnGrp LOS	C	B		C	C	C	C	C	B	C	C	C
Approach Vol, veh/h		1311	A		787			611			1000	
Approach Delay, s/veh		20.9			23.9			25.2			25.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	22.8	6.2	30.3	11.4	23.1	14.0	22.4
Change Period (Y+Rc), s	4.6	5.8	4.6	6.5	4.6	5.8	4.6	6.5
Max Green Setting (Gmax), s	13.7	35.5	5.0	44.3	13.4	35.8	18.8	30.5
Max Q Clear Time (g_c+I1), s	6.8	7.9	2.4	12.3	6.6	13.5	9.0	12.2
Green Ext Time (p_c), s	0.2	2.2	0.0	6.5	0.2	3.8	0.5	3.7

Intersection Summary	
HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX 3.3:

EXISTING (2018) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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California MUTCD 2014 Edition
(FHWA's MUTCD 2009, as amended for use in California)

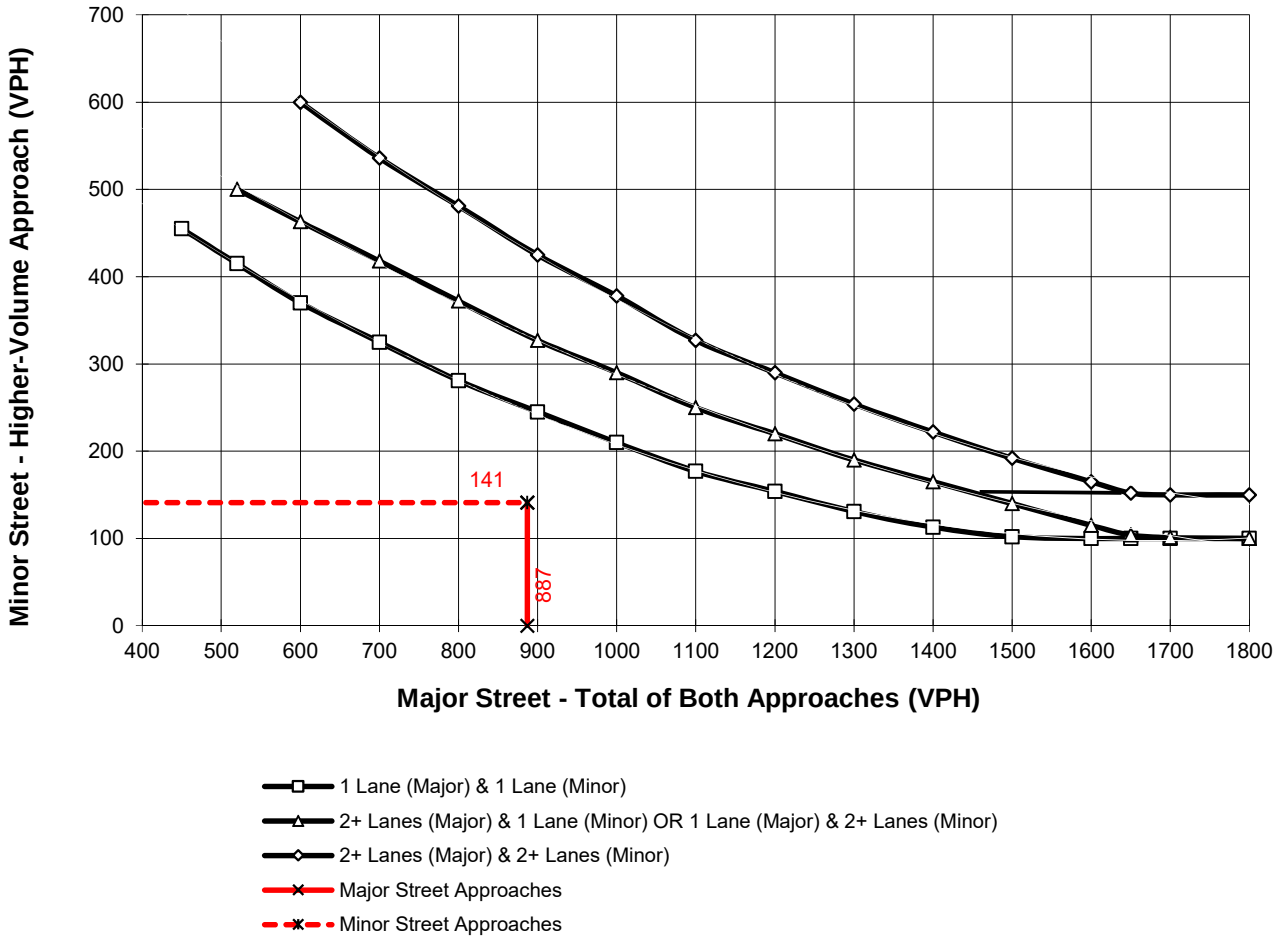
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2018) Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue**
Total of Both Approaches (VPH) = **887**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Colt Way**
High Volume Approach (VPH) = **141**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

California MUTCD 2014 Edition
(FHWA's MUTCD 2009, as amended for use in California)

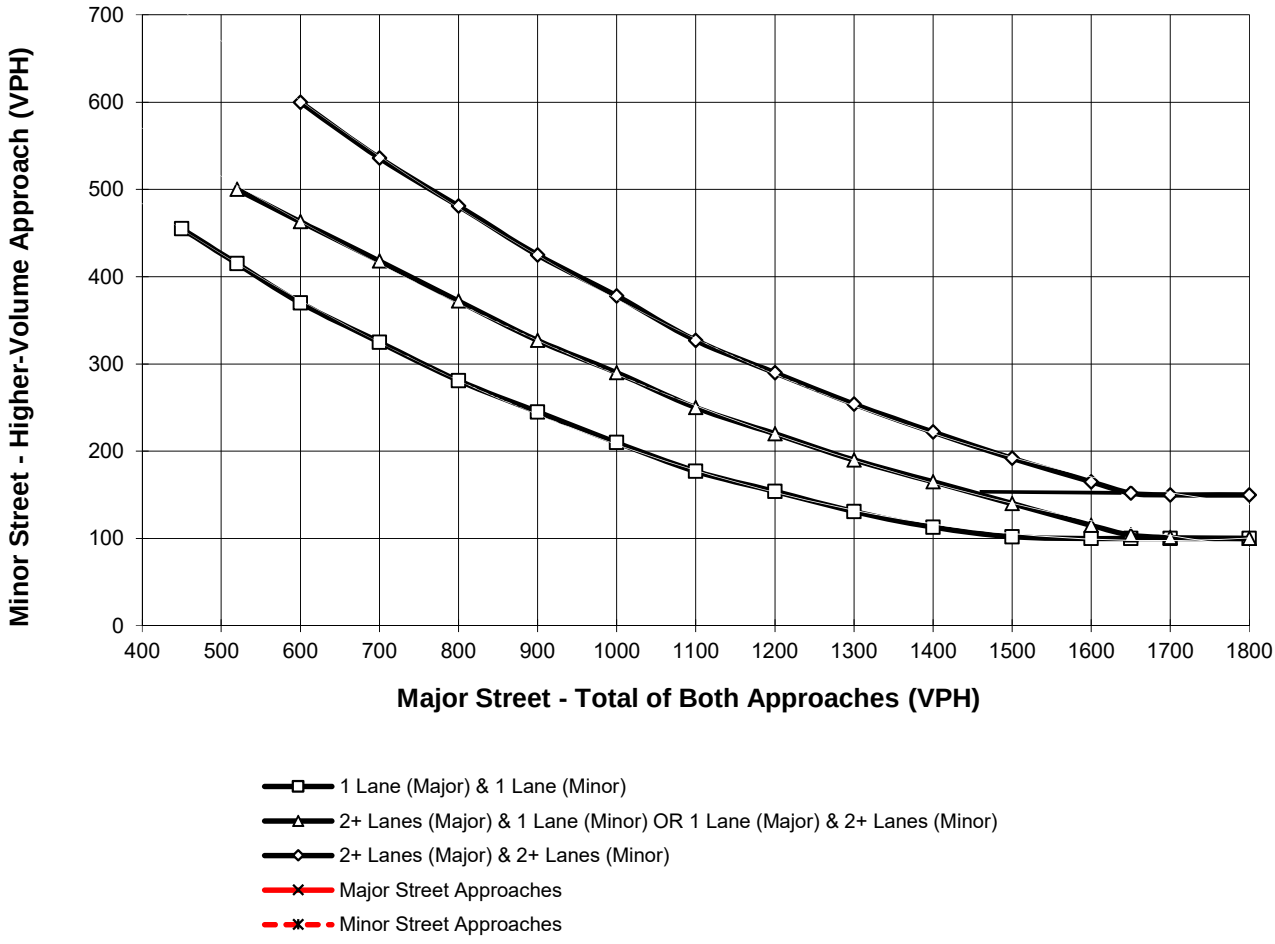
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2018) Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue**
Total of Both Approaches (VPH) = **387**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Cahuilla Drive**
High Volume Approach (VPH) = **104**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

California MUTCD 2014 Edition
(FHWA's MUTCD 2009, as amended for use in California)

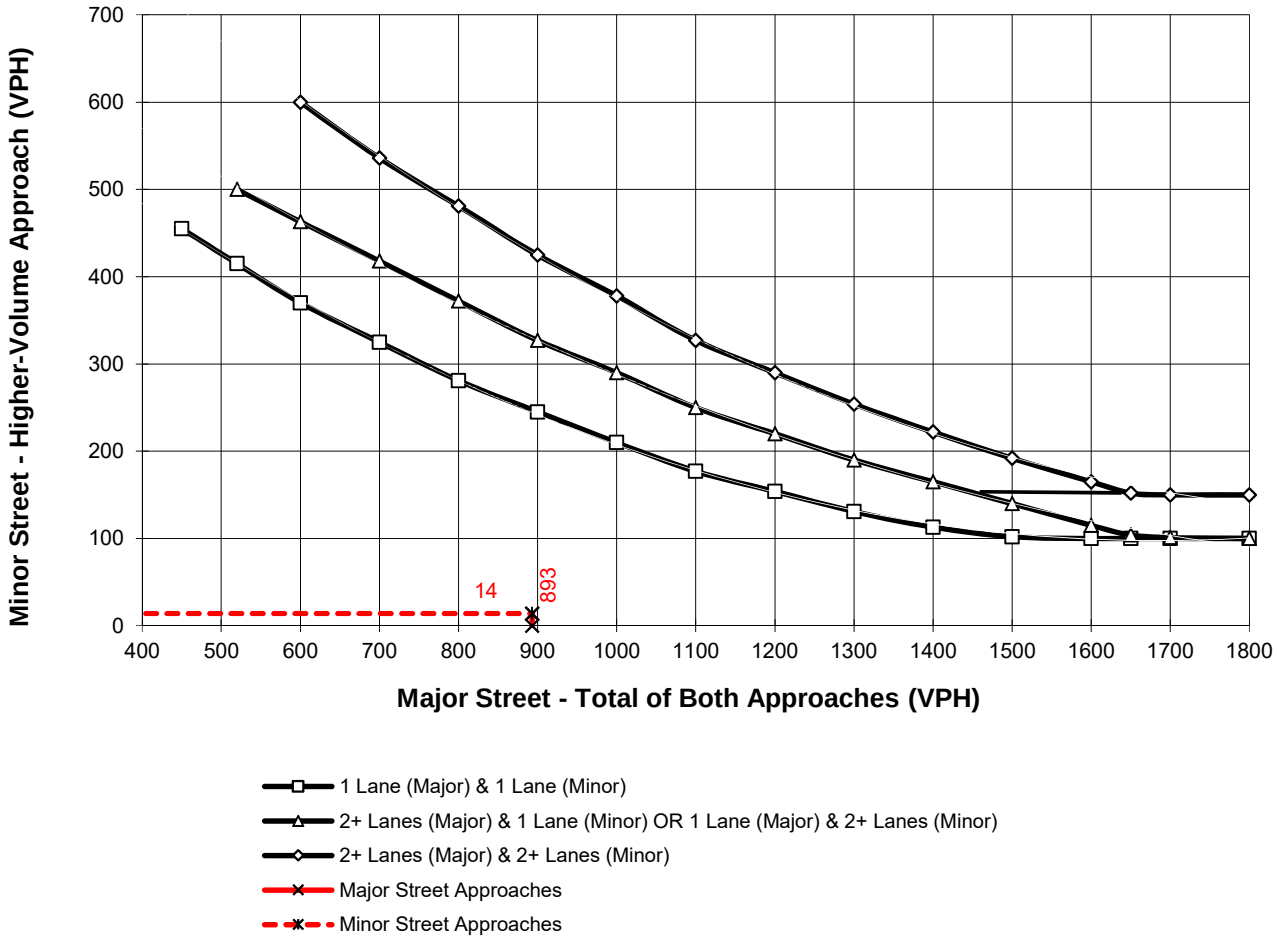
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2018) Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue**
Total of Both Approaches (VPH) = **893**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Quarter Horse Road**
High Volume Approach (VPH) = **14**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 3.4:

EXISTING (2018) CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Queuing and Blocking Report
Existing (2018) - AM Peak Hour

09/20/2018

Intersection: 4: Lasselle St. & Cahuillia Dr.

Movement	WB	NB
Directions Served	R	R
Maximum Queue (ft)	60	6
Average Queue (ft)	24	0
95th Queue (ft)	45	4
Link Distance (ft)	909	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		140
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Lasselle St. & Krameria Av.

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	T	TR	L	T	T	R	L
Maximum Queue (ft)	187	203	216	348	178	140	143	150	698	630	205	122
Average Queue (ft)	98	141	96	181	86	61	58	148	461	398	120	71
95th Queue (ft)	187	199	180	298	160	113	109	155	678	630	254	122
Link Distance (ft)			1027	1027		412	412		944	944		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200	200			200			125			180	240
Storage Blk Time (%)	0	1	0		1			58	10	18	0	
Queuing Penalty (veh)	0	1	0		1			297	32	42	1	

Intersection: 6: Lasselle St. & Krameria Av.

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	151	143
Average Queue (ft)	124	123
95th Queue (ft)	135	135
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Colt Wy./Driveway 2 & Krameria Av.

Movement	EB	WB	NB
Directions Served	TR	L	LTR
Maximum Queue (ft)	4	34	85
Average Queue (ft)	0	14	46
95th Queue (ft)	3	38	73
Link Distance (ft)	412		151
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		50	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 8: Krameria Av./Driveway & Cahuillia Dr.

Movement	EB	NB	NB	SB	SB	SB
Directions Served	LR	LT	T	T	T	R
Maximum Queue (ft)	59	84	41	54	36	35
Average Queue (ft)	22	48	16	29	3	17
95th Queue (ft)	42	74	44	48	18	43
Link Distance (ft)	909	415	415	598	598	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						105
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Krameria Av. & Driveway/Quarter Horse Rd.

Movement	EB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T
Maximum Queue (ft)	32	31	26	71	48	28	80
Average Queue (ft)	7	11	3	14	7	2	12
95th Queue (ft)	25	32	17	50	30	15	48
Link Distance (ft)	233	137		656	656		453
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			50			100	
Storage Blk Time (%)				1			0
Queuing Penalty (veh)				0			0

Zone Summary

Zone wide Queuing Penalty: 373

Queuing and Blocking Report
Existing (2018) - PM Peak Hour

09/20/2018

Intersection: 4: Lasselle St. & Cahuillia Dr.

Movement	WB
Directions Served	R
Maximum Queue (ft)	76
Average Queue (ft)	31
95th Queue (ft)	56
Link Distance (ft)	909
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Lasselle St. & Krameria Av.

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	T	TR	L	T	T	R	L
Maximum Queue (ft)	57	130	66	152	107	64	60	149	250	210	53	130
Average Queue (ft)	10	61	22	60	47	21	20	68	147	110	20	68
95th Queue (ft)	36	112	53	113	89	51	43	137	226	189	46	122
Link Distance (ft)			1027	1027		412	412		944	944		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200	200			200			125			180	240
Storage Blk Time (%)								1	11	0		
Queuing Penalty (veh)								2	9	0		

Intersection: 6: Lasselle St. & Krameria Av.

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	150	154
Average Queue (ft)	124	121
95th Queue (ft)	136	143
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Colt Wy./Driveway 2 & Krameria Av.

Movement	EB	WB	NB
Directions Served	TR	L	LTR
Maximum Queue (ft)	12	8	82
Average Queue (ft)	1	0	40
95th Queue (ft)	8	4	65
Link Distance (ft)	412		151
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		50	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Krameria Av./Driveway & Cahuillia Dr.

Movement	EB	NB	NB	SB	SB	SB
Directions Served	LR	LT	T	T	T	R
Maximum Queue (ft)	46	71	36	60	31	70
Average Queue (ft)	16	37	8	31	4	22
95th Queue (ft)	29	57	30	49	22	53
Link Distance (ft)	909	415	415	598	598	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						105
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Krameria Av. & Driveway/Quarter Horse Rd.

Movement	EB
Directions Served	LTR
Maximum Queue (ft)	23
Average Queue (ft)	7
95th Queue (ft)	24
Link Distance (ft)	233
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 11

APPENDIX 4.1:

POST PROCESSING WORKSHEETS

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Project: Continental Villages
Scenario: Horizon Year (2040)

Job #: 11575
Analyst: CHS
Date: 43363

LOCATION: Perris Boulevard & Krameria Avenue
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

APPROACH	TURNING MOVEMENT	AM PEAK HOUR INPUT DATA EXISTING COUNT	AM FUTURE VOLUME	AM DIFF-ERENCE	AM % CHANGE	PM PEAK HOUR INPUT DATA EXISTING COUNT	PM FUTURE VOLUME	PM DIFF-ERENCE	PM % CHANGE
NORTH BOUND	Left	304	352	48	16%	89	115	26	29%
	Through	1,003	1,322	319	32%	797	1,231	434	54%
	Right	198	158	-40	-20%	48	32	-16	-33%
	NB Total	1,505	1,832	327	22%	934	1,378	444	48%
SOUTH BOUND	Left	92	97	5	5%	92	81	-11	-12%
	Through	656	985	329	50%	998	1,432	434	43%
	Right	102	157	55	54%	60	102	42	70%
	SB Total	850	1,239	389	46%	1,150	1,615	465	40%
EAST BOUND	Left	273	347	74	27%	125	217	92	74%
	Through	191	147	-44	-23%	49	37	-12	-24%
	Right	307	335	28	9%	140	172	32	23%
	EB Total	771	829	58	8%	314	426	112	36%
WEST BOUND	Left	74	56	-18	-24%	54	36	-18	-33%
	Through	121	94	-27	-22%	28	22	-6	-21%
	Right	67	59	-8	-12%	55	53	-2	-4%
	WB Total	262	209	-53	-20%	137	111	-26	-19%
TOTAL ENTERING VOLUME		3,388	4,109	721	21%	2,535	3,530	995	39%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES AM	VOLUMES PM	PERCENT OF ADT AM	PERCENT OF ADT PM	ADT
North Leg	Inbound	1,239	1,615			
North Leg	Outbound	1,728	1,501			
North Leg	**TOTAL**	**2,967**	**3,116**	**9%**	**10%**	**31,969**
South Leg	Inbound	1,832	1,378			
South Leg	Outbound	1,376	1,640			
South Leg	**TOTAL**	**3,208**	**3,018**	**12%**	**11%**	**27,815**
East Leg	Inbound	209	111			
East Leg	Outbound	402	150			
East Leg	**TOTAL**	**611**	**261**	**9%**	**4%**	**6,539**
West Leg	Inbound	829	426			
West Leg	Outbound	603	239			
West Leg	**TOTAL**	**1,432**	**665**	**25%**	**12%**	**5,758**
OVERALL TOTAL		***8,218***	***7,060***	**11%**	***10%***	***72,081***

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Project: Continental Villages
Scenario: Horizon Year (2040)

Job #: 11575
Analyst: CHS
Date: 43363

LOCATION: Kitching Street & Krameria Avenue
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

APPROACH	TURNING MOVEMENT	AM PEAK HOUR INPUT DATA EXISTING COUNT	AM FUTURE VOLUME	AM DIFF-ERENCE	AM % CHANGE	PM PEAK HOUR INPUT DATA EXISTING COUNT	PM FUTURE VOLUME	PM DIFF-ERENCE	PM % CHANGE
NORTH BOUND	Left	54	264	210	389%	25	222	197	788%
	Through	112	505	393	351%	73	646	573	785%
	Right	67	270	203	303%	17	126	109	641%
	NB Total	233	1,039	806	346%	115	994	879	764%
SOUTH BOUND	Left	253	247	-6	-2%	81	20	-61	-75%
	Through	144	600	456	317%	78	441	363	465%
	Right	80	95	15	19%	84	25	-59	-70%
	SB Total	477	942	465	97%	243	486	243	100%
EAST BOUND	Left	71	43	-28	-39%	83	36	-47	-57%
	Through	408	223	-185	-45%	232	84	-148	-64%
	Right	109	254	145	133%	32	268	236	738%
	EB Total	588	520	-68	-12%	347	388	41	12%
WEST BOUND	Left	84	193	109	130%	19	97	78	411%
	Through	411	268	-143	-35%	202	53	-149	-74%
	Right	181	109	-72	-40%	81	21	-60	-74%
	WB Total	676	570	-106	-16%	302	171	-131	-43%
TOTAL ENTERING VOLUME		1,974	3,071	1097	56%	1,007	2,039	1032	102%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES AM	VOLUMES PM	PERCENT OF ADT AM	PERCENT OF ADT PM	ADT
North Leg	Inbound	942	486			
North Leg	Outbound	657	703			
North Leg	**TOTAL**	**1,599**	**1,189**	**8%**	**6%**	**20,018**
South Leg	Inbound	1,039	994			
South Leg	Outbound	1,047	806			
South Leg	**TOTAL**	**2,086**	**1,800**	**8%**	**7%**	**24,841**
East Leg	Inbound	570	171			
East Leg	Outbound	740	230			
East Leg	**TOTAL**	**1,310**	**401**	**30%**	**9%**	**4,431**
West Leg	Inbound	520	388			
West Leg	Outbound	627	300			
West Leg	**TOTAL**	**1,147**	**688**	**18%**	**11%**	**6,539**
OVERALL TOTAL		***6,142***	***4,078***	**11%**	***7%***	***55,829***

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Project: Continental Villages
Scenario: Horizon Year (2040)

Job #: 11575
Analyst: CHS
Date: 43363

LOCATION: Lasselle Street & iris Avenue
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

APPROACH	TURNING MOVEMENT	AM PEAK HOUR INPUT DATA EXISTING COUNT	AM FUTURE VOLUME	AM DIFF-ERENCE	AM % CHANGE	PM PEAK HOUR INPUT DATA EXISTING COUNT	PM FUTURE VOLUME	PM DIFF-ERENCE	PM % CHANGE
NORTH BOUND	Left	369	446	77	21%	248	326	78	31%
	Through	582	506	-76	-13%	538	521	-17	-3%
	Right	471	403	-68	-14%	402	408	6	1%
	NB Total	1,422	1,355	-67	-5%	1,188	1,255	67	6%
SOUTH BOUND	Left	116	132	16	14%	192	226	34	18%
	Through	560	576	16	3%	666	532	-134	-20%
	Right	97	156	59	61%	96	146	50	52%
	SB Total	773	864	91	12%	954	904	-50	-5%
EAST BOUND	Left	134	184	50	37%	142	259	117	82%
	Through	478	645	167	35%	396	757	361	91%
	Right	316	386	70	22%	316	410	94	30%
	EB Total	928	1,215	287	31%	854	1,426	572	67%
WEST BOUND	Left	510	508	-2	0%	587	549	-38	-6%
	Through	583	908	325	56%	554	988	434	78%
	Right	98	110	12	12%	91	120	29	32%
	WB Total	1,191	1,526	335	28%	1,232	1,657	425	34%
TOTAL ENTERING VOLUME		4,314	4,960	646	15%	4,228	5,242	1014	24%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES AM	VOLUMES PM	PERCENT OF ADT AM	PERCENT OF ADT PM	ADT
North Leg	Inbound	864	904			
North Leg	Outbound	800	900			
North Leg	**TOTAL**	**1,664**	**1,804**	**12%**	**13%**	**14,166**
South Leg	Inbound	1,355	1,255			
South Leg	Outbound	1,470	1,491			
South Leg	**TOTAL**	**2,825**	**2,746**	**11%**	**10%**	**26,736**
East Leg	Inbound	1,526	1,657			
East Leg	Outbound	1,180	1,391			
East Leg	**TOTAL**	**2,706**	**3,048**	**9%**	**10%**	**29,226**
West Leg	Inbound	1,215	1,426			
West Leg	Outbound	1,510	1,460			
West Leg	**TOTAL**	**2,725**	**2,886**	**14%**	**15%**	**19,729**
OVERALL TOTAL		***9,920***	***10,484***	**11%**	***12%***	***89,857***

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Project: Continental Villages
Scenario: Horizon Year (2040)

Job #: 11575
Analyst: CHS
Date: 43363

LOCATION: Lasselle Street & Krameria Avenue
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

APPROACH	TURNING MOVEMENT	AM PEAK HOUR INPUT DATA EXISTING COUNT	AM FUTURE VOLUME	AM DIFF-ERENCE	AM % CHANGE	PM PEAK HOUR INPUT DATA EXISTING COUNT	PM FUTURE VOLUME	PM DIFF-ERENCE	PM % CHANGE
NORTH BOUND	Left	322	357	35	11%	84	63	-21	-25%
	Through	1,018	1,206	188	18%	741	1,072	331	45%
	Right	191	169	-22	-12%	67	63	-4	-6%
	NB Total	1,531	1,732	201	13%	892	1,198	306	34%
SOUTH BOUND	Left	71	100	29	41%	91	101	10	11%
	Through	722	971	249	34%	1,019	1,270	251	25%
	Right	107	187	80	75%	57	50	-7	-12%
	SB Total	900	1,258	358	40%	1,167	1,421	254	22%
EAST BOUND	Left	254	334	80	31%	118	179	61	52%
	Through	195	192	-3	-2%	57	56	-1	-2%
	Right	332	313	-19	-6%	149	165	16	11%
	EB Total	781	839	58	7%	324	400	76	23%
WEST BOUND	Left	73	59	-14	-19%	82	80	-2	-2%
	Through	111	117	6	5%	39	27	-12	-31%
	Right	65	73	8	12%	48	64	16	33%
	WB Total	249	249	0	0%	169	171	2	1%
TOTAL ENTERING VOLUME		3,461	4,078	617	18%	2,552	3,190	638	25%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES AM	VOLUMES PM	PERCENT OF ADT AM	PERCENT OF ADT PM	ADT
North Leg	Inbound	1,258	1,421			
North Leg	Outbound	1,613	1,315			
North Leg	**TOTAL**	**2,871**	**2,736**	**11%**	**10%**	**27,205**
South Leg	Inbound	1,732	1,198			
South Leg	Outbound	1,343	1,515			
South Leg	**TOTAL**	**3,075**	**2,713**	**14%**	**12%**	**22,442**
East Leg	Inbound	249	171			
East Leg	Outbound	461	220			
East Leg	**TOTAL**	**710**	**391**	**#DIV/0!**	**#DIV/0!**	**-**
West Leg	Inbound	839	400			
West Leg	Outbound	661	140			
West Leg	**TOTAL**	**1,500**	**540**	**35%**	**12%**	**4,339**
OVERALL TOTAL		***8,156***	***6,380***	**15%**	***12%***	***53,986***

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Project: Continental Villages
Scenario: Horizon Year (2040)

Job #: 11575
Analyst: CHS
Date: 43363

LOCATION: Evans Road & Ramona Expressway
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

APPROACH	TURNING MOVEMENT	AM PEAK HOUR INPUT DATA EXISTING COUNT	AM FUTURE VOLUME	AM DIFF-ERENCE	AM % CHANGE	PM PEAK HOUR INPUT DATA EXISTING COUNT	PM FUTURE VOLUME	PM DIFF-ERENCE	PM % CHANGE
NORTH BOUND	Left	397	515	118	30%	217	207	-10	-5%
	Through	550	963	413	75%	335	631	296	88%
	Right	25	96	71	284%	17	95	78	459%
	NB Total	972	1,574	602	62%	569	933	364	64%
SOUTH BOUND	Left	205	386	181	88%	229	552	323	141%
	Through	370	617	247	67%	432	874	442	102%
	Right	371	237	-134	-36%	269	111	-158	-59%
	SB Total	946	1,240	294	31%	930	1,537	607	65%
EAST BOUND	Left	254	143	-111	-44%	331	181	-150	-45%
	Through	338	414	76	22%	888	1,433	545	61%
	Right	155	168	13	8%	339	459	120	35%
	EB Total	747	725	-22	-3%	1,558	2,073	515	33%
WEST BOUND	Left	23	90	67	291%	18	107	89	494%
	Through	1,030	1,537	507	49%	536	651	115	21%
	Right	325	654	329	101%	179	429	250	140%
	WB Total	1,378	2,281	903	66%	733	1,187	454	62%
TOTAL ENTERING VOLUME		4,043	5,820	1777	44%	3,790	5,730	1940	51%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES AM	VOLUMES PM	PERCENT OF ADT AM	PERCENT OF ADT PM	ADT
North Leg	Inbound	1,240	1,537			
North Leg	Outbound	1,760	1,241			
North Leg	**TOTAL**	**3,000**	**2,778**	**11%**	**10%**	**28,029**
South Leg	Inbound	1,574	933			
South Leg	Outbound	875	1,440			
South Leg	**TOTAL**	**2,449**	**2,373**	**8%**	**8%**	**29,301**
East Leg	Inbound	2,281	1,187			
East Leg	Outbound	896	2,080			
East Leg	**TOTAL**	**3,177**	**3,267**	**10%**	**11%**	**31,110**
West Leg	Inbound	725	2,073			
West Leg	Outbound	2,289	969			
West Leg	**TOTAL**	**3,014**	**3,042**	**8%**	**8%**	**36,383**
OVERALL TOTAL		***11,640***	***11,460***	**9%**	***9%***	***124,823***

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APPENDIX 5.1:

E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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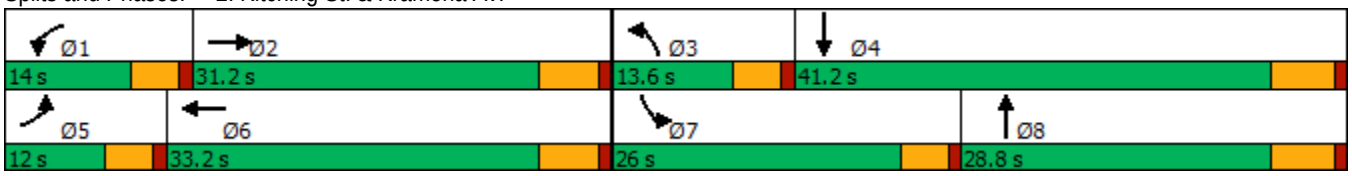
Timings
2: Kitching St. & Krameria Av.

10/23/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	71	421	87	425	54	112	269	144
Future Volume (vph)	71	421	87	425	54	112	269	144
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	28.4	9.6	31.4	9.6	28.8	9.6	29.8
Total Split (s)	12.0	31.2	14.0	33.2	13.6	28.8	26.0	41.2
Total Split (%)	12.0%	31.2%	14.0%	33.2%	13.6%	28.8%	26.0%	41.2%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.4	-0.6	-1.8	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 76
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kitching St. & Krameria Av.



HCM 6th Signalized Intersection Summary
2: Kitching St. & Krameria Av.

10/23/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	421	109	87	425	192	54	112	72	269	144	80
Future Volume (veh/h)	71	421	109	87	425	192	54	112	72	269	144	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	81	478	107	99	483	168	61	127	55	306	164	61
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	119	787	175	142	744	257	103	522	214	366	921	328
Arrive On Green	0.07	0.27	0.25	0.08	0.29	0.27	0.06	0.21	0.19	0.21	0.36	0.34
Sat Flow, veh/h	1781	2866	637	1781	2588	894	1781	2441	1001	1781	2550	910
Grp Volume(v), veh/h	81	295	290	99	331	320	61	91	91	306	112	113
Grp Sat Flow(s),veh/h/ln	1781	1777	1726	1781	1777	1705	1781	1777	1665	1781	1777	1683
Q Serve(g_s), s	3.1	10.2	10.4	3.8	11.5	11.7	2.4	3.0	3.3	11.6	3.0	3.3
Cycle Q Clear(g_c), s	3.1	10.2	10.4	3.8	11.5	11.7	2.4	3.0	3.3	11.6	3.0	3.3
Prop In Lane	1.00		0.37	1.00		0.52	1.00		0.60	1.00		0.54
Lane Grp Cap(c), veh/h	119	488	474	142	511	490	103	380	356	366	641	608
V/C Ratio(X)	0.68	0.60	0.61	0.70	0.65	0.65	0.59	0.24	0.26	0.84	0.17	0.19
Avail Cap(c_a), veh/h	202	685	666	253	736	706	243	625	586	556	937	888
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	22.2	22.5	31.6	22.0	22.4	32.4	23.0	23.5	26.9	15.4	15.8
Incr Delay (d2), s/veh	2.6	1.2	1.3	2.3	1.4	1.5	2.0	0.3	0.4	4.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	4.0	4.0	1.6	4.5	4.5	1.0	1.2	1.2	4.9	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.8	23.5	23.8	34.0	23.4	23.9	34.4	23.3	23.9	31.0	15.5	15.9
LnGrp LOS	C	C	C	C	C	C	C	C	C	C	B	B
Approach Vol, veh/h		666			750			243			531	
Approach Delay, s/veh		25.0			25.0			26.3			24.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	23.4	8.1	29.5	8.7	24.3	18.5	19.1
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	9.4	25.8	9.0	35.4	7.4	27.8	21.4	23.0
Max Q Clear Time (g_c+I1), s	5.8	12.4	4.4	5.3	5.1	13.7	13.6	5.3
Green Ext Time (p_c), s	0.0	2.8	0.0	1.2	0.0	3.3	0.3	0.8

Intersection Summary	
HCM 6th Ctrl Delay	25.0
HCM 6th LOS	C

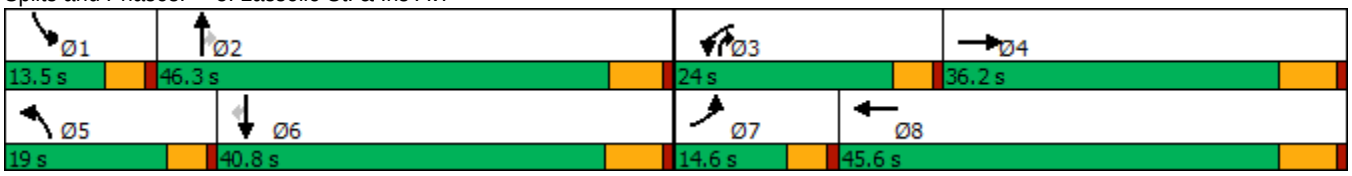
Timings
3: Lasselle St. & Iris Av.

10/23/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	134	478	527	583	384	597	486	116	577	97
Future Volume (vph)	134	478	527	583	384	597	486	116	577	97
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	3	1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	3	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	36.2	9.6	36.2	9.6	41.8	9.6	9.6	40.2	40.2
Total Split (s)	14.6	36.2	24.0	45.6	19.0	46.3	24.0	13.5	40.8	40.8
Total Split (%)	12.2%	30.2%	20.0%	38.0%	15.8%	38.6%	20.0%	11.3%	34.0%	34.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.8	3.6	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.2	-0.6	-2.2	-0.6	-1.8	-0.6	-0.6	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min	Min

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 105.5
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Lasselle St. & Iris Av.



HCM 6th Signalized Intersection Summary
3: Lasselle St. & Iris Av.

10/23/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	478	333	527	583	98	384	597	486	116	577	97
Future Volume (veh/h)	134	478	333	527	583	98	384	597	486	116	577	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	537	226	592	655	67	431	671	317	130	648	49
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	232	845	345	649	1686	171	487	1279	839	209	1007	427
Arrive On Green	0.07	0.24	0.22	0.19	0.36	0.34	0.14	0.36	0.35	0.06	0.28	0.28
Sat Flow, veh/h	3456	3558	1451	3456	4703	477	3456	3554	1552	3456	3554	1507
Grp Volume(v), veh/h	151	513	250	592	472	250	431	671	317	130	648	49
Grp Sat Flow(s),veh/h/ln	1728	1702	1604	1728	1702	1776	1728	1777	1552	1728	1777	1507
Q Serve(g_s), s	4.5	14.4	15.1	17.9	11.0	11.2	13.0	15.9	12.7	3.9	17.0	2.6
Cycle Q Clear(g_c), s	4.5	14.4	15.1	17.9	11.0	11.2	13.0	15.9	12.7	3.9	17.0	2.6
Prop In Lane	1.00		0.90	1.00		0.27	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	232	809	381	649	1220	637	487	1279	839	209	1007	427
V/C Ratio(X)	0.65	0.63	0.66	0.91	0.39	0.39	0.88	0.52	0.38	0.62	0.64	0.11
Avail Cap(c_a), veh/h	344	1030	485	649	1331	694	487	1412	897	308	1229	521
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.4	36.4	37.6	42.3	25.4	25.7	44.9	26.9	14.4	48.8	33.4	28.3
Incr Delay (d2), s/veh	1.2	0.8	2.1	16.8	0.2	0.4	16.9	0.3	0.3	1.1	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	5.8	5.9	8.7	4.2	4.5	6.5	6.4	4.0	1.7	7.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	37.3	39.7	59.2	25.6	26.1	61.8	27.2	14.6	49.9	34.3	28.4
LnGrp LOS	D	D	D	E	C	C	E	C	B	D	C	C
Approach Vol, veh/h		914			1314			1419			827	
Approach Delay, s/veh		40.0			40.8			34.9			36.4	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	42.7	24.0	29.3	19.0	34.2	11.1	42.1
Change Period (Y+Rc), s	4.6	* 6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	8.9	* 41	19.4	30.0	14.4	34.6	10.0	39.4
Max Q Clear Time (g_c+I1), s	5.9	17.9	19.9	17.1	15.0	19.0	6.5	13.2
Green Ext Time (p_c), s	0.1	5.5	0.0	3.7	0.0	3.6	0.1	4.3

Intersection Summary	
HCM 6th Ctrl Delay	38.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	80	1262	150	0	948
Future Vol, veh/h	0	80	1262	150	0	948
Conflicting Peds, #/hr	0	0	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	140	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	91	1434	170	0	1077

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	720	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	370	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	369	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	369	-
HCM Lane V/C Ratio	-	-	0.246	-
HCM Control Delay (s)	-	-	17.9	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	1	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	37	1360	27	0	970
Future Vol, veh/h	0	37	1360	27	0	970
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	40	1478	29	0	1054

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	754	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	352	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	352	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	352	-
HCM Lane V/C Ratio	-	-	0.114	-
HCM Control Delay (s)	-	-	16.5	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.4	-

Timings
6: Lasselle St. & Krameria Av.

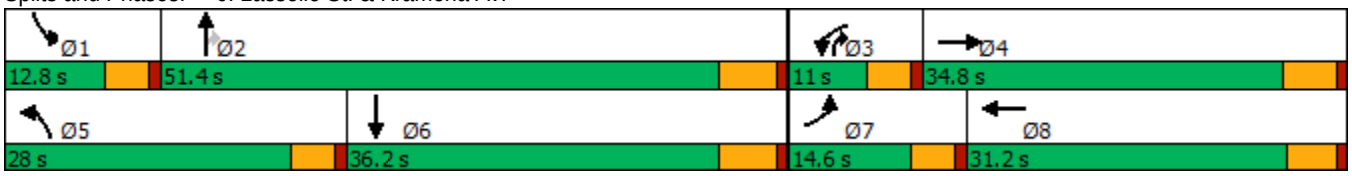
10/25/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	257	271	121	178	322	1042	237	141	722
Future Volume (vph)	257	271	121	178	322	1042	237	141	722
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	9.6	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	14.6	34.8	11.0	31.2	28.0	51.4	11.0	12.8	36.2
Total Split (%)	13.3%	31.6%	10.0%	28.4%	25.5%	46.7%	10.0%	11.6%	32.9%
Yellow Time (s)	3.6	4.4	3.6	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.1	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 100.7
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

10/25/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	257	271	332	121	178	88	322	1042	237	141	722	107
Future Volume (veh/h)	257	271	332	121	178	88	322	1042	237	141	722	107
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	299	315	210	141	207	75	374	1212	191	164	840	97
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	382	448	291	130	456	160	414	1600	800	163	991	114
Arrive On Green	0.11	0.22	0.20	0.07	0.18	0.17	0.23	0.45	0.44	0.09	0.31	0.29
Sat Flow, veh/h	3456	2055	1335	1781	2570	901	1781	3554	1562	1781	3201	370
Grp Volume(v), veh/h	299	271	254	141	141	141	374	1212	191	164	466	471
Grp Sat Flow(s),veh/h/ln	1728	1777	1614	1781	1777	1694	1781	1777	1562	1781	1777	1794
Q Serve(g_s), s	8.1	13.5	14.1	7.0	6.8	7.2	19.6	27.3	6.5	8.8	23.6	23.6
Cycle Q Clear(g_c), s	8.1	13.5	14.1	7.0	6.8	7.2	19.6	27.3	6.5	8.8	23.6	23.6
Prop In Lane	1.00		0.83	1.00		0.53	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	382	388	352	130	316	301	414	1600	800	163	550	555
V/C Ratio(X)	0.78	0.70	0.72	1.08	0.45	0.47	0.90	0.76	0.24	1.00	0.85	0.85
Avail Cap(c_a), veh/h	382	571	518	130	504	480	446	1756	868	163	596	602
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	34.6	35.3	44.5	35.2	35.7	35.8	22.0	13.1	43.6	31.0	31.2
Incr Delay (d2), s/veh	9.3	2.3	2.8	103.4	1.0	1.1	19.7	1.8	0.2	71.3	10.4	10.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	5.8	5.6	6.8	3.0	3.0	10.3	10.6	2.2	7.0	11.0	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.9	36.9	38.1	147.9	36.2	36.8	55.4	23.8	13.2	114.9	41.4	41.5
LnGrp LOS	D	D	D	F	D	D	E	C	B	F	D	D
Approach Vol, veh/h		824			423			1777			1101	
Approach Delay, s/veh		42.3			73.6			29.3			52.4	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	47.2	11.0	24.9	26.3	33.7	14.6	21.3
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	8.2	45.6	6.4	29.4	23.4	30.4	10.0	* 26
Max Q Clear Time (g_c+I1), s	10.8	29.3	9.0	16.1	21.6	25.6	10.1	9.2
Green Ext Time (p_c), s	0.0	8.0	0.0	2.5	0.1	2.3	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	42.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

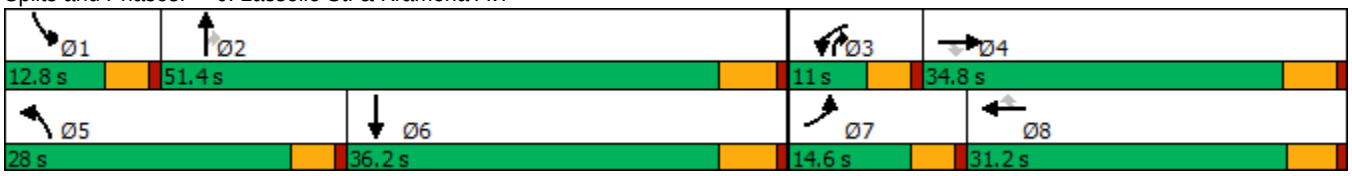
Timings
6: Lasselle St. & Krameria Av.

10/23/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	257	271	332	121	178	88	322	1042	237	141	722
Future Volume (vph)	257	271	332	121	178	88	322	1042	237	141	722
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	34.4	9.6	31.1	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	14.6	34.8	34.8	11.0	31.2	31.2	28.0	51.4	11.0	12.8	36.2
Total Split (%)	13.3%	31.6%	31.6%	10.0%	28.4%	28.4%	25.5%	46.7%	10.0%	11.6%	32.9%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.1	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.1	0.0	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	5.4	4.0	4.0	5.1	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min

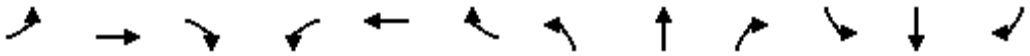
Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 102.8
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

10/23/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	257	271	332	121	178	88	322	1042	237	141	722	107
Future Volume (veh/h)	257	271	332	121	178	88	322	1042	237	141	722	107
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	299	315	210	141	207	75	374	1212	191	164	840	97
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	415	326	129	340	267	413	1599	791	162	986	114
Arrive On Green	0.11	0.22	0.21	0.07	0.18	0.17	0.23	0.45	0.44	0.09	0.31	0.29
Sat Flow, veh/h	1781	1870	1569	1781	1870	1564	1781	3554	1547	1781	3195	369
Grp Volume(v), veh/h	299	315	210	141	207	75	374	1212	191	164	467	470
Grp Sat Flow(s),veh/h/ln	1781	1870	1569	1781	1870	1564	1781	1777	1547	1781	1777	1787
Q Serve(g_s), s	10.6	15.3	11.9	7.0	9.9	4.1	19.8	27.6	6.7	8.8	23.9	23.9
Cycle Q Clear(g_c), s	10.6	15.3	11.9	7.0	9.9	4.1	19.8	27.6	6.7	8.8	23.9	23.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	195	415	326	129	340	267	413	1599	791	162	548	551
V/C Ratio(X)	1.54	0.76	0.64	1.10	0.61	0.28	0.90	0.76	0.24	1.01	0.85	0.85
Avail Cap(c_a), veh/h	195	594	476	129	525	421	441	1738	852	162	590	594
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.2	35.3	35.1	45.0	36.5	35.0	36.2	22.3	13.3	44.1	31.4	31.6
Incr Delay (d2), s/veh	264.9	3.5	2.1	107.5	1.8	0.6	20.2	1.8	0.2	74.6	10.9	10.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.8	7.1	4.6	6.9	4.6	1.6	10.4	10.8	2.2	7.1	11.2	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	308.1	38.7	37.3	152.5	38.2	35.6	56.4	24.1	13.5	118.6	42.4	42.5
LnGrp LOS	F	D	D	F	D	D	E	C	B	F	D	D
Approach Vol, veh/h		824			423			1777			1101	
Approach Delay, s/veh		136.1			75.8			29.7			53.8	
Approach LOS		F			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	47.6	11.0	25.5	26.5	33.9	14.6	21.9
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	8.2	45.6	6.4	29.4	23.4	30.4	10.0	* 26
Max Q Clear Time (g_c+I1), s	10.8	29.6	9.0	17.3	21.8	25.9	12.6	11.9
Green Ext Time (p_c), s	0.0	7.9	0.0	2.0	0.1	2.2	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	62.1
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	80	523	46	48	278	3	62	1	79	4	1	47
Future Vol, veh/h	80	523	46	48	278	3	62	1	79	4	1	47
Conflicting Peds, #/hr	0	0	2	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	104	679	60	62	361	4	81	1	103	5	1	61

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	365	0	0	741	0	0	1437	1408	711	1456	1436	363
Stage 1	-	-	-	-	-	-	919	919	-	487	487	-
Stage 2	-	-	-	-	-	-	518	489	-	969	949	-
Critical Hdwy	4.12	-	-	4.12	-	-	5	6.52	5	5	6.52	5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1194	-	-	866	-	-	259	139	551	254	133	771
Stage 1	-	-	-	-	-	-	325	350	-	562	550	-
Stage 2	-	-	-	-	-	-	541	549	-	305	339	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1194	-	-	864	-	-	209	118	550	182	113	771
Mov Cap-2 Maneuver	-	-	-	-	-	-	266	260	-	156	224	-
Stage 1	-	-	-	-	-	-	296	319	-	513	510	-
Stage 2	-	-	-	-	-	-	461	509	-	226	309	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	1.4	23.7	12.1
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	373	1194	-	-	864	-	-	571
HCM Lane V/C Ratio	0.494	0.087	-	-	0.072	-	-	0.118
HCM Control Delay (s)	23.7	8.3	-	-	9.5	-	-	12.1
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	2.6	0.3	-	-	0.2	-	-	0.4

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↑		↰	↑	
Traffic Vol, veh/h	8	0	16	8	1	6	19	564	14	5	297	0
Future Vol, veh/h	8	0	16	8	1	6	19	564	14	5	297	0
Conflicting Peds, #/hr	0	0	0	0	0	69	0	0	21	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	0	22	11	1	8	26	783	19	7	413	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1345	1302	413	1304	1293	883	413	0	0	823	0	0
Stage 1	427	427	-	866	866	-	-	-	-	-	-	-
Stage 2	918	875	-	438	427	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	129	161	639	137	163	345	1146	-	-	807	-	-
Stage 1	606	585	-	348	370	-	-	-	-	-	-	-
Stage 2	326	367	-	597	585	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	114	153	639	126	155	316	1146	-	-	791	-	-
Mov Cap-2 Maneuver	218	260	-	241	263	-	-	-	-	-	-	-
Stage 1	592	580	-	333	354	-	-	-	-	-	-	-
Stage 2	289	351	-	571	580	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.1	19.6	0.3	0.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1146	-	-	389	268	791	-	-
HCM Lane V/C Ratio	0.023	-	-	0.086	0.078	0.009	-	-
HCM Control Delay (s)	8.2	-	-	15.1	19.6	9.6	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.3	0	-	-

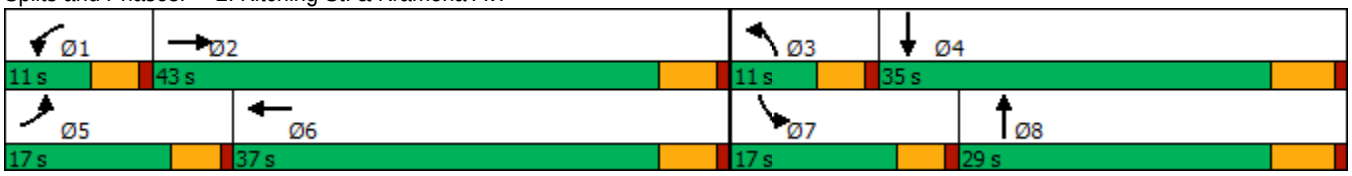
Timings
2: Kitching St. & Krameria Av.

10/25/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	83	245	22	212	25	73	90	78
Future Volume (vph)	83	245	22	212	25	73	90	78
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	28.4	9.6	31.4	9.6	28.8	9.6	29.8
Total Split (s)	17.0	43.0	11.0	37.0	11.0	29.0	17.0	35.0
Total Split (%)	17.0%	43.0%	11.0%	37.0%	11.0%	29.0%	17.0%	35.0%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.4	-0.6	-1.8	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min

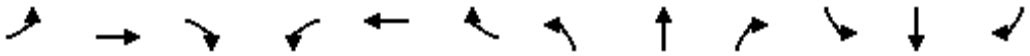
Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 58.3
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kitching St. & Krameria Av.



HCM 6th Signalized Intersection Summary
2: Kitching St. & Krameria Av.

10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	245	32	22	212	90	25	73	19	90	78	84
Future Volume (veh/h)	83	245	32	22	212	90	25	73	19	90	78	84
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	86	253	27	23	219	75	26	75	14	93	80	51
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	148	933	99	71	638	212	76	765	139	153	639	373
Arrive On Green	0.08	0.29	0.26	0.04	0.24	0.22	0.04	0.25	0.22	0.09	0.30	0.26
Sat Flow, veh/h	1781	3237	342	1781	2609	866	1781	3002	546	1781	2143	1251
Grp Volume(v), veh/h	86	138	142	23	147	147	26	44	45	93	65	66
Grp Sat Flow(s),veh/h/ln	1781	1777	1803	1781	1777	1698	1781	1777	1771	1781	1777	1617
Q Serve(g_s), s	2.2	2.9	3.0	0.6	3.3	3.5	0.7	0.9	1.0	2.4	1.3	1.5
Cycle Q Clear(g_c), s	2.2	2.9	3.0	0.6	3.3	3.5	0.7	0.9	1.0	2.4	1.3	1.5
Prop In Lane	1.00		0.19	1.00		0.51	1.00		0.31	1.00		0.77
Lane Grp Cap(c), veh/h	148	512	519	71	435	416	76	453	452	153	530	482
V/C Ratio(X)	0.58	0.27	0.27	0.32	0.34	0.35	0.34	0.10	0.10	0.61	0.12	0.14
Avail Cap(c_a), veh/h	479	1433	1454	258	1213	1159	258	919	916	479	1139	1037
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	13.3	13.4	22.6	15.0	15.4	22.5	13.8	14.0	21.3	12.4	12.9
Incr Delay (d2), s/veh	1.3	0.3	0.3	1.0	0.5	0.5	1.0	0.1	0.1	1.4	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.0	1.0	0.2	1.1	1.2	0.3	0.3	0.3	0.9	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.7	13.6	13.7	23.5	15.5	15.9	23.4	13.8	14.1	22.7	12.5	13.1
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		366			317			115			224	
Approach Delay, s/veh		15.8			16.3			16.1			16.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	17.9	6.1	18.4	8.0	15.8	8.2	16.3
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	6.4	37.6	6.4	29.2	12.4	31.6	12.4	23.2
Max Q Clear Time (g_c+I1), s	2.6	5.0	2.7	3.5	4.2	5.5	4.4	3.0
Green Ext Time (p_c), s	0.0	1.5	0.0	0.6	0.0	1.6	0.1	0.3

Intersection Summary	
HCM 6th Ctrl Delay	16.2
HCM 6th LOS	B

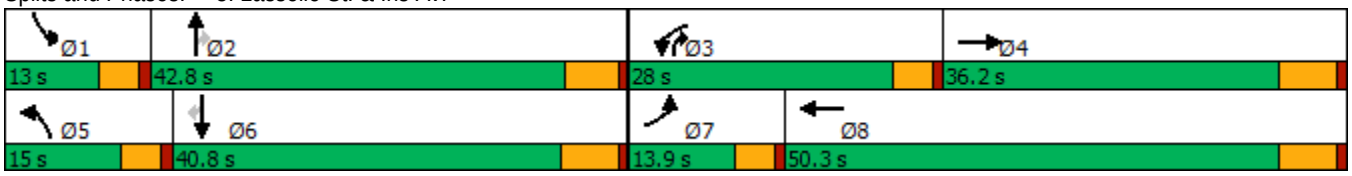
Timings
3: Lasselle St. & Iris Av.

10/25/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	142	396	600	554	260	550	414	192	679	96
Future Volume (vph)	142	396	600	554	260	550	414	192	679	96
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	3	1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	3	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	36.2	9.6	36.2	9.6	41.8	9.6	9.6	40.2	40.2
Total Split (s)	13.9	36.2	28.0	50.3	15.0	42.8	28.0	13.0	40.8	40.8
Total Split (%)	11.6%	30.2%	23.3%	41.9%	12.5%	35.7%	23.3%	10.8%	34.0%	34.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.8	3.6	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.2	-0.6	-2.2	-0.6	-1.8	-0.6	-0.6	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min	Min

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 101.1
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Lasselle St. & Iris Av.



HCM 6th Signalized Intersection Summary
3: Lasselle St. & Iris Av.

10/25/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	396	329	600	554	91	260	550	414	192	679	96
Future Volume (veh/h)	142	396	329	600	554	91	260	550	414	192	679	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.95	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	149	417	259	632	583	68	274	579	233	202	715	49
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	227	875	400	708	1829	210	348	1091	777	279	1033	445
Arrive On Green	0.07	0.26	0.24	0.20	0.40	0.38	0.10	0.31	0.30	0.08	0.29	0.29
Sat Flow, veh/h	3456	3404	1556	3456	4617	530	3456	3554	1526	3456	3554	1529
Grp Volume(v), veh/h	149	417	259	632	427	224	274	579	233	202	715	49
Grp Sat Flow(s),veh/h/ln	1728	1702	1556	1728	1702	1743	1728	1777	1526	1728	1777	1529
Q Serve(g_s), s	4.6	11.3	16.4	19.4	9.5	9.8	8.5	14.7	9.8	6.2	19.5	2.6
Cycle Q Clear(g_c), s	4.6	11.3	16.4	19.4	9.5	9.8	8.5	14.7	9.8	6.2	19.5	2.6
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	227	875	400	708	1349	691	348	1091	777	279	1033	445
V/C Ratio(X)	0.66	0.48	0.65	0.89	0.32	0.32	0.79	0.53	0.30	0.72	0.69	0.11
Avail Cap(c_a), veh/h	313	1004	459	760	1443	739	348	1263	850	285	1198	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.8	34.3	37.2	42.2	22.8	23.1	47.9	31.3	16.0	49.0	34.4	28.4
Incr Delay (d2), s/veh	1.2	0.4	2.6	11.7	0.1	0.3	10.5	0.4	0.2	7.4	1.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	4.5	6.3	9.0	3.6	3.8	4.0	6.1	3.2	2.9	8.1	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.0	34.7	39.8	54.0	22.9	23.4	58.4	31.7	16.3	56.4	35.8	28.5
LnGrp LOS	D	C	D	D	C	C	E	C	B	E	D	C
Approach Vol, veh/h		825			1283			1086			966	
Approach Delay, s/veh		39.3			38.3			35.1			39.7	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	37.9	26.4	32.1	15.0	35.7	11.2	47.3
Change Period (Y+Rc), s	4.6	* 6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	8.4	* 37	23.4	30.0	10.4	34.6	9.3	44.1
Max Q Clear Time (g_c+I1), s	8.2	16.7	21.4	18.4	10.5	21.5	6.6	11.8
Green Ext Time (p_c), s	0.0	4.3	0.3	3.1	0.0	3.7	0.1	4.0

Intersection Summary	
HCM 6th Ctrl Delay	38.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	109	861	75	0	1214
Future Vol, veh/h	0	109	861	75	0	1214
Conflicting Peds, #/hr	0	0	0	2	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	140	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	112	888	77	0	1252

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	446	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	560	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	559	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	559	-
HCM Lane V/C Ratio	-	-	0.201	-
HCM Control Delay (s)	-	-	13.1	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.7	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	54	882	57	0	1211
Future Vol, veh/h	0	54	882	57	0	1211
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	59	959	62	0	1316

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	511	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	508	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	508	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	508	-
HCM Lane V/C Ratio	-	-	0.116	-
HCM Control Delay (s)	-	-	13	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.4	-

Timings
6: Lasselle St. & Krameria Av.

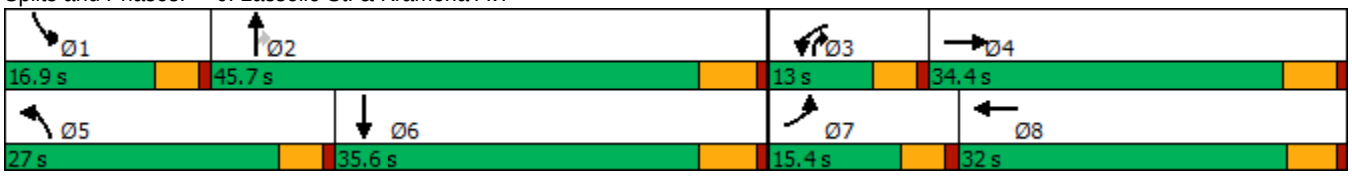
10/25/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	257	271	121	178	322	1042	237	141	722
Future Volume (vph)	257	271	121	178	322	1042	237	141	722
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	9.6	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	15.4	34.4	13.0	32.0	27.0	45.7	13.0	16.9	35.6
Total Split (%)	14.0%	31.3%	11.8%	29.1%	24.5%	41.5%	11.8%	15.4%	32.4%
Yellow Time (s)	3.6	4.4	3.6	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.1	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 96.4
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

10/25/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	257	271	332	121	178	88	322	1042	237	141	722	107
Future Volume (veh/h)	257	271	332	121	178	88	322	1042	237	141	722	107
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	271	285	254	127	187	60	339	1097	229	148	760	101
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	364	398	344	168	547	170	383	1437	768	191	936	124
Arrive On Green	0.11	0.22	0.21	0.09	0.21	0.19	0.21	0.40	0.39	0.11	0.30	0.28
Sat Flow, veh/h	3456	1805	1561	1781	2658	825	1781	3554	1581	1781	3152	419
Grp Volume(v), veh/h	271	280	259	127	123	124	339	1097	229	148	428	433
Grp Sat Flow(s),veh/h/ln	1728	1777	1589	1781	1777	1706	1781	1777	1581	1781	1777	1794
Q Serve(g_s), s	7.0	13.5	14.0	6.4	5.4	5.8	17.0	24.5	8.0	7.4	20.6	20.6
Cycle Q Clear(g_c), s	7.0	13.5	14.0	6.4	5.4	5.8	17.0	24.5	8.0	7.4	20.6	20.6
Prop In Lane	1.00		0.98	1.00		0.48	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	364	391	350	168	366	351	383	1437	768	191	528	533
V/C Ratio(X)	0.74	0.72	0.74	0.76	0.34	0.35	0.89	0.76	0.30	0.77	0.81	0.81
Avail Cap(c_a), veh/h	428	587	525	174	540	519	445	1609	845	250	610	616
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.0	33.2	34.1	40.7	31.2	31.6	35.1	23.6	14.2	40.0	30.0	30.2
Incr Delay (d2), s/veh	4.5	2.5	3.1	14.8	0.5	0.6	15.7	2.0	0.2	7.6	7.2	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	5.8	5.5	3.4	2.3	2.4	8.6	9.7	2.7	3.5	9.2	9.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	35.7	37.2	55.4	31.7	32.2	50.8	25.6	14.5	47.6	37.2	37.4
LnGrp LOS	D	D	D	E	C	C	D	C	B	D	D	D
Approach Vol, veh/h		810			374			1665			1009	
Approach Delay, s/veh		39.1			39.9			29.2			38.8	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	41.2	12.7	24.3	23.8	31.3	13.7	23.3
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	12.3	39.9	8.4	29.0	22.4	29.8	10.8	* 27
Max Q Clear Time (g_c+I1), s	9.4	26.5	8.4	16.0	19.0	22.6	9.0	7.8
Green Ext Time (p_c), s	0.0	6.6	0.0	2.6	0.2	2.9	0.1	1.2

Intersection Summary	
HCM 6th Ctrl Delay	34.8
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

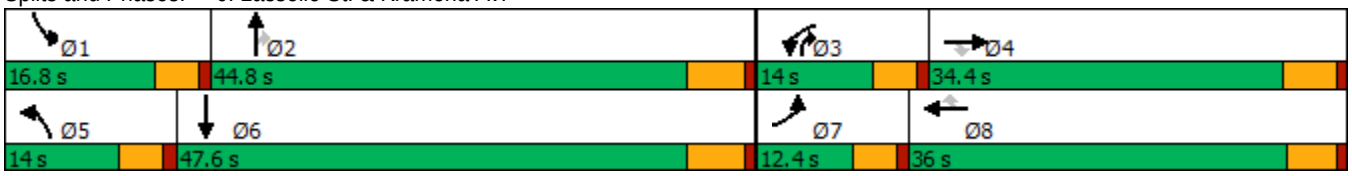
Timings
6: Lasselle St. & Krameria Av.

10/25/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	128	74	149	100	61	48	84	763	69	135	1019
Future Volume (vph)	128	74	149	100	61	48	84	763	69	135	1019
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	34.4	9.6	31.1	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	12.4	34.4	34.4	14.0	36.0	36.0	14.0	44.8	14.0	16.8	47.6
Total Split (%)	11.3%	31.3%	31.3%	12.7%	32.7%	32.7%	12.7%	40.7%	12.7%	15.3%	43.3%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.1	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.1	0.0	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	5.4	4.0	4.0	5.1	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min

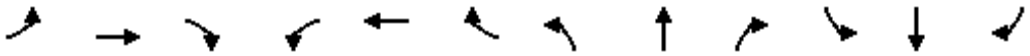
Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 83
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	74	149	100	61	48	84	763	69	135	1019	57
Future Volume (veh/h)	128	74	149	100	61	48	84	763	69	135	1019	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	135	78	62	105	64	18	88	803	53	142	1073	48
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	356	270	150	311	234	128	1359	709	194	1453	65
Arrive On Green	0.10	0.19	0.17	0.08	0.17	0.15	0.07	0.38	0.36	0.11	0.42	0.39
Sat Flow, veh/h	1781	1870	1585	1781	1870	1558	1781	3554	1579	1781	3464	155
Grp Volume(v), veh/h	135	78	62	105	64	18	88	803	53	142	550	571
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1558	1781	1777	1579	1781	1777	1842
Q Serve(g_s), s	5.0	2.4	2.3	3.9	2.0	0.7	3.3	12.3	1.3	5.3	17.8	17.9
Cycle Q Clear(g_c), s	5.0	2.4	2.3	3.9	2.0	0.7	3.3	12.3	1.3	5.3	17.8	17.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	185	356	270	150	311	234	128	1359	709	194	745	773
V/C Ratio(X)	0.73	0.22	0.23	0.70	0.21	0.08	0.69	0.59	0.07	0.73	0.74	0.74
Avail Cap(c_a), veh/h	219	831	672	260	875	704	260	2120	1047	333	1133	1174
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.7	23.4	24.5	30.5	24.6	25.0	31.0	16.8	10.7	29.5	16.7	16.8
Incr Delay (d2), s/veh	7.4	0.3	0.4	2.2	0.3	0.1	2.4	0.4	0.0	2.0	1.5	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	1.0	0.8	1.7	0.9	0.2	1.4	4.3	0.4	2.2	6.3	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.1	23.7	24.9	32.7	24.9	25.1	33.4	17.3	10.8	31.5	18.2	18.2
LnGrp LOS	D	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		275			187			944			1263	
Approach Delay, s/veh		30.5			29.3			18.4			19.7	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	30.2	9.7	17.0	8.9	32.7	11.1	15.7
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	12.2	39.0	9.4	29.0	9.4	41.8	7.8	* 31
Max Q Clear Time (g_c+I1), s	7.3	14.3	5.9	4.4	5.3	19.9	7.0	4.0
Green Ext Time (p_c), s	0.1	5.5	0.0	0.5	0.0	7.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	154	76	5	128	1	44	0	10	3	1	37
Future Vol, veh/h	47	154	76	5	128	1	44	0	10	3	1	37
Conflicting Peds, #/hr	0	0	3	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	54	177	87	6	147	1	51	0	11	3	1	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	148	0	0	267	0	0	514	492	224	494	535	148
Stage 1	-	-	-	-	-	-	332	332	-	160	160	-
Stage 2	-	-	-	-	-	-	182	160	-	334	375	-
Critical Hdwy	4.12	-	-	4.12	-	-	5	6.52	5	5	6.52	5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1434	-	-	1297	-	-	638	478	880	650	452	945
Stage 1	-	-	-	-	-	-	681	644	-	842	766	-
Stage 2	-	-	-	-	-	-	820	766	-	680	617	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1434	-	-	1293	-	-	587	456	877	621	431	945
Mov Cap-2 Maneuver	-	-	-	-	-	-	612	556	-	607	537	-
Stage 1	-	-	-	-	-	-	654	618	-	810	762	-
Stage 2	-	-	-	-	-	-	778	762	-	646	592	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0.3	11.1	9.3
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	648	1434	-	-	1293	-	-	892
HCM Lane V/C Ratio	0.096	0.038	-	-	0.004	-	-	0.053
HCM Control Delay (s)	11.1	7.6	-	-	7.8	-	-	9.3
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	0	10	0	0	0	10	111	1	1	122	12
Future Vol, veh/h	11	0	10	0	0	0	10	111	1	1	122	12
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	2	0	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	0	12	0	0	0	12	137	1	1	151	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	329	331	166	332	338	140	172	0	0	140	0	0
Stage 1	167	167	-	164	164	-	-	-	-	-	-	-
Stage 2	162	164	-	168	174	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	624	588	878	621	583	908	1405	-	-	1443	-	-
Stage 1	835	760	-	838	762	-	-	-	-	-	-	-
Stage 2	840	762	-	834	755	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	616	577	872	606	573	906	1397	-	-	1440	-	-
Mov Cap-2 Maneuver	659	608	-	650	602	-	-	-	-	-	-	-
Stage 1	823	755	-	830	754	-	-	-	-	-	-	-
Stage 2	833	754	-	821	750	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	0	0.6	0.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1397	-	-	746	-	1440	-	-
HCM Lane V/C Ratio	0.009	-	-	0.035	-	0.001	-	-
HCM Control Delay (s)	7.6	-	-	10	0	7.5	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

APPENDIX 5.2:

E+P CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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California MUTCD 2014 Edition
(FHWA's MUTCD 2009, as amended for use in California)

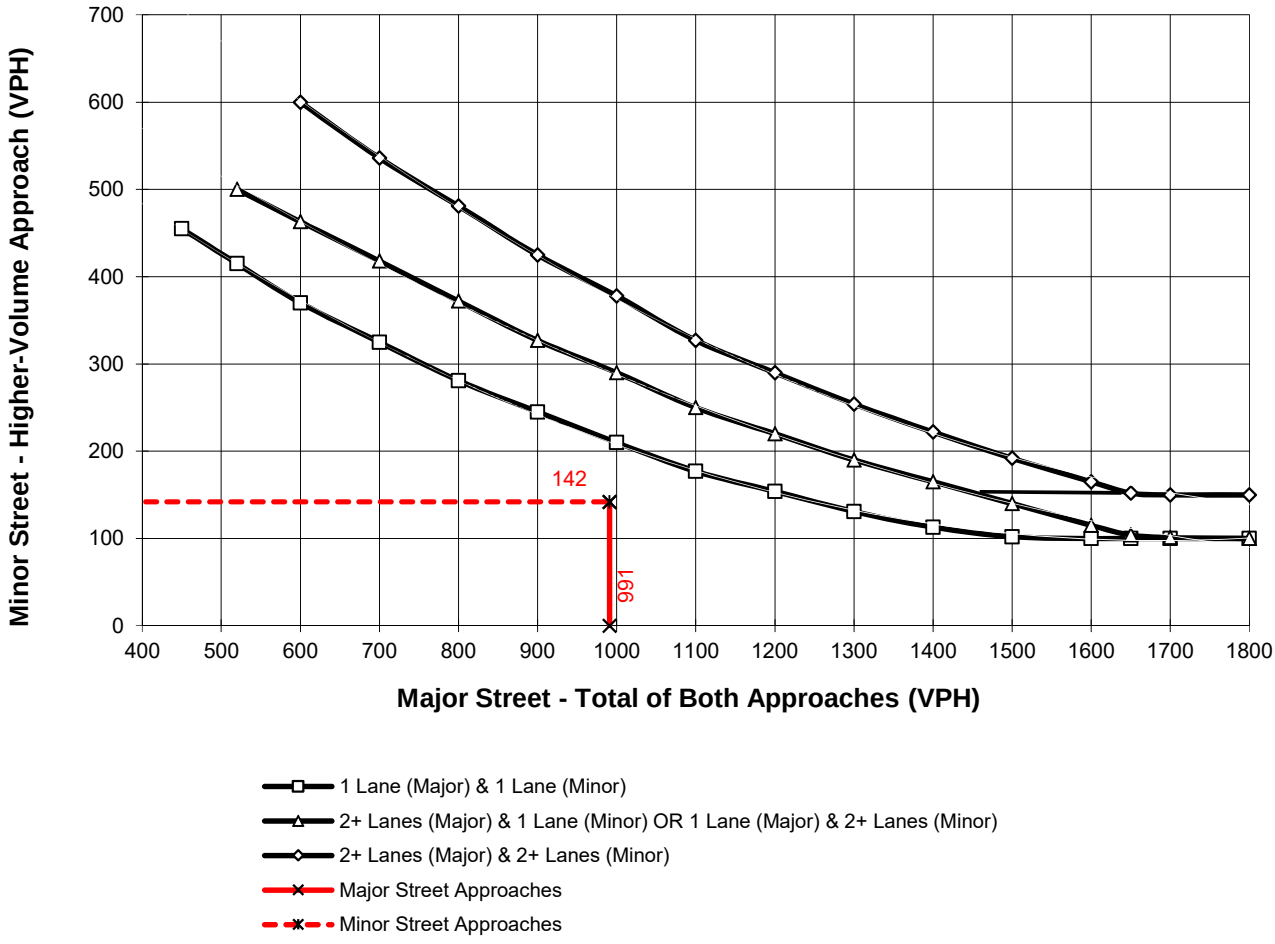
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **E+P Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue**
Total of Both Approaches (VPH) = **991**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Colt Way**
High Volume Approach (VPH) = **142**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

California MUTCD 2014 Edition
(FHWA's MUTCD 2009, as amended for use in California)

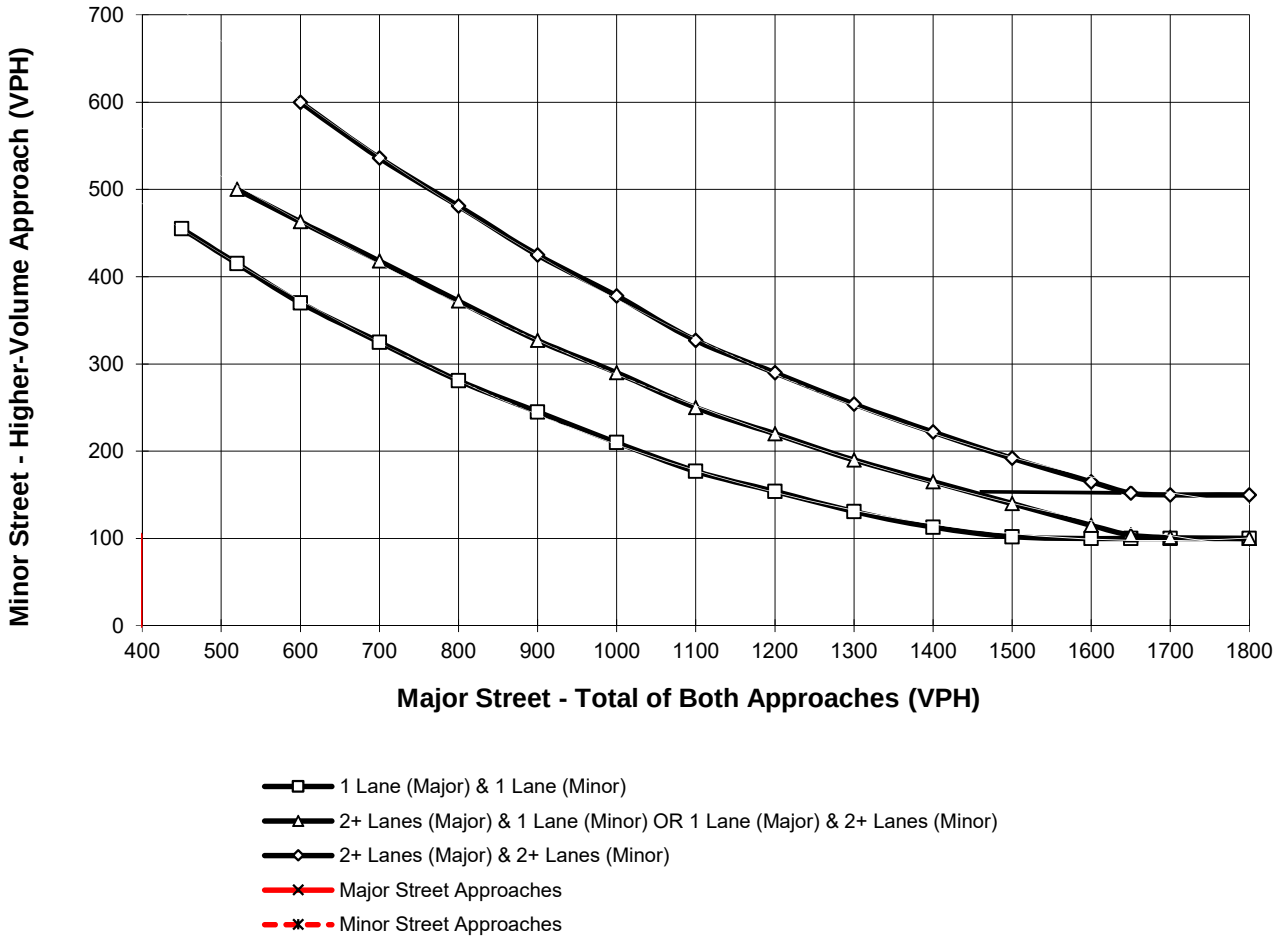
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **E+P Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue**
Total of Both Approaches (VPH) = **397**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Cahuilla Drive**
High Volume Approach (VPH) = **104**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

California MUTCD 2014 Edition
(FHWA's MUTCD 2009, as amended for use in California)

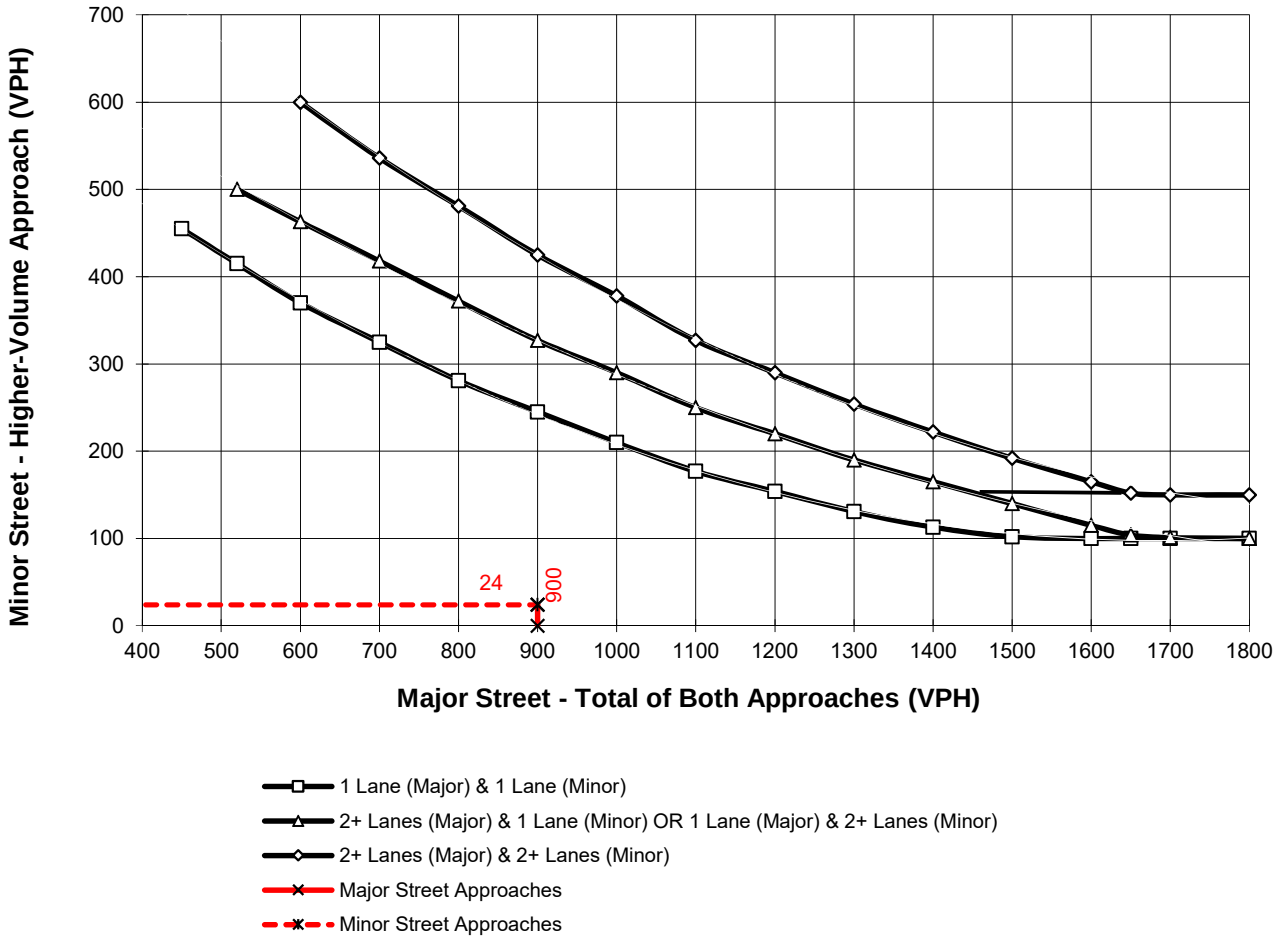
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **E+P Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue**
Total of Both Approaches (VPH) = **900**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Quarter Horse Road**
High Volume Approach (VPH) = **24**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 5.3:

E+P CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Intersection: 4: Lasselle St. & Cahuillia Dr.

Movement	WB	NB
Directions Served	R	R
Maximum Queue (ft)	91	12
Average Queue (ft)	31	0
95th Queue (ft)	64	6
Link Distance (ft)	458	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		140
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Lasselle St. & Driveway 1

Movement	WB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	69	252	251
Average Queue (ft)	25	82	68
95th Queue (ft)	53	242	222
Link Distance (ft)	202	975	975
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Lasselle St. & Krameria Av.

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	225	1072	1072	200	316	90	150	757	739	205	225	282
Average Queue (ft)	224	1046	1038	105	126	35	149	476	420	136	163	218
95th Queue (ft)	226	1058	1092	197	261	71	152	770	735	269	258	296
Link Distance (ft)		1029	1029		401	401		953	953			225
Upstream Blk Time (%)		91	51		0			0	0		13	26
Queuing Penalty (veh)		0	0		1			0	0		0	128
Storage Bay Dist (ft)	200			200			125			180	240	
Storage Blk Time (%)	85	6		8	0		57	12	22	0	13	26
Queuing Penalty (veh)	231	16		15	0		294	37	53	1	48	37

Intersection: 6: Lasselle St. & Krameria Av.

Movement	SB
Directions Served	TR
Maximum Queue (ft)	263
Average Queue (ft)	207
95th Queue (ft)	275
Link Distance (ft)	225
Upstream Blk Time (%)	11
Queuing Penalty (veh)	52
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Colt Wy./Driveway 2 & Krameria Av.

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	52	8	26	44	106	64
Average Queue (ft)	14	0	8	2	52	28
95th Queue (ft)	39	5	24	25	89	54
Link Distance (ft)		401		282	164	252
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	50		50			
Storage Blk Time (%)	0		0	0		
Queuing Penalty (veh)	1		0	0		

Intersection: 9: Krameria Av. & Driveway/Quarter Horse Rd.

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	44	37	36	90	30	55
Average Queue (ft)	17	10	5	16	2	11
95th Queue (ft)	43	32	24	58	16	42
Link Distance (ft)	245	150		658		453
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50		100	
Storage Blk Time (%)			0	1		
Queuing Penalty (veh)			0	0		

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	L	L	T	T	R	L
Maximum Queue (ft)	162	175	119	104	83	44	27	277	508	516	225	212
Average Queue (ft)	84	110	62	47	15	2	3	36	314	297	166	152
95th Queue (ft)	149	163	106	88	48	19	18	156	457	463	284	229
Link Distance (ft)			2427	2427	2427				1304	1304		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	325	325				300	310	310			200	200
Storage Blk Time (%)									11	18	0	1
Queuing Penalty (veh)									2	60	1	3

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	T	T	R	L	L	T	T	R
Maximum Queue (ft)	224	346	266	41	157	170	232	298	239
Average Queue (ft)	181	174	150	9	68	103	112	118	158
95th Queue (ft)	237	299	232	30	137	158	179	237	254
Link Distance (ft)		1103	1103	1103			2298	2298	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	200				215	215			215
Storage Blk Time (%)	6	2				0	0		5
Queuing Penalty (veh)	17	8				0	0		9

Network Summary

Network wide Queuing Penalty: 1016

Queuing and Blocking Report
E+P - PM Peak Hour

10/24/2018

Intersection: 4: Lasselle St. & Cahuillia Dr.

Movement	WB
Directions Served	R
Maximum Queue (ft)	58
Average Queue (ft)	26
95th Queue (ft)	48
Link Distance (ft)	908
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Lasselle St. & Driveway 1

Movement	WB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	57	39	40
Average Queue (ft)	23	2	2
95th Queue (ft)	50	15	16
Link Distance (ft)	202	975	975
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Lasselle St. & Krameria Av.

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	225	1075	1063	203	236	85	150	1003	989	205	192	240
Average Queue (ft)	224	1047	1037	81	100	28	149	972	927	76	92	150
95th Queue (ft)	225	1062	1124	158	183	62	150	987	1176	211	155	220
Link Distance (ft)		1029	1029		401	401		953	953			225
Upstream Blk Time (%)		94	51					98	13		0	0
Queuing Penalty (veh)		0	0					0	0		0	2
Storage Bay Dist (ft)	200			200			125			180	240	
Storage Blk Time (%)	92	5		0	1		92	4	16	0	0	0
Queuing Penalty (veh)	248	14		0	1		482	13	39	0	0	1

Intersection: 6: Lasselle St. & Krameria Av.

Movement	SB
Directions Served	TR
Maximum Queue (ft)	235
Average Queue (ft)	152
95th Queue (ft)	225
Link Distance (ft)	225
Upstream Blk Time (%)	1
Queuing Penalty (veh)	3
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Colt Wy./Driveway 2 & Krameria Av.

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (ft)	40	19	29	123	58
Average Queue (ft)	12	1	9	53	28
95th Queue (ft)	36	9	25	92	51
Link Distance (ft)		401		164	252
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	50		50		
Storage Blk Time (%)	0	0	0		
Queuing Penalty (veh)	1	0	0		

Intersection: 8: Krameria Av./Driveway & Cahuillia Dr.

Movement	EB	NB	NB	SB	SB	SB
Directions Served	LR	LT	T	T	T	R
Maximum Queue (ft)	50	100	52	60	43	40
Average Queue (ft)	19	52	21	30	4	14
95th Queue (ft)	40	81	47	52	22	40
Link Distance (ft)	908	415	415	598	598	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						105
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Krameria Av. & Driveway/Quarter Horse Rd.

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	40	33	22	10	30	19
Average Queue (ft)	18	10	3	1	2	1
95th Queue (ft)	44	31	17	8	15	14
Link Distance (ft)	245	150		658		453
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50		100	
Storage Blk Time (%)				0		0
Queuing Penalty (veh)				0		0

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	L	L	T	T	R	L
Maximum Queue (ft)	174	180	121	108	79	53	32	335	1351	1356	225	212
Average Queue (ft)	83	108	60	48	16	5	4	67	1291	1295	214	170
95th Queue (ft)	150	165	101	95	49	31	21	265	1492	1491	274	240
Link Distance (ft)			2427	2427	2427				1304	1304		
Upstream Blk Time (%)									52	79		
Queuing Penalty (veh)									0	0		
Storage Bay Dist (ft)	325	325				300	310	310			200	200
Storage Blk Time (%)									67	64	2	2
Queuing Penalty (veh)									15	213	12	7

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	T	T	R	L	L	T	T	R
Maximum Queue (ft)	225	389	282	33	134	152	236	279	239
Average Queue (ft)	191	175	134	8	54	91	104	97	148
95th Queue (ft)	245	321	222	25	109	139	178	198	233
Link Distance (ft)		1103	1103	1103			2298	2298	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	200				215	215			215
Storage Blk Time (%)	11	1					0		2
Queuing Penalty (veh)	31	5					0		3

Network Summary

Network wide Queuing Penalty: 1089

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APPENDIX 6.1:

OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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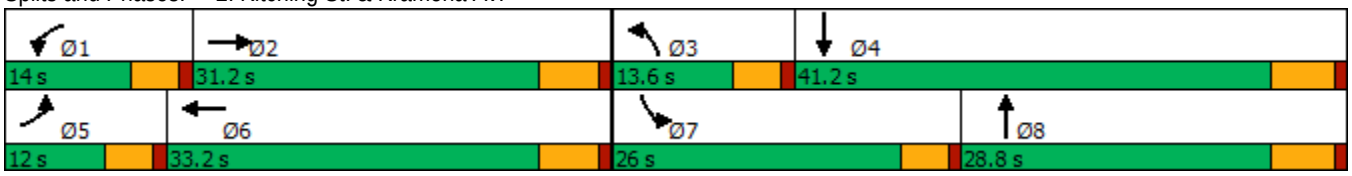
Timings
2: Kitching St. & Krameria Av.

10/25/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	92	572	103	673	83	124	291	159
Future Volume (vph)	92	572	103	673	83	124	291	159
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	28.4	9.6	31.4	9.6	28.8	9.6	29.8
Total Split (s)	12.0	31.2	14.0	33.2	13.6	28.8	26.0	41.2
Total Split (%)	12.0%	31.2%	14.0%	33.2%	13.6%	28.8%	26.0%	41.2%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.4	-0.6	-1.8	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	7.8	27.9	9.2	29.4	8.5	14.2	20.0	27.9
Actuated g/C Ratio	0.09	0.32	0.11	0.34	0.10	0.16	0.23	0.32
v/c Ratio	0.67	0.72	0.63	0.86	0.55	0.39	0.82	0.27
Control Delay	62.3	31.3	55.0	36.1	51.6	20.9	50.5	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.3	31.3	55.0	36.1	51.6	20.9	50.5	14.0
LOS	E	C	D	D	D	C	D	B
Approach Delay		34.9		38.1		29.5		32.9
Approach LOS		C		D		C		C

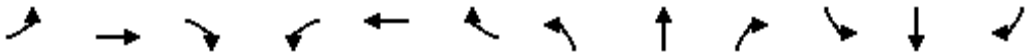
Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 87.5	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 35.1	Intersection LOS: D
Intersection Capacity Utilization 69.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Kitching St. & Krameria Av.



HCM 6th Signalized Intersection Summary
2: Kitching St. & Krameria Av.

10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	572	134	103	673	209	83	124	86	291	159	111
Future Volume (veh/h)	92	572	134	103	673	209	83	124	86	291	159	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	105	650	135	117	765	188	94	141	71	331	181	96
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	920	191	160	916	225	133	435	207	380	741	373
Arrive On Green	0.08	0.32	0.30	0.09	0.32	0.31	0.07	0.19	0.17	0.21	0.33	0.30
Sat Flow, veh/h	1781	2910	603	1781	2825	694	1781	2319	1101	1781	2268	1141
Grp Volume(v), veh/h	105	397	388	117	481	472	94	106	106	331	140	137
Grp Sat Flow(s),veh/h/ln	1781	1777	1736	1781	1777	1742	1781	1777	1643	1781	1777	1632
Q Serve(g_s), s	4.8	16.3	16.4	5.3	20.8	20.9	4.3	4.3	4.7	14.9	4.8	5.2
Cycle Q Clear(g_c), s	4.8	16.3	16.4	5.3	20.8	20.9	4.3	4.3	4.7	14.9	4.8	5.2
Prop In Lane	1.00		0.35	1.00		0.40	1.00		0.67	1.00		0.70
Lane Grp Cap(c), veh/h	146	562	549	160	576	565	133	333	308	380	580	533
V/C Ratio(X)	0.72	0.71	0.71	0.73	0.84	0.84	0.71	0.32	0.34	0.87	0.24	0.26
Avail Cap(c_a), veh/h	172	583	570	215	626	614	206	531	491	473	797	732
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	24.9	25.2	36.8	26.0	26.2	37.5	29.1	29.8	31.5	20.4	21.0
Incr Delay (d2), s/veh	8.5	3.7	3.9	4.8	9.0	9.2	2.6	0.5	0.7	11.9	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	6.9	6.9	2.4	9.5	9.4	1.9	1.8	1.8	7.2	1.8	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	28.7	29.1	41.6	35.0	35.4	40.1	29.6	30.5	43.4	20.6	21.3
LnGrp LOS	D	C	C	D	C	D	D	C	C	D	C	C
Approach Vol, veh/h		890			1070			306			608	
Approach Delay, s/veh		30.8			35.9			33.1			33.2	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	30.2	10.2	31.1	10.8	30.9	21.7	19.6
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	9.4	25.8	9.0	35.4	7.4	27.8	21.4	23.0
Max Q Clear Time (g_c+I1), s	7.3	18.4	6.3	7.2	6.8	22.9	16.9	6.7
Green Ext Time (p_c), s	0.0	2.7	0.0	1.5	0.0	2.5	0.2	0.9

Intersection Summary	
HCM 6th Ctrl Delay	33.4
HCM 6th LOS	C

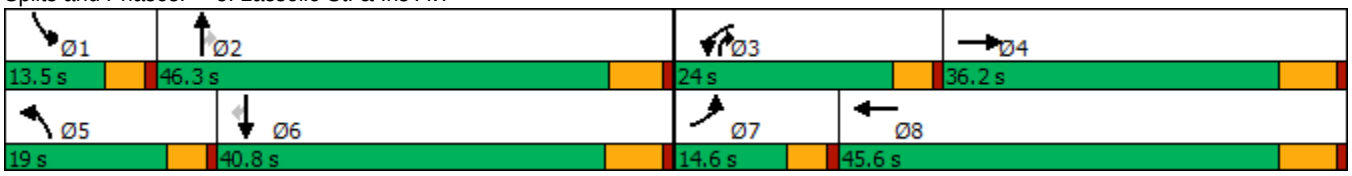
Timings
3: Lasselle St. & Iris Av.

10/25/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	153	619	611	688	433	721	584	275	735	123
Future Volume (vph)	153	619	611	688	433	721	584	275	735	123
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	3	1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	3	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	36.2	9.6	36.2	9.6	41.8	9.6	9.6	40.2	40.2
Total Split (s)	14.6	36.2	24.0	45.6	19.0	46.3	24.0	13.5	40.8	40.8
Total Split (%)	12.2%	30.2%	20.0%	38.0%	15.8%	38.6%	20.0%	11.3%	34.0%	34.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.8	3.6	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.2	-0.6	-2.2	-0.6	-1.8	-0.6	-0.6	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min	Min
Act Effct Green (s)	9.7	30.9	20.1	41.2	15.0	39.4	59.4	9.5	33.9	33.9
Actuated g/C Ratio	0.08	0.27	0.17	0.36	0.13	0.34	0.51	0.08	0.29	0.29
v/c Ratio	0.60	0.82	1.16	0.54	1.09	0.67	0.79	1.10	0.80	0.24
Control Delay	61.1	41.5	131.5	29.9	117.7	36.1	26.2	131.6	44.6	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.1	41.5	131.5	29.9	117.7	36.1	26.2	131.6	44.6	2.0
LOS	E	D	F	C	F	D	C	F	D	A
Approach Delay		44.1		72.4		53.1			61.1	
Approach LOS		D		E		D			E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 115.9	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 58.0	Intersection LOS: E
Intersection Capacity Utilization 89.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Lasselle St. & Iris Av.



HCM 6th Signalized Intersection Summary
3: Lasselle St. & Iris Av.

10/25/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	619	379	611	688	162	433	721	584	275	735	123
Future Volume (veh/h)	153	619	379	611	688	162	433	721	584	275	735	123
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	172	696	278	687	773	139	487	810	427	309	826	78
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	248	924	364	604	1565	279	453	1215	791	287	1057	449
Arrive On Green	0.07	0.26	0.24	0.17	0.36	0.34	0.13	0.34	0.33	0.08	0.30	0.30
Sat Flow, veh/h	3456	3599	1417	3456	4347	775	3456	3554	1552	3456	3554	1509
Grp Volume(v), veh/h	172	658	316	687	604	308	487	810	427	309	826	78
Grp Sat Flow(s),veh/h/ln	1728	1702	1611	1728	1702	1717	1728	1777	1552	1728	1777	1509
Q Serve(g_s), s	5.6	20.4	20.9	20.0	15.8	16.1	15.0	22.2	21.4	9.5	24.3	4.4
Cycle Q Clear(g_c), s	5.6	20.4	20.9	20.0	15.8	16.1	15.0	22.2	21.4	9.5	24.3	4.4
Prop In Lane	1.00		0.88	1.00		0.45	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	248	874	414	604	1225	618	453	1215	791	287	1057	449
V/C Ratio(X)	0.69	0.75	0.76	1.14	0.49	0.50	1.07	0.67	0.54	1.08	0.78	0.17
Avail Cap(c_a), veh/h	320	958	454	604	1238	624	453	1314	835	287	1143	486
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.9	39.2	40.3	47.2	28.5	29.0	49.7	32.1	19.2	52.4	36.8	29.8
Incr Delay (d2), s/veh	2.4	3.1	7.0	80.6	0.3	0.6	63.7	1.2	0.6	75.0	3.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	8.5	8.8	15.0	6.1	6.4	10.3	9.3	7.1	7.0	10.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.3	42.3	47.2	127.8	28.8	29.6	113.4	33.2	19.9	127.4	40.1	30.0
LnGrp LOS	D	D	D	F	C	C	F	C	B	F	D	C
Approach Vol, veh/h		1146			1599			1724			1213	
Approach Delay, s/veh		45.4			71.5			52.6			61.7	
Approach LOS		D			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	43.5	24.0	33.4	19.0	38.0	12.2	45.2
Change Period (Y+Rc), s	4.6	* 6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	8.9	* 41	19.4	30.0	14.4	34.6	10.0	39.4
Max Q Clear Time (g_c+I1), s	11.5	24.2	22.0	22.9	17.0	26.3	7.6	18.1
Green Ext Time (p_c), s	0.0	6.2	0.0	3.3	0.0	3.3	0.1	5.4

Intersection Summary	
HCM 6th Ctrl Delay	58.4
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	88	1414	166	0	1044
Future Vol, veh/h	0	88	1414	166	0	1044
Conflicting Peds, #/hr	0	0	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	140	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	100	1607	189	0	1186

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	807	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	324	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	323	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	323	-
HCM Lane V/C Ratio	-	-	0.31	-
HCM Control Delay (s)	-	-	21.1	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	1.3	-

Timings
6: Lasselle St. & Krameria Av.

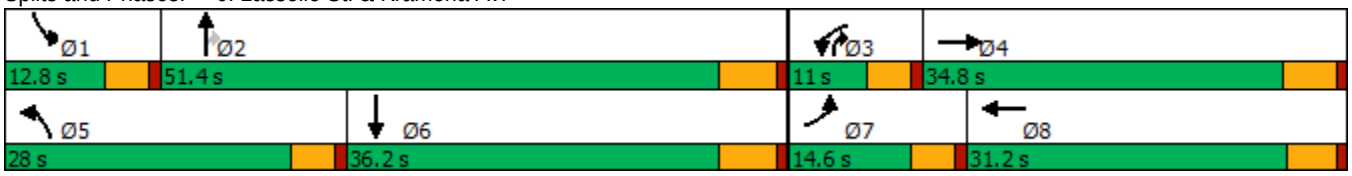
10/25/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	385	267	120	176	416	1173	262	104	819
Future Volume (vph)	385	267	120	176	416	1173	262	104	819
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	9.6	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	14.6	34.8	11.0	31.2	28.0	51.4	11.0	12.8	36.2
Total Split (%)	13.3%	31.6%	10.0%	28.4%	25.5%	46.7%	10.0%	11.6%	32.9%
Yellow Time (s)	3.6	4.4	3.6	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.1	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 102.6
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

10/25/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	385	267	407	120	176	97	416	1173	262	104	819	286
Future Volume (veh/h)	385	267	407	120	176	97	416	1173	262	104	819	286
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	448	310	297	140	205	86	484	1364	220	121	952	306
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	352	426	376	120	497	201	410	1617	800	151	814	260
Arrive On Green	0.10	0.24	0.23	0.07	0.20	0.19	0.23	0.46	0.44	0.08	0.31	0.29
Sat Flow, veh/h	3456	1777	1570	1781	2459	994	1781	3554	1562	1781	2632	841
Grp Volume(v), veh/h	448	310	297	140	146	145	484	1364	220	121	641	617
Grp Sat Flow(s),veh/h/ln	1728	1777	1570	1781	1777	1676	1781	1777	1562	1781	1777	1697
Q Serve(g_s), s	10.6	16.7	18.6	7.0	7.4	7.9	24.0	35.4	8.4	6.9	32.2	32.2
Cycle Q Clear(g_c), s	10.6	16.7	18.6	7.0	7.4	7.9	24.0	35.4	8.4	6.9	32.2	32.2
Prop In Lane	1.00		1.00	1.00		0.59	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	352	426	376	120	359	339	410	1617	800	151	549	525
V/C Ratio(X)	1.27	0.73	0.79	1.17	0.41	0.43	1.18	0.84	0.28	0.80	1.17	1.18
Avail Cap(c_a), veh/h	352	525	464	120	464	438	410	1617	800	151	549	525
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.8	36.5	37.8	48.6	36.1	36.6	40.1	25.1	14.5	46.8	36.0	36.4
Incr Delay (d2), s/veh	143.6	3.9	7.2	134.9	0.7	0.9	103.2	4.3	0.2	24.5	93.5	97.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.4	7.5	7.7	7.5	3.2	3.3	21.7	14.5	2.9	4.0	27.3	26.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	190.4	40.4	45.1	183.5	36.9	37.5	143.2	29.4	14.7	71.4	129.5	134.3
LnGrp LOS	F	D	D	F	D	D	F	C	B	E	F	F
Approach Vol, veh/h		1055			431			2068			1379	
Approach Delay, s/veh		105.4			84.7			54.4			126.5	
Approach LOS		F			F			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	51.4	11.0	29.0	28.0	36.2	14.6	25.4
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	8.2	45.6	6.4	29.4	23.4	30.4	10.0	* 26
Max Q Clear Time (g_c+I1), s	8.9	37.4	9.0	20.6	26.0	34.2	12.6	9.9
Green Ext Time (p_c), s	0.0	5.6	0.0	2.4	0.0	0.0	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	88.1
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

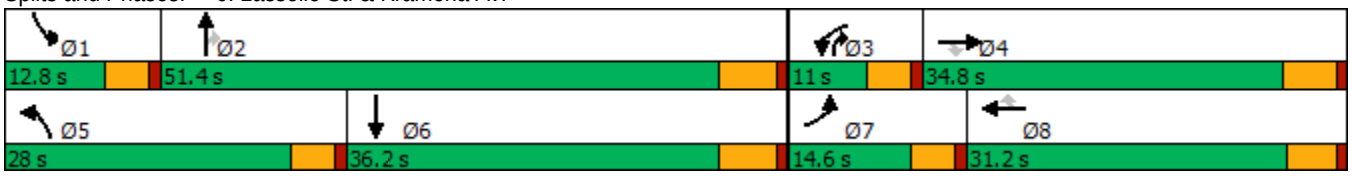
Timings
6: Lasselle St. & Krameria Av.

10/25/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	385	267	407	120	176	97	416	1173	262	104	819
Future Volume (vph)	385	267	407	120	176	97	416	1173	262	104	819
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	34.4	9.6	31.1	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	14.6	34.8	34.8	11.0	31.2	31.2	28.0	51.4	11.0	12.8	36.2
Total Split (%)	13.3%	31.6%	31.6%	10.0%	28.4%	28.4%	25.5%	46.7%	10.0%	11.6%	32.9%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.1	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.1	0.0	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	5.4	4.0	4.0	5.1	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min
Act Effct Green (s)	10.6	24.4	23.0	7.0	20.8	19.7	24.1	47.5	54.6	8.8	32.3
Actuated g/C Ratio	0.10	0.24	0.22	0.07	0.20	0.19	0.23	0.46	0.53	0.08	0.31
v/c Ratio	2.48	0.71	0.74	1.18	0.55	0.26	1.18	0.84	0.33	0.81	1.19
Control Delay	703.3	45.7	15.4	181.1	42.8	3.0	140.5	31.8	5.1	85.1	128.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	703.3	45.7	15.4	181.1	42.8	3.0	140.5	31.8	5.1	85.1	128.3
LOS	F	D	B	F	D	A	F	C	A	F	F
Approach Delay		273.4			75.2			52.4			124.5
Approach LOS		F			E			D			F

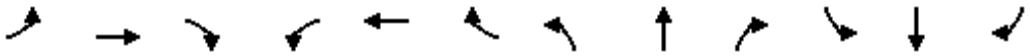
Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 103.8	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.48	
Intersection Signal Delay: 125.6	Intersection LOS: F
Intersection Capacity Utilization 98.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	385	267	407	120	176	97	416	1173	262	104	819	286
Future Volume (veh/h)	385	267	407	120	176	97	416	1173	262	104	819	286
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	448	310	297	140	205	86	484	1364	220	121	952	306
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	445	352	120	374	296	411	1621	802	151	812	260
Arrive On Green	0.10	0.24	0.22	0.07	0.20	0.19	0.23	0.46	0.44	0.08	0.31	0.29
Sat Flow, veh/h	1781	1870	1570	1781	1870	1564	1781	3554	1562	1781	2621	838
Grp Volume(v), veh/h	448	310	297	140	205	86	484	1364	220	121	644	614
Grp Sat Flow(s),veh/h/ln	1781	1870	1570	1781	1870	1564	1781	1777	1562	1781	1777	1682
Q Serve(g_s), s	10.6	15.7	18.8	7.0	10.2	4.9	24.0	35.2	8.3	6.9	32.2	32.2
Cycle Q Clear(g_c), s	10.6	15.7	18.8	7.0	10.2	4.9	24.0	35.2	8.3	6.9	32.2	32.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	182	445	352	120	374	296	411	1621	802	151	551	521
V/C Ratio(X)	2.46	0.70	0.84	1.17	0.55	0.29	1.18	0.84	0.27	0.80	1.17	1.18
Avail Cap(c_a), veh/h	182	554	444	120	490	393	411	1621	802	151	551	521
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.6	36.2	38.6	48.4	37.3	36.1	39.9	24.9	14.4	46.7	35.8	36.3
Incr Delay (d2), s/veh	675.5	2.8	11.4	133.8	1.3	0.5	102.0	4.2	0.2	24.2	94.1	98.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	38.7	7.3	8.2	7.5	4.7	1.9	21.6	14.4	2.8	4.0	27.4	26.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	722.2	39.0	50.0	182.2	38.6	36.6	141.9	29.1	14.6	70.8	130.0	135.2
LnGrp LOS	F	D	D	F	D	D	F	C	B	E	F	F
Approach Vol, veh/h		1055			431			2068			1379	
Approach Delay, s/veh		332.2			84.8			54.0			127.1	
Approach LOS		F			F			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	51.4	11.0	28.7	28.0	36.2	14.6	25.1
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	8.2	45.6	6.4	29.4	23.4	30.4	10.0	* 26
Max Q Clear Time (g_c+I1), s	8.9	37.2	9.0	20.8	26.0	34.2	12.6	12.2
Green Ext Time (p_c), s	0.0	5.7	0.0	1.9	0.0	0.0	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	136.6
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	575	51	53	324	0	68	0	87	0	0	0
Future Vol, veh/h	7	575	51	53	324	0	68	0	87	0	0	0
Conflicting Peds, #/hr	0	0	2	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	747	66	69	421	0	88	0	113	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	421	0	0	815	0	0	1149	1359	409	951	1392	211
Stage 1	-	-	-	-	-	-	800	800	-	559	559	-
Stage 2	-	-	-	-	-	-	349	559	-	392	833	-
Critical Hdwy	4.14	-	-	4.14	-	-	5	6.54	5	5	6.54	5
Critical Hdwy Stg 1	-	-	-	-	-	-	5	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1135	-	-	808	-	-	345	147	738	419	141	890
Stage 1	-	-	-	-	-	-	485	395	-	481	509	-
Stage 2	-	-	-	-	-	-	743	509	-	604	382	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1135	-	-	806	-	-	320	133	737	330	128	890
Mov Cap-2 Maneuver	-	-	-	-	-	-	436	307	-	391	266	-
Stage 1	-	-	-	-	-	-	480	391	-	477	465	-
Stage 2	-	-	-	-	-	-	679	465	-	507	378	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.4	14.8	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	566	1135	-	-	806	-	-	-
HCM Lane V/C Ratio	0.356	0.008	-	-	0.085	-	-	-
HCM Control Delay (s)	14.8	8.2	-	-	9.9	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	1.6	0	-	-	0.3	-	-	-

HCM 6th TWSC
7: Colt Wy./Driveway 2 & Krameria Av. 10/25/2018

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	575	51	53	324	0	68	0	87	0	0	0
Future Vol, veh/h	7	575	51	53	324	0	68	0	87	0	0	0
Conflicting Peds, #/hr	0	0	2	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	747	66	69	421	0	88	0	113	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	421	0	0	815	0	0	1359	1359	782	1414	1392	421
Stage 1	-	-	-	-	-	-	800	800	-	559	559	-
Stage 2	-	-	-	-	-	-	559	559	-	855	833	-
Critical Hdwy	4.12	-	-	4.12	-	-	5	6.52	5	5	6.52	5
Critical Hdwy Stg 1	-	-	-	-	-	-	5	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1138	-	-	812	-	-	280	149	514	265	142	729
Stage 1	-	-	-	-	-	-	486	397	-	513	511	-
Stage 2	-	-	-	-	-	-	611	511	-	353	384	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1138	-	-	810	-	-	260	135	513	192	129	729
Mov Cap-2 Maneuver	-	-	-	-	-	-	404	309	-	194	268	-
Stage 1	-	-	-	-	-	-	481	393	-	509	468	-
Stage 2	-	-	-	-	-	-	559	468	-	273	380	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.4	18.8	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	459	1138	-	-	810	-	-	-
HCM Lane V/C Ratio	0.439	0.008	-	-	0.085	-	-	-
HCM Control Delay (s)	18.8	8.2	-	-	9.9	-	-	0
HCM Lane LOS	C	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	2.2	0	-	-	0.3	-	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↑		↰	↑	
Traffic Vol, veh/h	0	0	11	8	1	7	19	620	14	6	351	0
Future Vol, veh/h	0	0	11	8	1	7	19	620	14	6	351	0
Conflicting Peds, #/hr	0	0	0	0	0	69	0	0	21	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	15	11	1	10	26	861	19	8	488	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1501	1457	488	1456	1448	961	488	0	0	901	0	0
Stage 1	504	504	-	944	944	-	-	-	-	-	-	-
Stage 2	997	953	-	512	504	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	100	130	580	108	131	311	1075	-	-	754	-	-
Stage 1	550	541	-	315	341	-	-	-	-	-	-	-
Stage 2	294	338	-	545	541	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	88	123	580	100	124	285	1075	-	-	739	-	-
Mov Cap-2 Maneuver	189	232	-	213	234	-	-	-	-	-	-	-
Stage 1	537	535	-	301	326	-	-	-	-	-	-	-
Stage 2	258	323	-	525	535	-	-	-	-	-	-	-

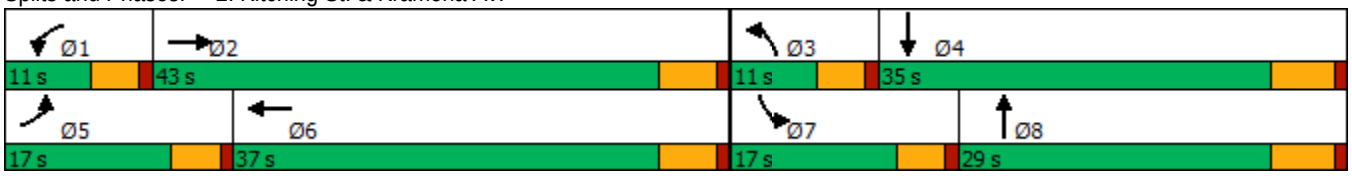
Approach	EB	WB	NB	SB
HCM Control Delay, s	11.4	21.4	0.2	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1075	-	-	580	241	739	-	-
HCM Lane V/C Ratio	0.025	-	-	0.026	0.092	0.011	-	-
HCM Control Delay (s)	8.4	-	-	11.4	21.4	9.9	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.3	0	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	106	407	30	375	44	81	99	86
Future Volume (vph)	106	407	30	375	44	81	99	86
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	28.4	9.6	31.4	9.6	28.8	9.6	29.8
Total Split (s)	17.0	43.0	11.0	37.0	11.0	29.0	17.0	35.0
Total Split (%)	17.0%	43.0%	11.0%	37.0%	11.0%	29.0%	17.0%	35.0%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.4	-0.6	-1.8	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	9.4	24.1	6.9	17.5	7.1	15.1	9.2	19.5
Actuated g/C Ratio	0.15	0.39	0.11	0.28	0.11	0.24	0.15	0.32
v/c Ratio	0.41	0.34	0.16	0.49	0.22	0.14	0.39	0.19
Control Delay	34.3	15.8	35.1	21.6	35.7	18.4	34.1	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	15.8	35.1	21.6	35.7	18.4	34.1	10.5
LOS	C	B	D	C	D	B	C	B
Approach Delay		19.3		22.4		23.3		18.5
Approach LOS		B		C		C		B

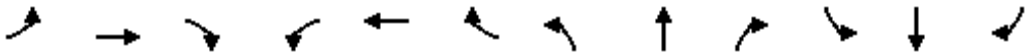
Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 61.8	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.49	
Intersection Signal Delay: 20.6	Intersection LOS: C
Intersection Capacity Utilization 47.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Kitching St. & Krameria Av.



HCM 6th Signalized Intersection Summary
2: Kitching St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	407	49	30	375	97	44	81	31	99	86	109
Future Volume (veh/h)	106	407	49	30	375	97	44	81	31	99	86	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	420	45	31	387	82	45	84	26	102	89	76
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	943	100	84	723	152	105	673	200	157	529	406
Arrive On Green	0.09	0.29	0.26	0.05	0.25	0.22	0.06	0.25	0.21	0.09	0.28	0.24
Sat Flow, veh/h	1781	3234	345	1781	2915	611	1781	2700	802	1781	1897	1455
Grp Volume(v), veh/h	109	230	235	31	234	235	45	54	56	102	83	82
Grp Sat Flow(s),veh/h/ln	1781	1777	1802	1781	1777	1749	1781	1777	1725	1781	1777	1575
Q Serve(g_s), s	2.9	5.2	5.3	0.8	5.6	5.8	1.2	1.2	1.3	2.7	1.7	2.0
Cycle Q Clear(g_c), s	2.9	5.2	5.3	0.8	5.6	5.8	1.2	1.2	1.3	2.7	1.7	2.0
Prop In Lane	1.00		0.19	1.00		0.35	1.00		0.46	1.00		0.92
Lane Grp Cap(c), veh/h	161	518	525	84	441	434	105	443	430	157	496	440
V/C Ratio(X)	0.68	0.44	0.45	0.37	0.53	0.54	0.43	0.12	0.13	0.65	0.17	0.19
Avail Cap(c_a), veh/h	468	1401	1421	252	1186	1167	252	898	872	468	1114	988
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.8	14.3	14.4	22.8	16.1	16.4	22.5	14.4	14.7	21.8	13.5	14.2
Incr Delay (d2), s/veh	1.8	0.6	0.6	1.0	1.0	1.1	1.0	0.1	0.1	1.7	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.8	1.8	0.3	2.0	2.0	0.5	0.4	0.4	1.0	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	14.9	15.0	23.8	17.1	17.4	23.5	14.5	14.9	23.5	13.6	14.4
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		574			500			155			267	
Approach Delay, s/veh		16.6			17.7			17.2			17.6	
Approach LOS		B			B			B			B	

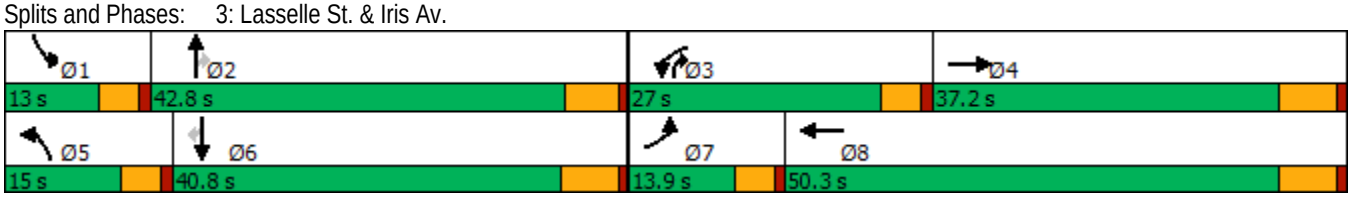
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.3	18.4	6.9	17.8	8.5	16.3	8.4	16.3
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	6.4	37.6	6.4	29.2	12.4	31.6	12.4	23.2
Max Q Clear Time (g_c+I1), s	2.8	7.3	3.2	4.0	4.9	7.8	4.7	3.3
Green Ext Time (p_c), s	0.0	2.7	0.0	0.8	0.1	2.6	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	17.2
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	173	497	726	721	297	680	498	293	824	116
Future Volume (vph)	173	497	726	721	297	680	498	293	824	116
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	3	1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	3	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	36.2	9.6	36.2	9.6	41.8	9.6	9.6	40.2	40.2
Total Split (s)	13.9	37.2	27.0	50.3	15.0	42.8	27.0	13.0	40.8	40.8
Total Split (%)	11.6%	31.0%	22.5%	41.9%	12.5%	35.7%	22.5%	10.8%	34.0%	34.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.8	3.6	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.2	-0.6	-2.2	-0.6	-1.8	-0.6	-0.6	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min	Min
Act Effct Green (s)	9.3	27.4	23.2	41.2	11.1	35.7	58.8	9.1	33.6	33.6
Actuated g/C Ratio	0.08	0.25	0.21	0.37	0.10	0.32	0.53	0.08	0.30	0.30
v/c Ratio	0.63	0.72	1.07	0.57	0.92	0.63	0.62	1.10	0.81	0.21
Control Delay	61.4	35.1	97.5	27.0	83.3	35.5	17.8	133.0	43.3	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.4	35.1	97.5	27.0	83.3	35.5	17.8	133.0	43.3	3.1
LOS	E	D	F	C	F	D	B	F	D	A
Approach Delay		39.5		56.8		39.2			60.8	
Approach LOS		D		E		D			E	

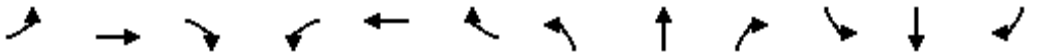
Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 111.4	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 49.6	Intersection LOS: D
Intersection Capacity Utilization 86.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Lasselle St. & Iris Av.



HCM 6th Signalized Intersection Summary
3: Lasselle St. & Iris Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	497	376	726	721	270	297	680	498	293	824	116
Future Volume (veh/h)	173	497	376	726	721	270	297	680	498	293	824	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.95	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	182	523	309	764	759	256	313	716	321	308	867	70
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	256	899	411	690	1455	484	330	1121	782	270	1071	461
Arrive On Green	0.07	0.26	0.25	0.20	0.39	0.37	0.10	0.32	0.30	0.08	0.30	0.30
Sat Flow, veh/h	3456	3404	1556	3456	3733	1242	3456	3554	1527	3456	3554	1531
Grp Volume(v), veh/h	182	523	309	764	691	324	313	716	321	308	867	70
Grp Sat Flow(s),veh/h/ln	1728	1702	1556	1728	1702	1571	1728	1777	1527	1728	1777	1531
Q Serve(g_s), s	5.9	15.4	21.2	23.0	17.9	18.5	10.4	19.9	15.2	9.0	26.0	3.9
Cycle Q Clear(g_c), s	5.9	15.4	21.2	23.0	17.9	18.5	10.4	19.9	15.2	9.0	26.0	3.9
Prop In Lane	1.00		1.00	1.00		0.79	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	256	899	411	690	1327	612	330	1121	782	270	1071	461
V/C Ratio(X)	0.71	0.58	0.75	1.11	0.52	0.53	0.95	0.64	0.41	1.14	0.81	0.15
Avail Cap(c_a), veh/h	297	982	449	690	1369	632	330	1198	815	270	1136	489
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	36.8	40.0	46.1	26.9	27.7	51.8	33.8	17.9	53.1	37.2	29.4
Incr Delay (d2), s/veh	4.8	0.7	6.4	67.3	0.3	0.8	35.6	1.0	0.3	98.0	4.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	6.2	8.5	15.9	6.9	6.7	6.0	8.4	5.0	7.4	11.3	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.8	37.6	46.4	113.3	27.2	28.5	87.4	34.8	18.2	151.0	41.4	29.6
LnGrp LOS	E	D	D	F	C	C	F	C	B	F	D	C
Approach Vol, veh/h		1014			1779			1350			1245	
Approach Delay, s/veh		43.7			64.4			43.1			67.9	
Approach LOS		D			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	40.7	27.0	34.4	15.0	38.7	12.5	48.9
Change Period (Y+Rc), s	4.6	* 6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	8.4	* 37	22.4	31.0	10.4	34.6	9.3	44.1
Max Q Clear Time (g_c+I1), s	11.0	21.9	25.0	23.2	12.4	28.0	7.9	20.5
Green Ext Time (p_c), s	0.0	5.0	0.0	3.0	0.0	3.0	0.0	6.5

Intersection Summary	
HCM 6th Ctrl Delay	56.0
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	120	982	83	0	1386
Future Vol, veh/h	0	120	982	83	0	1386
Conflicting Peds, #/hr	0	0	0	2	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	140	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	124	1012	86	0	1429

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	508	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	510	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	509	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	509	-
HCM Lane V/C Ratio	-	-	0.243	-
HCM Control Delay (s)	-	-	14.3	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.9	-

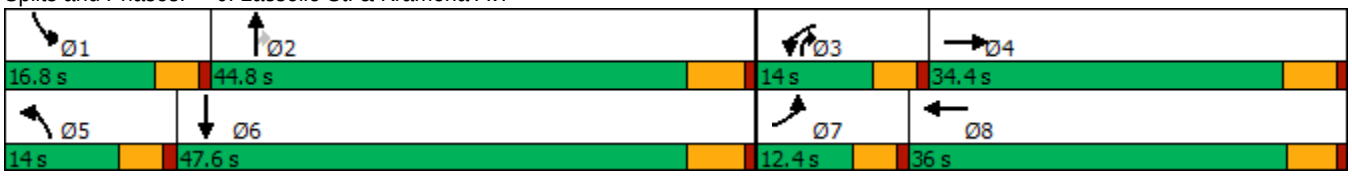
Timings
6: Lasselle St. & Krameria Av.

10/25/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	260	67	99	50	137	861	76	124	1180
Future Volume (vph)	260	67	99	50	137	861	76	124	1180
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	9.6	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	12.4	34.4	14.0	36.0	14.0	44.8	14.0	16.8	47.6
Total Split (%)	11.3%	31.3%	12.7%	32.7%	12.7%	40.7%	12.7%	15.3%	43.3%
Yellow Time (s)	3.6	4.4	3.6	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.1	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 94.2
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

10/25/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	67	205	99	50	53	137	861	76	124	1180	182
Future Volume (veh/h)	260	67	205	99	50	53	137	861	76	124	1180	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	274	71	121	104	53	23	144	906	60	131	1242	180
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	341	278	248	144	331	134	189	1693	860	175	1461	211
Arrive On Green	0.10	0.16	0.14	0.08	0.13	0.12	0.11	0.48	0.46	0.10	0.47	0.45
Sat Flow, veh/h	3456	1777	1585	1781	2452	994	1781	3554	1582	1781	3117	449
Grp Volume(v), veh/h	274	71	121	104	37	39	144	906	60	131	705	717
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1669	1781	1777	1582	1781	1777	1789
Q Serve(g_s), s	6.6	3.0	6.0	4.8	1.6	1.8	6.7	15.2	1.5	6.1	29.7	30.3
Cycle Q Clear(g_c), s	6.6	3.0	6.0	4.8	1.6	1.8	6.7	15.2	1.5	6.1	29.7	30.3
Prop In Lane	1.00		1.00	1.00		0.60	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	341	278	248	144	240	225	189	1693	860	175	833	839
V/C Ratio(X)	0.80	0.26	0.49	0.72	0.16	0.17	0.76	0.54	0.07	0.75	0.85	0.85
Avail Cap(c_a), veh/h	341	635	566	209	668	628	209	1704	865	268	910	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.5	31.5	33.5	38.2	32.5	32.9	37.0	15.7	9.2	37.3	19.9	20.2
Incr Delay (d2), s/veh	12.1	0.5	1.5	2.5	0.3	0.4	11.8	0.3	0.0	2.4	7.0	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	1.3	2.3	2.2	0.7	0.7	3.4	5.4	0.5	2.6	12.1	12.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	32.0	35.0	40.7	32.8	33.2	48.8	16.0	9.3	39.7	26.9	27.7
LnGrp LOS	D	C	C	D	C	C	D	B	A	D	C	C
Approach Vol, veh/h		466			180			1110			1553	
Approach Delay, s/veh		43.1			37.5			19.9			28.3	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.4	44.5	10.9	17.3	13.0	43.9	12.4	15.8
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	12.2	39.0	9.4	29.0	9.4	41.8	7.8	* 31
Max Q Clear Time (g_c+I1), s	8.1	17.2	6.8	8.0	8.7	32.3	8.6	3.8
Green Ext Time (p_c), s	0.1	6.2	0.0	1.0	0.0	5.8	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

Notes

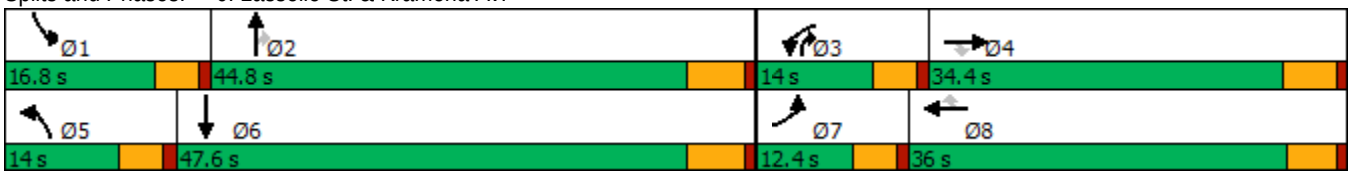
User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	260	67	205	99	50	53	137	861	76	124	1180
Future Volume (vph)	260	67	205	99	50	53	137	861	76	124	1180
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	34.4	9.6	31.1	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	12.4	34.4	34.4	14.0	36.0	36.0	14.0	44.8	14.0	16.8	47.6
Total Split (%)	11.3%	31.3%	31.3%	12.7%	32.7%	32.7%	12.7%	40.7%	12.7%	15.3%	43.3%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.1	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.1	0.0	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	5.4	4.0	4.0	5.1	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min
Act Effct Green (s)	11.4	14.7	13.3	9.2	15.7	14.6	10.1	43.0	52.2	10.9	43.9
Actuated g/C Ratio	0.12	0.16	0.14	0.10	0.17	0.16	0.11	0.46	0.56	0.12	0.47
v/c Ratio	1.27	0.24	0.53	0.60	0.17	0.16	0.76	0.56	0.09	0.64	0.88
Control Delay	193.8	36.2	9.8	57.6	33.7	1.0	68.3	21.8	3.2	55.4	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	193.8	36.2	9.8	57.6	33.7	1.0	68.3	21.8	3.2	55.4	31.4
LOS	F	D	A	E	C	A	E	C	A	E	C
Approach Delay		103.0			36.7			26.4			33.4
Approach LOS		F			D			C			C

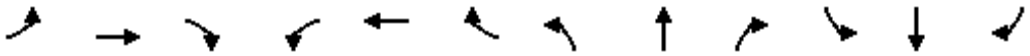
Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 94	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.27	
Intersection Signal Delay: 42.6	Intersection LOS: D
Intersection Capacity Utilization 77.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	67	205	99	50	53	137	861	76	124	1180	182
Future Volume (veh/h)	260	67	205	99	50	53	137	861	76	124	1180	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	274	71	121	104	53	23	144	906	60	131	1242	180
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	292	222	144	252	190	189	1693	859	175	1461	211
Arrive On Green	0.10	0.16	0.14	0.08	0.13	0.12	0.11	0.48	0.46	0.10	0.47	0.45
Sat Flow, veh/h	1781	1870	1585	1781	1870	1556	1781	3554	1580	1781	3116	449
Grp Volume(v), veh/h	274	71	121	104	53	23	144	906	60	131	705	717
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1556	1781	1777	1580	1781	1777	1789
Q Serve(g_s), s	8.4	2.8	6.0	4.8	2.1	1.1	6.7	15.2	1.5	6.1	29.7	30.3
Cycle Q Clear(g_c), s	8.4	2.8	6.0	4.8	2.1	1.1	6.7	15.2	1.5	6.1	29.7	30.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	176	292	222	144	252	190	189	1693	859	175	833	839
V/C Ratio(X)	1.56	0.24	0.55	0.72	0.21	0.12	0.76	0.54	0.07	0.75	0.85	0.85
Avail Cap(c_a), veh/h	176	668	540	209	703	565	209	1704	864	268	910	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.3	31.5	34.1	38.2	32.8	33.3	37.0	15.7	9.2	37.3	19.9	20.2
Incr Delay (d2), s/veh	277.1	0.4	2.1	2.5	0.4	0.3	11.8	0.3	0.0	2.4	7.0	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.0	1.3	2.4	2.2	1.0	0.4	3.4	5.4	0.5	2.6	12.1	12.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	315.4	31.9	36.2	40.7	33.2	33.6	48.8	16.0	9.3	39.7	26.9	27.7
LnGrp LOS	F	C	D	D	C	C	D	B	A	D	C	C
Approach Vol, veh/h		466			180			1110			1553	
Approach Delay, s/veh		199.7			37.6			19.9			28.3	
Approach LOS		F			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.4	44.5	10.9	17.3	13.0	43.9	12.4	15.8
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	12.2	39.0	9.4	29.0	9.4	41.8	7.8	* 31
Max Q Clear Time (g_c+I1), s	8.1	17.2	6.8	8.0	8.7	32.3	10.4	4.1
Green Ext Time (p_c), s	0.1	6.2	0.0	0.7	0.0	5.8	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	50.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	161	84	6	152	0	49	0	11	0	0	0
Future Vol, veh/h	22	161	84	6	152	0	49	0	11	0	0	0
Conflicting Peds, #/hr	0	0	3	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	185	97	7	175	0	56	0	13	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	175	0	0	285	0	0	389	476	144	332	524	88
Stage 1	-	-	-	-	-	-	287	287	-	189	189	-
Stage 2	-	-	-	-	-	-	102	189	-	143	335	-
Critical Hdwy	4.14	-	-	4.14	-	-	5	6.54	5	5	6.54	5
Critical Hdwy Stg 1	-	-	-	-	-	-	5	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1399	-	-	1274	-	-	716	486	948	755	457	999
Stage 1	-	-	-	-	-	-	787	673	-	795	743	-
Stage 2	-	-	-	-	-	-	933	743	-	845	641	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1399	-	-	1270	-	-	701	473	945	732	445	999
Mov Cap-2 Maneuver	-	-	-	-	-	-	726	581	-	732	559	-
Stage 1	-	-	-	-	-	-	770	659	-	781	739	-
Stage 2	-	-	-	-	-	-	928	739	-	819	628	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.3	10.2	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	758	1399	-	-	1270	-	-	-
HCM Lane V/C Ratio	0.091	0.018	-	-	0.005	-	-	-
HCM Control Delay (s)	10.2	7.6	-	-	7.8	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	161	84	6	152	0	49	0	11	0	0	0
Future Vol, veh/h	22	161	84	6	152	0	49	0	11	0	0	0
Conflicting Peds, #/hr	0	0	3	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	185	97	7	175	0	56	0	13	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	175	0	0	285	0	0	476	476	237	479	524	175
Stage 1	-	-	-	-	-	-	287	287	-	189	189	-
Stage 2	-	-	-	-	-	-	189	189	-	290	335	-
Critical Hdwy	4.12	-	-	4.12	-	-	5	6.52	5	5	6.52	5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1401	-	-	1277	-	-	661	488	869	659	458	921
Stage 1	-	-	-	-	-	-	720	674	-	813	744	-
Stage 2	-	-	-	-	-	-	813	744	-	718	643	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1401	-	-	1273	-	-	647	475	867	638	446	921
Mov Cap-2 Maneuver	-	-	-	-	-	-	663	582	-	650	560	-
Stage 1	-	-	-	-	-	-	705	660	-	798	740	-
Stage 2	-	-	-	-	-	-	809	740	-	695	629	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.3	10.8	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	693	1401	-	-	1273	-	-	-
HCM Lane V/C Ratio	0.1	0.018	-	-	0.005	-	-	-
HCM Control Delay (s)	10.8	7.6	-	-	7.8	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↑		↰	↑	
Traffic Vol, veh/h	7	0	8	0	0	0	2	120	0	1	149	13
Future Vol, veh/h	7	0	8	0	0	0	2	120	0	1	149	13
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	2	0	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	0	10	0	0	0	2	148	0	1	184	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	352	354	199	354	362	150	206	0	0	150	0	0
Stage 1	200	200	-	154	154	-	-	-	-	-	-	-
Stage 2	152	154	-	200	208	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	603	571	842	601	565	896	1365	-	-	1431	-	-
Stage 1	802	736	-	848	770	-	-	-	-	-	-	-
Stage 2	850	770	-	802	730	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	599	565	836	591	559	894	1357	-	-	1428	-	-
Mov Cap-2 Maneuver	647	599	-	641	594	-	-	-	-	-	-	-
Stage 1	796	731	-	845	768	-	-	-	-	-	-	-
Stage 2	849	768	-	791	725	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	0	0.1	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1357	-	-	736	-	1428	-	-
HCM Lane V/C Ratio	0.002	-	-	0.025	-	0.001	-	-
HCM Control Delay (s)	7.7	-	-	10	0	7.5	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

APPENDIX 6.2:

OPENING YEAR CUMULATIVE (2023) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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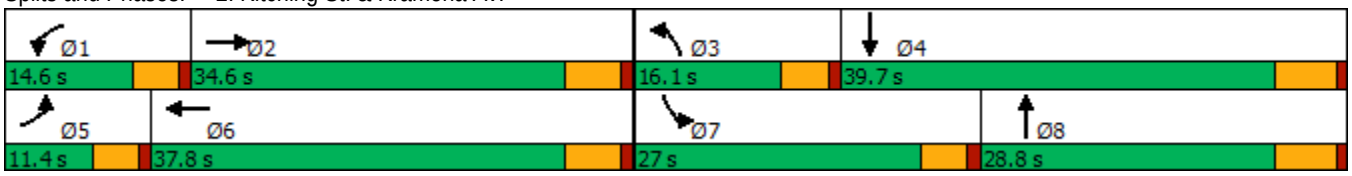
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	92	585	106	687	83	124	307	159
Future Volume (vph)	92	585	106	687	83	124	307	159
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	28.4	9.6	31.4	9.6	28.8	9.6	29.8
Total Split (s)	11.4	34.6	14.6	37.8	16.1	28.8	27.0	39.7
Total Split (%)	10.9%	33.0%	13.9%	36.0%	15.3%	27.4%	25.7%	37.8%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.4	-0.6	-1.8	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min

Intersection Summary

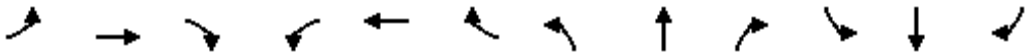
Cycle Length: 105
Actuated Cycle Length: 92.2
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kitching St. & Krameria Av.



HCM 6th Signalized Intersection Summary
2: Kitching St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	585	134	106	687	220	83	124	91	307	159	111
Future Volume (veh/h)	92	585	134	106	687	220	83	124	91	307	159	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	105	665	135	120	781	200	94	141	76	349	181	96
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	955	194	162	942	241	132	405	205	395	740	373
Arrive On Green	0.08	0.33	0.31	0.09	0.34	0.32	0.07	0.18	0.16	0.22	0.33	0.31
Sat Flow, veh/h	1781	2923	593	1781	2798	717	1781	2263	1146	1781	2268	1141
Grp Volume(v), veh/h	105	404	396	120	496	485	94	109	108	349	140	137
Grp Sat Flow(s),veh/h/ln	1781	1777	1739	1781	1777	1738	1781	1777	1633	1781	1777	1632
Q Serve(g_s), s	5.1	17.4	17.5	5.8	22.6	22.6	4.5	4.7	5.2	16.7	5.1	5.5
Cycle Q Clear(g_c), s	5.1	17.4	17.5	5.8	22.6	22.6	4.5	4.7	5.2	16.7	5.1	5.5
Prop In Lane	1.00		0.34	1.00		0.41	1.00		0.70	1.00		0.70
Lane Grp Cap(c), veh/h	144	581	568	162	598	585	132	318	292	395	580	533
V/C Ratio(X)	0.73	0.70	0.70	0.74	0.83	0.83	0.71	0.34	0.37	0.88	0.24	0.26
Avail Cap(c_a), veh/h	150	618	605	215	683	668	245	501	460	466	721	662
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	25.8	26.0	39.0	26.8	27.1	39.8	31.6	32.3	33.2	21.7	22.3
Incr Delay (d2), s/veh	13.5	3.2	3.3	5.8	7.6	7.7	2.7	0.6	0.8	14.7	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	7.4	7.3	2.7	10.1	10.0	2.0	2.0	2.0	8.3	2.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	29.0	29.3	44.7	34.4	34.9	42.5	32.2	33.1	47.8	21.9	22.5
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		905			1101			311			626	
Approach Delay, s/veh		31.9			35.7			35.6			36.5	
Approach LOS		C			D			D			D	

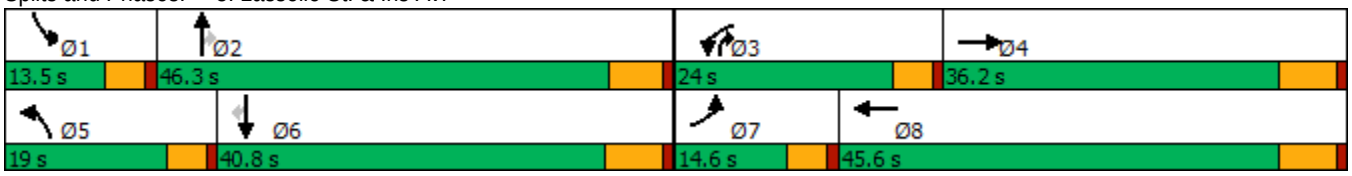
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	32.8	10.5	32.7	11.1	33.6	23.5	19.7
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	10.0	29.2	11.5	33.9	6.8	32.4	22.4	23.0
Max Q Clear Time (g_c+I1), s	7.8	19.5	6.5	7.5	7.1	24.6	18.7	7.2
Green Ext Time (p_c), s	0.0	3.3	0.0	1.5	0.0	3.6	0.2	0.9

Intersection Summary	
HCM 6th Ctrl Delay	34.7
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	153	619	628	688	448	736	599	275	752	123
Future Volume (vph)	153	619	628	688	448	736	599	275	752	123
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	3	1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	3	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	36.2	9.6	36.2	9.6	41.8	9.6	9.6	40.2	40.2
Total Split (s)	14.6	36.2	24.0	45.6	19.0	46.3	24.0	13.5	40.8	40.8
Total Split (%)	12.2%	30.2%	20.0%	38.0%	15.8%	38.6%	20.0%	11.3%	34.0%	34.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.8	3.6	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.2	-0.6	-2.2	-0.6	-1.8	-0.6	-0.6	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min	Min

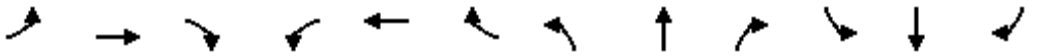
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 116.3
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Lasselle St. & Iris Av.



HCM 6th Signalized Intersection Summary
3: Lasselle St. & Iris Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	619	396	628	688	162	448	736	599	275	752	123
Future Volume (veh/h)	153	619	396	628	688	162	448	736	599	275	752	123
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	172	696	297	706	773	139	503	827	444	309	845	78
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	247	910	383	600	1567	279	450	1218	791	285	1061	451
Arrive On Green	0.07	0.26	0.24	0.17	0.36	0.34	0.13	0.34	0.33	0.08	0.30	0.30
Sat Flow, veh/h	3456	3522	1481	3456	4347	775	3456	3554	1552	3456	3554	1510
Grp Volume(v), veh/h	172	672	321	706	604	308	503	827	444	309	845	78
Grp Sat Flow(s),veh/h/ln	1728	1702	1599	1728	1702	1717	1728	1777	1552	1728	1777	1510
Q Serve(g_s), s	5.6	21.0	21.5	20.0	15.9	16.2	15.0	22.9	22.8	9.5	25.2	4.4
Cycle Q Clear(g_c), s	5.6	21.0	21.5	20.0	15.9	16.2	15.0	22.9	22.8	9.5	25.2	4.4
Prop In Lane	1.00		0.93	1.00		0.45	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	247	879	413	600	1228	619	450	1218	791	285	1061	451
V/C Ratio(X)	0.70	0.76	0.78	1.18	0.49	0.50	1.12	0.68	0.56	1.08	0.80	0.17
Avail Cap(c_a), veh/h	318	952	447	600	1230	621	450	1306	829	285	1136	483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.2	39.4	40.6	47.5	28.6	29.1	50.0	32.4	19.7	52.8	37.1	29.9
Incr Delay (d2), s/veh	2.5	3.5	7.8	95.7	0.3	0.6	78.3	1.3	0.8	77.3	3.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	8.8	9.1	16.2	6.2	6.5	11.2	9.6	7.6	7.0	10.9	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.7	42.9	48.4	143.2	28.9	29.7	128.3	33.7	20.4	130.1	41.0	30.0
LnGrp LOS	D	D	D	F	C	C	F	C	C	F	D	C
Approach Vol, veh/h		1165			1618			1774			1232	
Approach Delay, s/veh		46.2			78.9			57.2			62.6	
Approach LOS		D			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	43.9	24.0	33.7	19.0	38.4	12.2	45.5
Change Period (Y+Rc), s	4.6	* 6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	8.9	* 41	19.4	30.0	14.4	34.6	10.0	39.4
Max Q Clear Time (g_c+I1), s	11.5	24.9	22.0	23.5	17.0	27.2	7.6	18.2
Green Ext Time (p_c), s	0.0	6.3	0.0	3.1	0.0	3.2	0.1	5.4

Intersection Summary	
HCM 6th Ctrl Delay	62.2
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	98	1451	166	0	1096
Future Vol, veh/h	0	98	1451	166	0	1096
Conflicting Peds, #/hr	0	0	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	140	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	111	1649	189	0	1245

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	828	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	314	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	313	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	313	-
HCM Lane V/C Ratio	-	-	0.356	-
HCM Control Delay (s)	-	-	22.7	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	1.6	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	46	1556	34	0	1121
Future Vol, veh/h	0	46	1556	34	0	1121
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	50	1691	37	0	1218

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	864	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	297	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	297	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.6	0	0
HCM LOS	C		

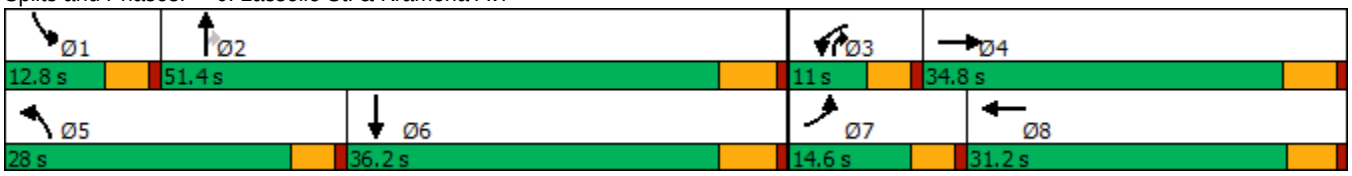
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	297	-
HCM Lane V/C Ratio	-	-	0.168	-
HCM Control Delay (s)	-	-	19.6	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.6	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	388	297	144	205	416	1197	262	156	819
Future Volume (vph)	388	297	144	205	416	1197	262	156	819
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	9.6	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	14.6	34.8	11.0	31.2	28.0	51.4	11.0	12.8	36.2
Total Split (%)	13.3%	31.6%	10.0%	28.4%	25.5%	46.7%	10.0%	11.6%	32.9%
Yellow Time (s)	3.6	4.4	3.6	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.1	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 104.9
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	388	297	407	144	205	97	416	1197	262	156	819	286
Future Volume (veh/h)	388	297	407	144	205	97	416	1197	262	156	819	286
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	451	345	297	167	238	86	484	1392	220	181	952	306
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	442	374	119	529	186	408	1610	796	150	810	259
Arrive On Green	0.10	0.24	0.23	0.07	0.21	0.20	0.23	0.45	0.44	0.08	0.31	0.29
Sat Flow, veh/h	3456	1817	1537	1781	2569	901	1781	3554	1562	1781	2632	841
Grp Volume(v), veh/h	451	337	305	167	162	162	484	1392	220	181	641	617
Grp Sat Flow(s),veh/h/ln	1728	1777	1577	1781	1777	1694	1781	1777	1562	1781	1777	1696
Q Serve(g_s), s	10.6	18.6	19.1	7.0	8.4	8.8	24.0	36.9	8.4	8.8	32.2	32.2
Cycle Q Clear(g_c), s	10.6	18.6	19.1	7.0	8.4	8.8	24.0	36.9	8.4	8.8	32.2	32.2
Prop In Lane	1.00		0.97	1.00		0.53	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	350	432	384	119	366	349	408	1610	796	150	547	522
V/C Ratio(X)	1.29	0.78	0.79	1.40	0.44	0.46	1.18	0.86	0.28	1.21	1.17	1.18
Avail Cap(c_a), veh/h	350	523	464	119	462	440	408	1610	796	150	547	522
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.0	37.0	37.8	48.8	36.3	36.7	40.3	25.7	14.7	47.9	36.2	36.7
Incr Delay (d2), s/veh	149.7	6.2	7.7	223.4	0.8	1.0	105.5	5.2	0.2	140.3	95.8	100.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.7	8.5	8.0	10.5	3.7	3.7	22.0	15.3	2.9	9.6	27.6	27.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	196.8	43.2	45.6	272.2	37.2	37.7	145.8	30.9	14.9	188.3	132.0	136.9
LnGrp LOS	F	D	D	F	D	D	F	C	B	F	F	F
Approach Vol, veh/h		1093			491			2096			1439	
Approach Delay, s/veh		107.2			117.3			55.8			141.2	
Approach LOS		F			F			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	51.4	11.0	29.5	28.0	36.2	14.6	25.9
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	8.2	45.6	6.4	29.4	23.4	30.4	10.0	* 26
Max Q Clear Time (g_c+I1), s	10.8	38.9	9.0	21.1	26.0	34.2	12.6	10.8
Green Ext Time (p_c), s	0.0	4.8	0.0	2.5	0.0	0.0	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	96.7
HCM 6th LOS	F

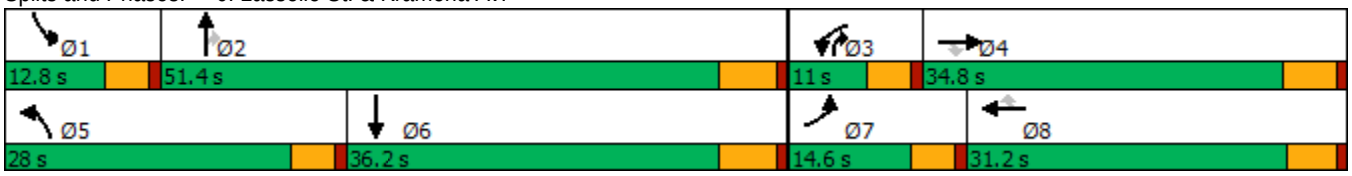
Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	388	297	407	144	205	97	416	1197	262	156	819
Future Volume (vph)	388	297	407	144	205	97	416	1197	262	156	819
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	34.4	9.6	31.1	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	14.6	34.8	34.8	11.0	31.2	31.2	28.0	51.4	11.0	12.8	36.2
Total Split (%)	13.3%	31.6%	31.6%	10.0%	28.4%	28.4%	25.5%	46.7%	10.0%	11.6%	32.9%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.1	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.1	0.0	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	5.4	4.0	4.0	5.1	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min

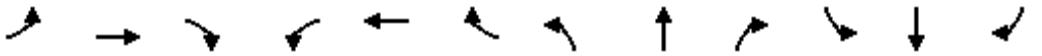
Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 105.2
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	388	297	407	144	205	97	416	1197	262	156	819	286
Future Volume (veh/h)	388	297	407	144	205	97	416	1197	262	156	819	286
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	451	345	297	167	238	86	484	1392	220	181	952	306
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	446	354	120	376	298	411	1619	794	151	811	259
Arrive On Green	0.10	0.24	0.23	0.07	0.20	0.19	0.23	0.46	0.44	0.08	0.31	0.29
Sat Flow, veh/h	1781	1870	1570	1781	1870	1564	1781	3554	1547	1781	2621	838
Grp Volume(v), veh/h	451	345	297	167	238	86	484	1392	220	181	644	614
Grp Sat Flow(s),veh/h/ln	1781	1870	1570	1781	1870	1564	1781	1777	1547	1781	1777	1682
Q Serve(g_s), s	10.6	17.9	18.8	7.0	12.1	4.9	24.0	36.5	8.4	8.8	32.2	32.2
Cycle Q Clear(g_c), s	10.6	17.9	18.8	7.0	12.1	4.9	24.0	36.5	8.4	8.8	32.2	32.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	182	446	354	120	376	298	411	1619	794	151	550	521
V/C Ratio(X)	2.48	0.77	0.84	1.39	0.63	0.29	1.18	0.86	0.28	1.20	1.17	1.18
Avail Cap(c_a), veh/h	182	554	444	120	489	392	411	1619	794	151	550	521
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.7	37.0	38.5	48.5	38.0	36.1	40.0	25.3	14.5	47.6	35.9	36.4
Incr Delay (d2), s/veh	684.3	5.3	11.1	219.8	1.8	0.5	102.6	4.9	0.2	137.5	94.7	99.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	39.1	8.5	8.1	10.4	5.6	1.9	21.7	15.0	2.9	9.5	27.5	26.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	731.0	42.3	49.6	268.3	39.8	36.6	142.6	30.3	14.7	185.1	130.6	135.9
LnGrp LOS	F	D	D	F	D	D	F	C	B	F	F	F
Approach Vol, veh/h		1093			491			2096			1439	
Approach Delay, s/veh		328.5			117.0			54.6			139.7	
Approach LOS		F			F			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	51.4	11.0	28.8	28.0	36.2	14.6	25.2
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	8.2	45.6	6.4	29.4	23.4	30.4	10.0	* 26
Max Q Clear Time (g_c+I1), s	10.8	38.5	9.0	20.8	26.0	34.2	12.6	14.1
Green Ext Time (p_c), s	0.0	5.0	0.0	2.0	0.0	0.0	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	143.0
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	87	577	51	53	330	3	68	1	87	4	1	47
Future Vol, veh/h	87	577	51	53	330	3	68	1	87	4	1	47
Conflicting Peds, #/hr	0	0	2	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	113	749	66	69	429	4	88	1	113	5	1	61

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	433	0	0	817	0	0	1363	1581	410	1170	1612	217
Stage 1	-	-	-	-	-	-	1010	1010	-	569	569	-
Stage 2	-	-	-	-	-	-	353	571	-	601	1043	-
Critical Hdwy	4.14	-	-	4.14	-	-	5	6.54	5	5	6.54	5
Critical Hdwy Stg 1	-	-	-	-	-	-	5	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1123	-	-	807	-	-	279	108	737	338	103	885
Stage 1	-	-	-	-	-	-	396	316	-	474	504	-
Stage 2	-	-	-	-	-	-	741	503	-	454	305	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1123	-	-	805	-	-	223	89	736	246	84	885
Mov Cap-2 Maneuver	-	-	-	-	-	-	322	224	-	260	186	-
Stage 1	-	-	-	-	-	-	356	283	-	426	461	-
Stage 2	-	-	-	-	-	-	629	460	-	344	274	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	1.4	18.5	10.7
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	467	1123	-	-	805	-	-	704
HCM Lane V/C Ratio	0.434	0.101	-	-	0.086	-	-	0.096
HCM Control Delay (s)	18.5	8.6	-	-	9.9	-	-	10.7
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	2.2	0.3	-	-	0.3	-	-	0.3

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	87	577	51	53	330	3	68	1	87	4	1	47
Future Vol, veh/h	87	577	51	53	330	3	68	1	87	4	1	47
Conflicting Peds, #/hr	0	0	2	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	113	749	66	69	429	4	88	1	113	5	1	61

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	433	0	0	817	0	0	1610	1581	784	1634	1612	431
Stage 1	-	-	-	-	-	-	1010	1010	-	569	569	-
Stage 2	-	-	-	-	-	-	600	571	-	1065	1043	-
Critical Hdwy	4.12	-	-	4.12	-	-	5	6.52	5	5	6.52	5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1127	-	-	811	-	-	217	109	513	212	104	723
Stage 1	-	-	-	-	-	-	289	317	-	507	506	-
Stage 2	-	-	-	-	-	-	488	505	-	269	306	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1127	-	-	809	-	-	170	90	512	142	85	723
Mov Cap-2 Maneuver	-	-	-	-	-	-	227	225	-	113	187	-
Stage 1	-	-	-	-	-	-	260	285	-	456	463	-
Stage 2	-	-	-	-	-	-	408	462	-	188	275	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	1.4	32	13.5
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	329	1127	-	-	809	-	-	492
HCM Lane V/C Ratio	0.616	0.1	-	-	0.085	-	-	0.137
HCM Control Delay (s)	32	8.6	-	-	9.9	-	-	13.5
HCM Lane LOS	D	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	3.9	0.3	-	-	0.3	-	-	0.5

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↰	↑		↰	↑	
Traffic Vol, veh/h	8	0	17	9	1	7	21	622	15	6	352	0
Future Vol, veh/h	8	0	17	9	1	7	21	622	15	6	352	0
Conflicting Peds, #/hr	0	0	0	0	0	69	0	0	21	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	0	24	13	1	10	29	864	21	8	489	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1512	1469	489	1471	1459	965	489	0	0	906	0	0
Stage 1	505	505	-	954	954	-	-	-	-	-	-	-
Stage 2	1007	964	-	517	505	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	98	127	579	105	129	309	1074	-	-	751	-	-
Stage 1	549	540	-	311	337	-	-	-	-	-	-	-
Stage 2	290	334	-	541	540	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	85	120	579	96	122	283	1074	-	-	736	-	-
Mov Cap-2 Maneuver	185	229	-	209	231	-	-	-	-	-	-	-
Stage 1	534	534	-	297	321	-	-	-	-	-	-	-
Stage 2	253	319	-	513	534	-	-	-	-	-	-	-

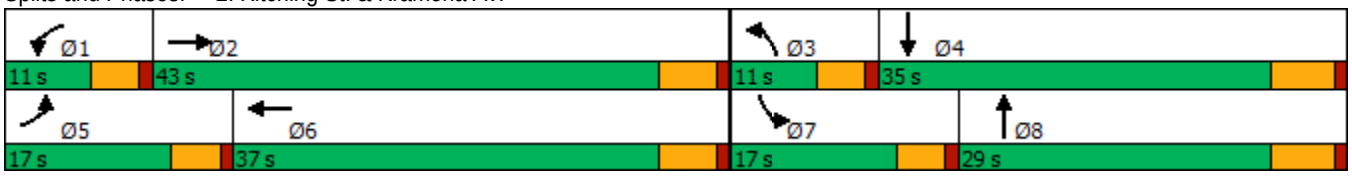
Approach	EB	WB	NB	SB
HCM Control Delay, s	16.6	21.9	0.3	0.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1074	-	-	344	236	736	-	-
HCM Lane V/C Ratio	0.027	-	-	0.101	0.1	0.011	-	-
HCM Control Delay (s)	8.4	-	-	16.6	21.9	9.9	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.3	0	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	106	420	33	385	44	81	108	86
Future Volume (vph)	106	420	33	385	44	81	108	86
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	28.4	9.6	31.4	9.6	28.8	9.6	29.8
Total Split (s)	17.0	43.0	11.0	37.0	11.0	29.0	17.0	35.0
Total Split (%)	17.0%	43.0%	11.0%	37.0%	11.0%	29.0%	17.0%	35.0%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.4	-0.6	-1.8	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min

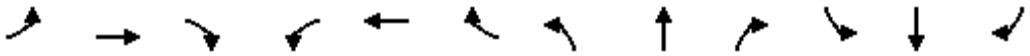
Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 62.3
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kitching St. & Krameria Av.



HCM 6th Signalized Intersection Summary
2: Kitching St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	420	49	33	385	106	44	81	33	108	86	109
Future Volume (veh/h)	106	420	49	33	385	106	44	81	33	108	86	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	433	45	34	397	91	45	84	28	111	89	76
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	955	99	88	726	165	104	651	208	164	530	406
Arrive On Green	0.09	0.29	0.27	0.05	0.25	0.23	0.06	0.25	0.21	0.09	0.28	0.24
Sat Flow, veh/h	1781	3245	336	1781	2868	650	1781	2649	845	1781	1897	1455
Grp Volume(v), veh/h	109	236	242	34	244	244	45	55	57	111	83	82
Grp Sat Flow(s),veh/h/ln	1781	1777	1804	1781	1777	1741	1781	1777	1717	1781	1777	1575
Q Serve(g_s), s	3.0	5.4	5.5	0.9	6.0	6.1	1.2	1.2	1.3	3.0	1.8	2.1
Cycle Q Clear(g_c), s	3.0	5.4	5.5	0.9	6.0	6.1	1.2	1.2	1.3	3.0	1.8	2.1
Prop In Lane	1.00		0.19	1.00		0.37	1.00		0.49	1.00		0.92
Lane Grp Cap(c), veh/h	161	523	531	88	450	441	104	437	422	164	496	440
V/C Ratio(X)	0.68	0.45	0.46	0.39	0.54	0.55	0.43	0.13	0.13	0.68	0.17	0.19
Avail Cap(c_a), veh/h	461	1380	1401	248	1168	1144	248	885	855	461	1097	973
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	14.4	14.6	23.1	16.2	16.5	22.8	14.7	15.1	22.1	13.7	14.4
Incr Delay (d2), s/veh	1.9	0.6	0.6	1.0	1.0	1.1	1.1	0.1	0.1	1.8	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.9	1.9	0.4	2.1	2.2	0.5	0.4	0.4	1.2	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.0	15.0	15.2	24.1	17.3	17.6	23.9	14.9	15.3	23.9	13.8	14.6
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		587			522			157			276	
Approach Delay, s/veh		16.8			17.9			17.6			18.1	
Approach LOS		B			B			B			B	

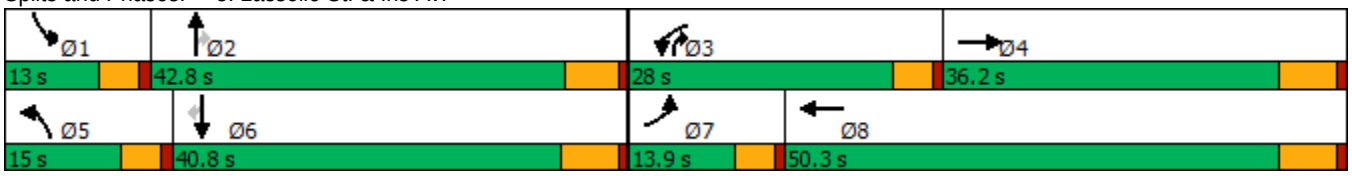
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	18.8	6.9	18.0	8.5	16.7	8.6	16.3
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	6.4	37.6	6.4	29.2	12.4	31.6	12.4	23.2
Max Q Clear Time (g_c+I1), s	2.9	7.5	3.2	4.1	5.0	8.1	5.0	3.3
Green Ext Time (p_c), s	0.0	2.8	0.0	0.8	0.1	2.8	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	17.5
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	173	497	739	721	309	692	510	293	837	116
Future Volume (vph)	173	497	739	721	309	692	510	293	837	116
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	3	1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	3	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	36.2	9.6	36.2	9.6	41.8	9.6	9.6	40.2	40.2
Total Split (s)	13.9	36.2	28.0	50.3	15.0	42.8	28.0	13.0	40.8	40.8
Total Split (%)	11.6%	30.2%	23.3%	41.9%	12.5%	35.7%	23.3%	10.8%	34.0%	34.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.8	3.6	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.2	-0.6	-2.2	-0.6	-1.8	-0.6	-0.6	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min	Min

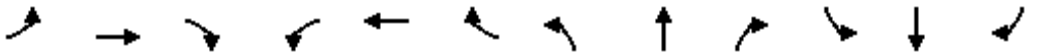
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 112.9
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Lasselle St. & Iris Av.



HCM 6th Signalized Intersection Summary
3: Lasselle St. & Iris Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	497	389	739	721	270	309	692	510	293	837	116
Future Volume (veh/h)	173	497	389	739	721	270	309	692	510	293	837	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.95	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	182	523	322	778	759	256	325	728	334	308	881	70
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	255	897	410	710	1475	491	325	1115	789	266	1066	459
Arrive On Green	0.07	0.26	0.24	0.21	0.40	0.38	0.09	0.31	0.30	0.08	0.30	0.30
Sat Flow, veh/h	3456	3404	1556	3456	3734	1242	3456	3554	1527	3456	3554	1530
Grp Volume(v), veh/h	182	523	322	778	691	324	325	728	334	308	881	70
Grp Sat Flow(s),veh/h/ln	1728	1702	1556	1728	1702	1572	1728	1777	1527	1728	1777	1530
Q Serve(g_s), s	6.0	15.6	22.6	24.0	18.0	18.6	11.0	20.7	16.1	9.0	27.0	3.9
Cycle Q Clear(g_c), s	6.0	15.6	22.6	24.0	18.0	18.6	11.0	20.7	16.1	9.0	27.0	3.9
Prop In Lane	1.00		1.00	1.00		0.79	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	255	897	410	710	1345	621	325	1115	789	266	1066	459
V/C Ratio(X)	0.71	0.58	0.79	1.10	0.51	0.52	1.00	0.65	0.42	1.16	0.83	0.15
Avail Cap(c_a), veh/h	293	938	429	710	1349	623	325	1180	817	266	1119	482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.9	37.4	41.0	46.4	26.8	27.7	52.9	34.6	18.0	53.9	38.1	30.0
Incr Delay (d2), s/veh	5.1	0.9	9.0	63.1	0.3	0.8	49.6	1.2	0.4	104.5	5.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	6.3	9.4	16.0	6.9	6.8	6.9	8.7	5.3	7.6	11.8	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.0	38.3	50.0	109.5	27.2	28.5	102.6	35.8	18.4	158.4	43.1	30.2
LnGrp LOS	E	D	D	F	C	C	F	D	B	F	D	C
Approach Vol, veh/h		1027			1793			1387			1259	
Approach Delay, s/veh		45.5			63.1			47.3			70.6	
Approach LOS		D			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	41.1	28.0	34.8	15.0	39.1	12.6	50.2
Change Period (Y+Rc), s	4.6	* 6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	8.4	* 37	23.4	30.0	10.4	34.6	9.3	44.1
Max Q Clear Time (g_c+I1), s	11.0	22.7	26.0	24.6	13.0	29.0	8.0	20.6
Green Ext Time (p_c), s	0.0	5.0	0.0	2.3	0.0	2.7	0.0	6.5

Intersection Summary	
HCM 6th Ctrl Delay	57.5
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	126	1011	83	0	1427
Future Vol, veh/h	0	126	1011	83	0	1427
Conflicting Peds, #/hr	0	0	0	2	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	140	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	130	1042	86	0	1471

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	523	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	499	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	498	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	498	-
HCM Lane V/C Ratio	-	-	0.261	-
HCM Control Delay (s)	-	-	14.8	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	1	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	59	1033	79	0	1424
Future Vol, veh/h	0	59	1033	79	0	1424
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	64	1123	86	0	1548

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	605	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	441	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	441	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.5	0	0
HCM LOS	B		

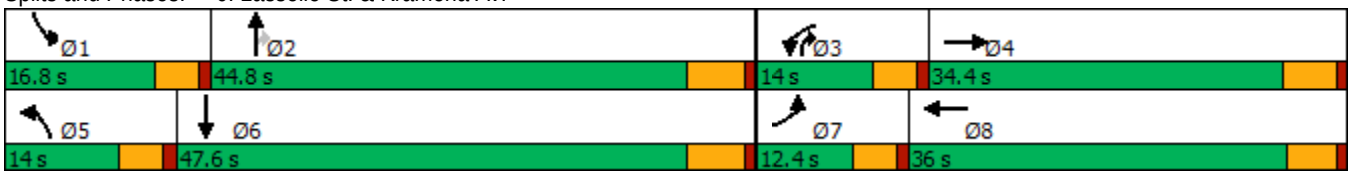
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	441	-
HCM Lane V/C Ratio	-	-	0.145	-
HCM Control Delay (s)	-	-	14.5	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.5	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	270	82	117	72	137	883	76	165	1180
Future Volume (vph)	270	82	117	72	137	883	76	165	1180
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	9.6	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	12.4	34.4	14.0	36.0	14.0	44.8	14.0	16.8	47.6
Total Split (%)	11.3%	31.3%	12.7%	32.7%	12.7%	40.7%	12.7%	15.3%	43.3%
Yellow Time (s)	3.6	4.4	3.6	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.1	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 94.4
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	82	205	117	72	53	137	883	76	165	1180	182
Future Volume (veh/h)	270	82	205	117	72	53	137	883	76	165	1180	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	284	86	121	123	76	23	144	929	60	174	1242	180
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	341	256	228	166	365	106	189	1602	838	221	1461	211
Arrive On Green	0.10	0.14	0.13	0.09	0.13	0.12	0.11	0.45	0.44	0.12	0.47	0.45
Sat Flow, veh/h	3456	1777	1585	1781	2707	782	1781	3554	1582	1781	3117	449
Grp Volume(v), veh/h	284	86	121	123	49	50	144	929	60	174	705	717
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1712	1781	1777	1582	1781	1777	1789
Q Serve(g_s), s	6.9	3.7	6.1	5.7	2.1	2.2	6.7	16.5	1.6	8.1	29.7	30.3
Cycle Q Clear(g_c), s	6.9	3.7	6.1	5.7	2.1	2.2	6.7	16.5	1.6	8.1	29.7	30.3
Prop In Lane	1.00		1.00	1.00		0.46	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	341	256	228	166	240	231	189	1602	838	221	833	839
V/C Ratio(X)	0.83	0.34	0.53	0.74	0.20	0.22	0.76	0.58	0.07	0.79	0.85	0.85
Avail Cap(c_a), veh/h	341	635	566	209	668	644	209	1704	884	268	910	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	32.8	34.4	37.6	32.7	33.0	37.0	17.4	9.8	36.2	19.9	20.2
Incr Delay (d2), s/veh	15.1	0.8	1.9	7.1	0.4	0.5	11.8	0.4	0.0	9.7	7.0	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	1.6	2.4	2.7	0.9	0.9	3.4	6.0	0.5	3.9	12.1	12.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.8	33.5	36.3	44.7	33.1	33.5	48.8	17.8	9.8	45.9	26.9	27.7
LnGrp LOS	D	C	D	D	C	C	D	B	A	D	C	C
Approach Vol, veh/h		491			222			1133			1596	
Approach Delay, s/veh		45.3			39.6			21.3			29.3	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	42.4	11.9	16.3	13.0	43.9	12.4	15.8
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	12.2	39.0	9.4	29.0	9.4	41.8	7.8	* 31
Max Q Clear Time (g_c+I1), s	10.1	18.5	7.7	8.1	8.7	32.3	8.9	4.2
Green Ext Time (p_c), s	0.0	6.2	0.0	1.0	0.0	5.8	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

Notes

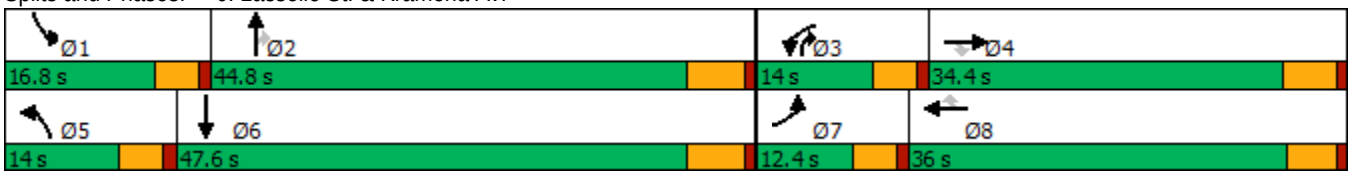
User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	270	82	205	117	72	53	137	883	76	165	1180
Future Volume (vph)	270	82	205	117	72	53	137	883	76	165	1180
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	34.4	9.6	31.1	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	12.4	34.4	34.4	14.0	36.0	36.0	14.0	44.8	14.0	16.8	47.6
Total Split (%)	11.3%	31.3%	31.3%	12.7%	32.7%	32.7%	12.7%	40.7%	12.7%	15.3%	43.3%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.1	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.1	0.0	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	5.4	4.0	4.0	5.1	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min

Intersection Summary

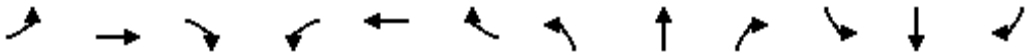
Cycle Length: 110
Actuated Cycle Length: 94.6
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	82	205	117	72	53	137	883	76	165	1180	182
Future Volume (veh/h)	270	82	205	117	72	53	137	883	76	165	1180	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	284	86	121	123	76	23	144	929	60	174	1242	180
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	269	202	166	252	190	189	1602	837	221	1461	211
Arrive On Green	0.10	0.14	0.13	0.09	0.13	0.12	0.11	0.45	0.44	0.12	0.47	0.45
Sat Flow, veh/h	1781	1870	1585	1781	1870	1556	1781	3554	1580	1781	3116	449
Grp Volume(v), veh/h	284	86	121	123	76	23	144	929	60	174	705	717
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1556	1781	1777	1580	1781	1777	1789
Q Serve(g_s), s	8.4	3.5	6.1	5.7	3.1	1.1	6.7	16.5	1.6	8.1	29.7	30.3
Cycle Q Clear(g_c), s	8.4	3.5	6.1	5.7	3.1	1.1	6.7	16.5	1.6	8.1	29.7	30.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	176	269	202	166	252	190	189	1602	837	221	833	839
V/C Ratio(X)	1.62	0.32	0.60	0.74	0.30	0.12	0.76	0.58	0.07	0.79	0.85	0.85
Avail Cap(c_a), veh/h	176	668	540	209	703	565	209	1704	883	268	910	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.3	32.7	35.1	37.6	33.2	33.3	37.0	17.4	9.8	36.2	19.9	20.2
Incr Delay (d2), s/veh	301.5	0.7	2.8	7.1	0.7	0.3	11.8	0.4	0.0	9.7	7.0	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.2	1.6	2.5	2.7	1.4	0.4	3.4	6.0	0.5	3.9	12.1	12.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	339.8	33.3	37.9	44.7	33.9	33.6	48.8	17.8	9.8	45.9	26.9	27.7
LnGrp LOS	F	C	D	D	C	C	D	B	A	D	C	C
Approach Vol, veh/h		491			222			1133			1596	
Approach Delay, s/veh		211.7			39.8			21.3			29.3	
Approach LOS		F			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	42.4	11.9	16.3	13.0	43.9	12.4	15.8
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	12.2	39.0	9.4	29.0	9.4	41.8	7.8	* 31
Max Q Clear Time (g_c+I1), s	10.1	18.5	7.7	8.1	8.7	32.3	10.4	5.1
Green Ext Time (p_c), s	0.0	6.2	0.0	0.7	0.0	5.8	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	53.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	69	169	84	6	155	1	49	0	11	3	1	37
Future Vol, veh/h	69	169	84	6	155	1	49	0	11	3	1	37
Conflicting Peds, #/hr	0	0	3	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	79	194	97	7	178	1	56	0	13	3	1	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	179	0	0	294	0	0	508	597	149	448	645	90
Stage 1	-	-	-	-	-	-	404	404	-	193	193	-
Stage 2	-	-	-	-	-	-	104	193	-	255	452	-
Critical Hdwy	4.14	-	-	4.14	-	-	5	6.54	5	5	6.54	5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1394	-	-	1264	-	-	641	415	944	678	389	997
Stage 1	-	-	-	-	-	-	594	598	-	790	740	-
Stage 2	-	-	-	-	-	-	890	740	-	727	569	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1394	-	-	1260	-	-	582	388	941	637	364	997
Mov Cap-2 Maneuver	-	-	-	-	-	-	531	500	-	634	483	-
Stage 1	-	-	-	-	-	-	559	562	-	745	736	-
Stage 2	-	-	-	-	-	-	846	736	-	677	535	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	0.3	12.1	9.1
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	577	1394	-	-	1260	-	-	934
HCM Lane V/C Ratio	0.12	0.057	-	-	0.005	-	-	0.05
HCM Control Delay (s)	12.1	7.7	-	-	7.9	-	-	9.1
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	69	169	84	6	155	1	49	0	11	3	1	37
Future Vol, veh/h	69	169	84	6	155	1	49	0	11	3	1	37
Conflicting Peds, #/hr	0	0	3	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	79	194	97	7	178	1	56	0	13	3	1	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	179	0	0	294	0	0	619	597	246	600	645	179
Stage 1	-	-	-	-	-	-	404	404	-	193	193	-
Stage 2	-	-	-	-	-	-	215	193	-	407	452	-
Critical Hdwy	4.12	-	-	4.12	-	-	5	6.52	5	5	6.52	5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1397	-	-	1268	-	-	577	416	862	588	391	918
Stage 1	-	-	-	-	-	-	623	599	-	809	741	-
Stage 2	-	-	-	-	-	-	787	741	-	621	570	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1397	-	-	1264	-	-	522	389	860	552	366	918
Mov Cap-2 Maneuver	-	-	-	-	-	-	549	501	-	541	484	-
Stage 1	-	-	-	-	-	-	586	563	-	763	737	-
Stage 2	-	-	-	-	-	-	745	737	-	577	536	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	0.3	11.9	9.5
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	588	1397	-	-	1264	-	-	856
HCM Lane V/C Ratio	0.117	0.057	-	-	0.005	-	-	0.055
HCM Control Delay (s)	11.9	7.7	-	-	7.9	-	-	9.5
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	0	11	0	0	0	10	122	1	1	149	13
Future Vol, veh/h	12	0	11	0	0	0	10	122	1	1	149	13
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	2	0	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	0	14	0	0	0	12	151	1	1	184	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	376	378	199	380	386	154	206	0	0	154	0	0
Stage 1	200	200	-	178	178	-	-	-	-	-	-	-
Stage 2	176	178	-	202	208	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	581	554	842	578	548	892	1365	-	-	1426	-	-
Stage 1	802	736	-	824	752	-	-	-	-	-	-	-
Stage 2	826	752	-	800	730	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	573	544	836	563	538	890	1357	-	-	1423	-	-
Mov Cap-2 Maneuver	628	585	-	619	578	-	-	-	-	-	-	-
Stage 1	790	731	-	815	744	-	-	-	-	-	-	-
Stage 2	819	744	-	786	725	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	0	0.6	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1357	-	-	713	-	1423	-	-
HCM Lane V/C Ratio	0.009	-	-	0.04	-	0.001	-	-
HCM Control Delay (s)	7.7	-	-	10.3	0	7.5	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

APPENDIX 6.3:

OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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California MUTCD 2014 Edition
(FHWA's MUTCD 2009, as amended for use in California)

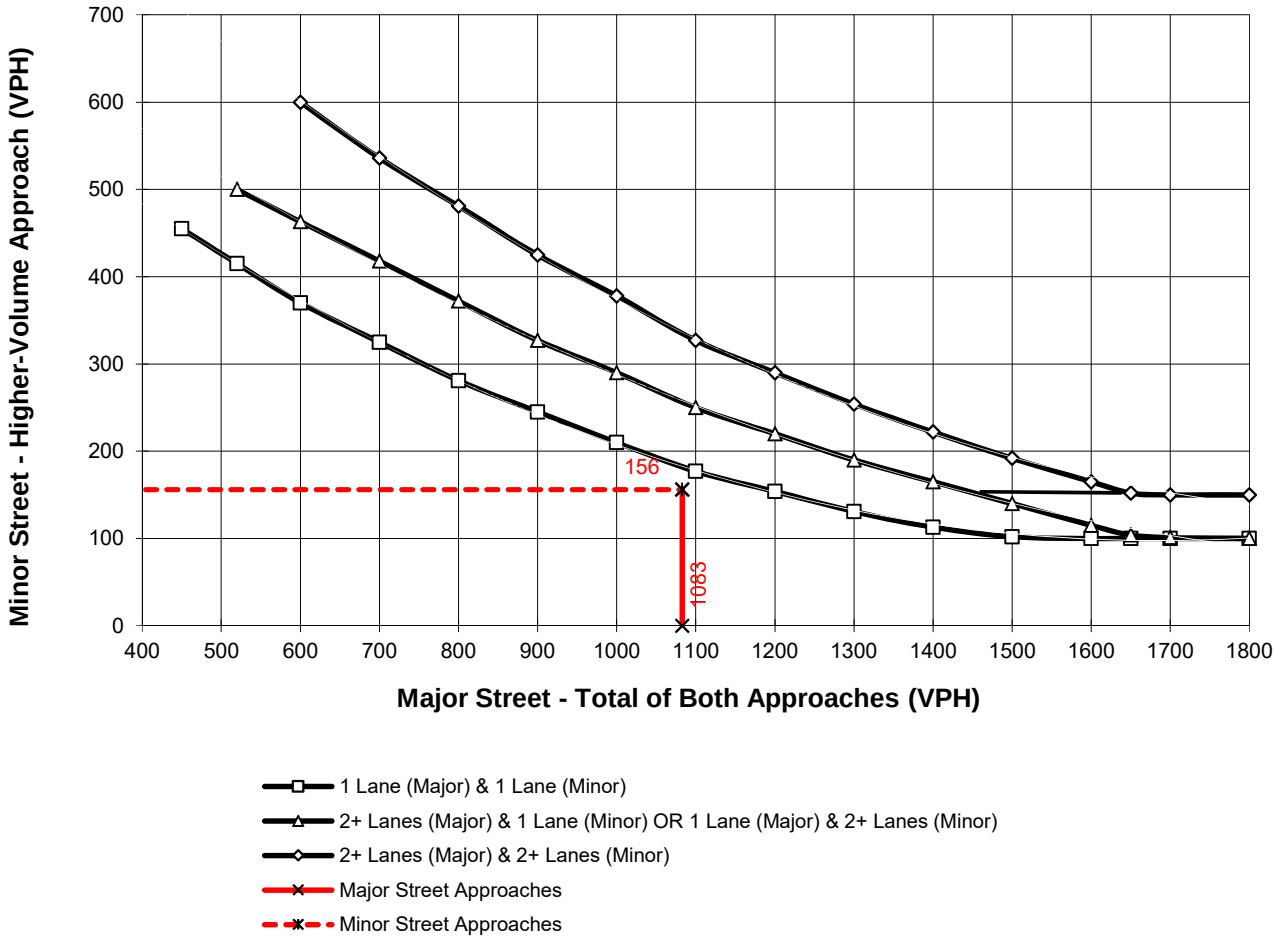
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **2023 Without Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue**
Total of Both Approaches (VPH) = **1083**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Colt Way**
High Volume Approach (VPH) = **156**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

California MUTCD 2014 Edition
(FHWA's MUTCD 2009, as amended for use in California)

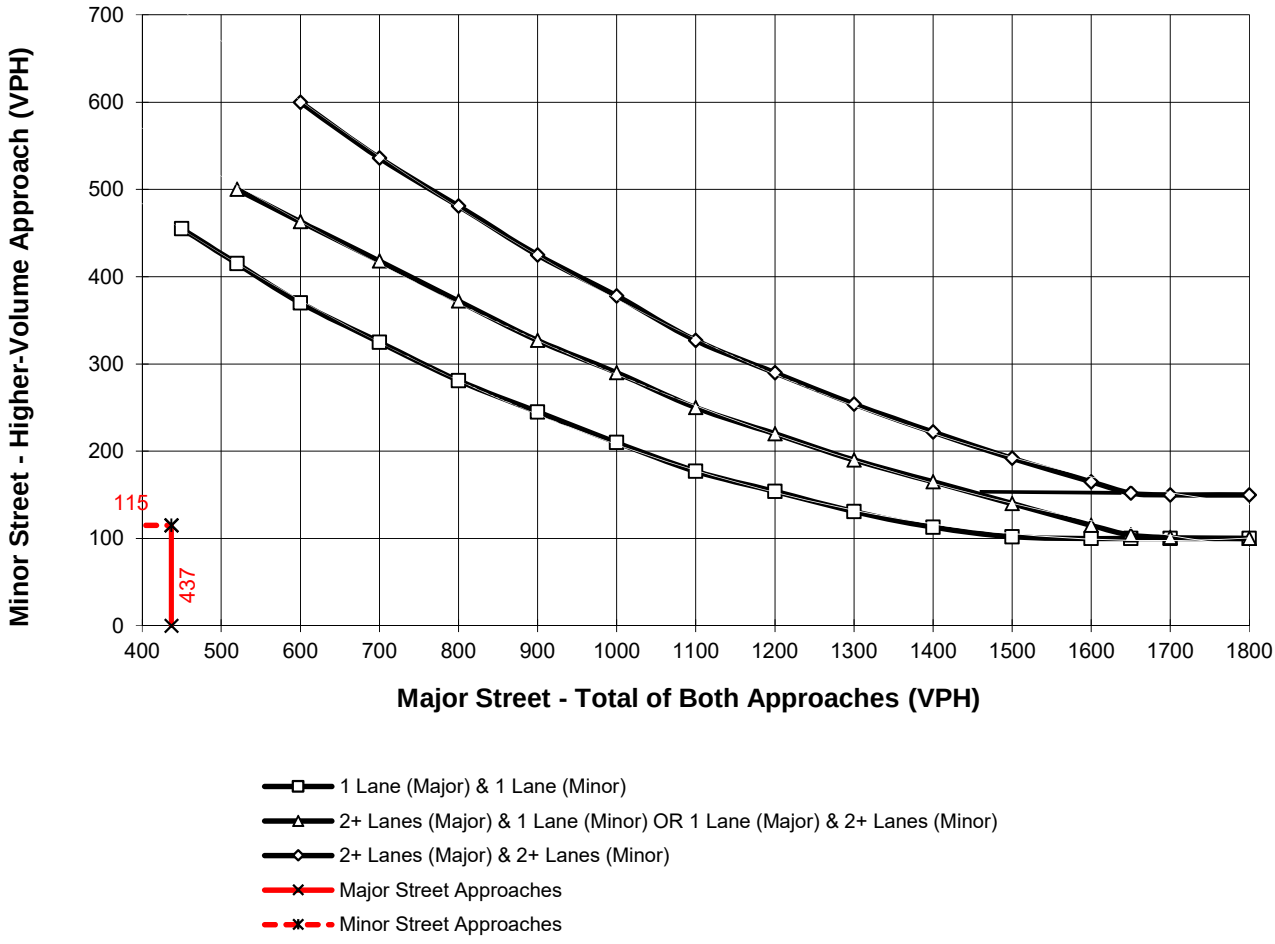
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **2023 Without Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue**
Total of Both Approaches (VPH) = **437**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Cahuilla Drive**
High Volume Approach (VPH) = **115**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

California MUTCD 2014 Edition
(FHWA's MUTCD 2009, as amended for use in California)

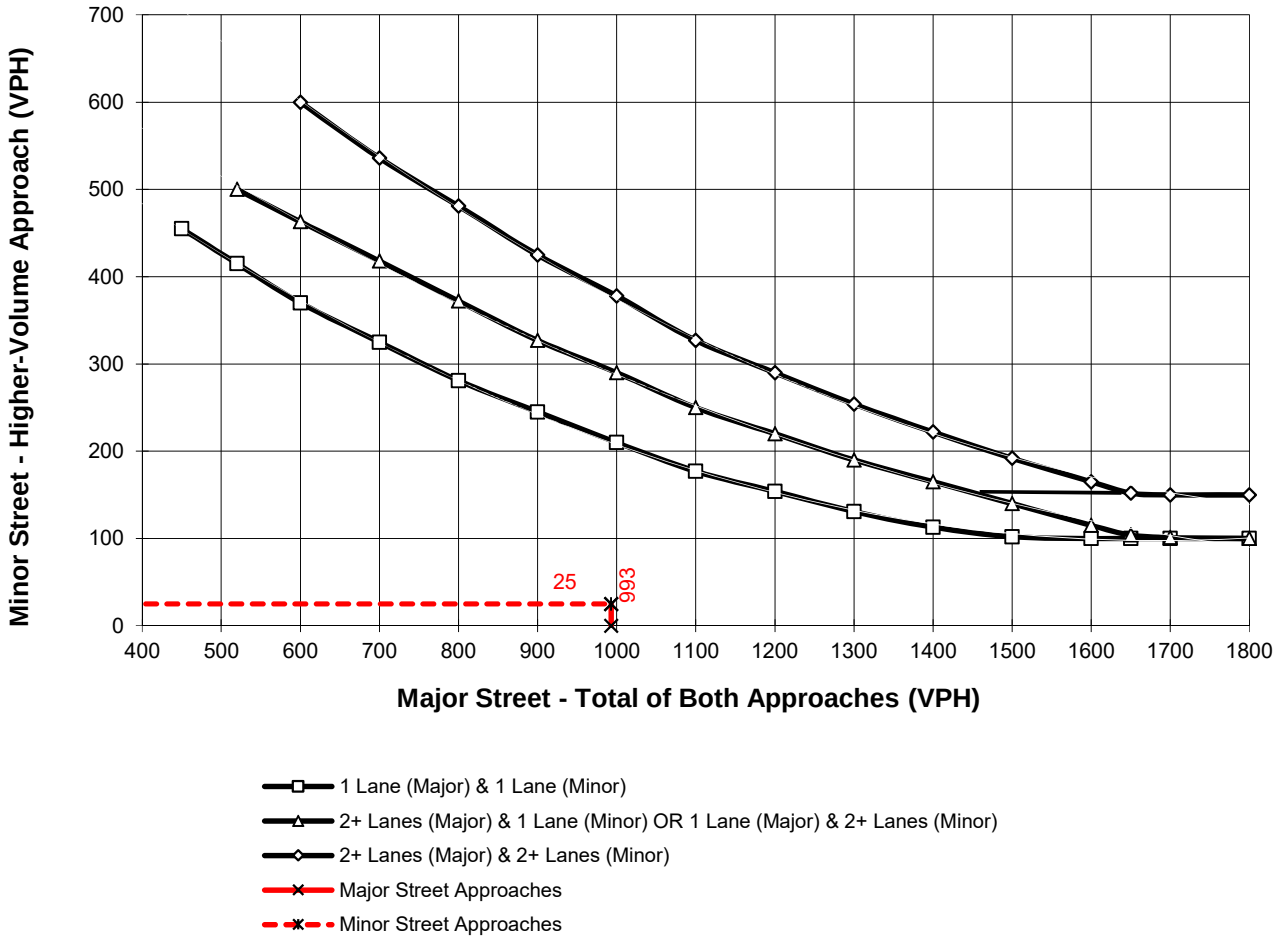
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **2023 Without Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue**
Total of Both Approaches (VPH) = **993**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Quarter Horse Road**
High Volume Approach (VPH) = **25**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 6.4:

OPENING YEAR CUMULATIVE (2023) WITH PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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California MUTCD 2014 Edition
(FHWA's MUTCD 2009, as amended for use in California)

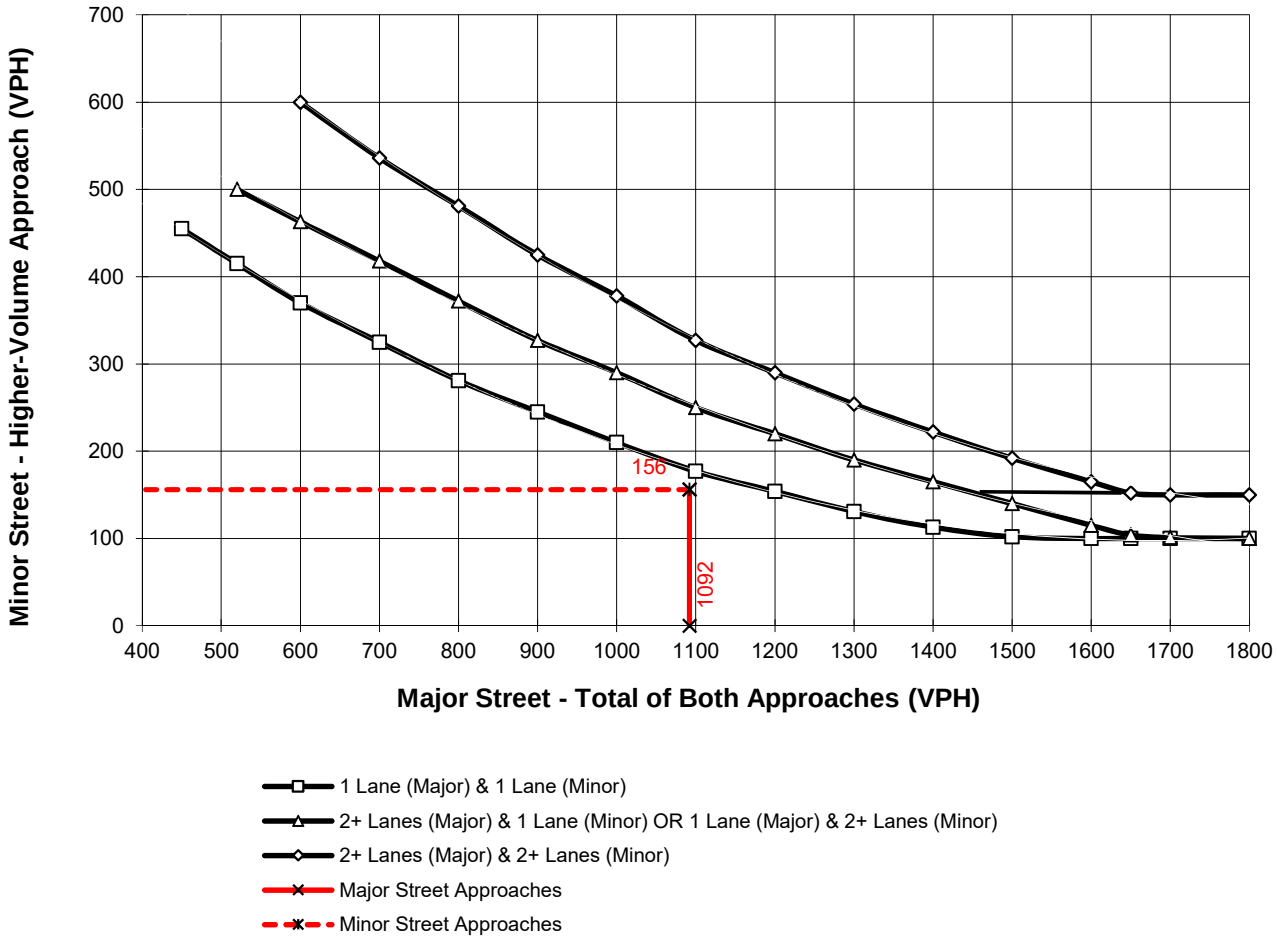
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **2023 With Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue**
Total of Both Approaches (VPH) = **1092**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Colt Way**
High Volume Approach (VPH) = **156**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

California MUTCD 2014 Edition
(FHWA's MUTCD 2009, as amended for use in California)

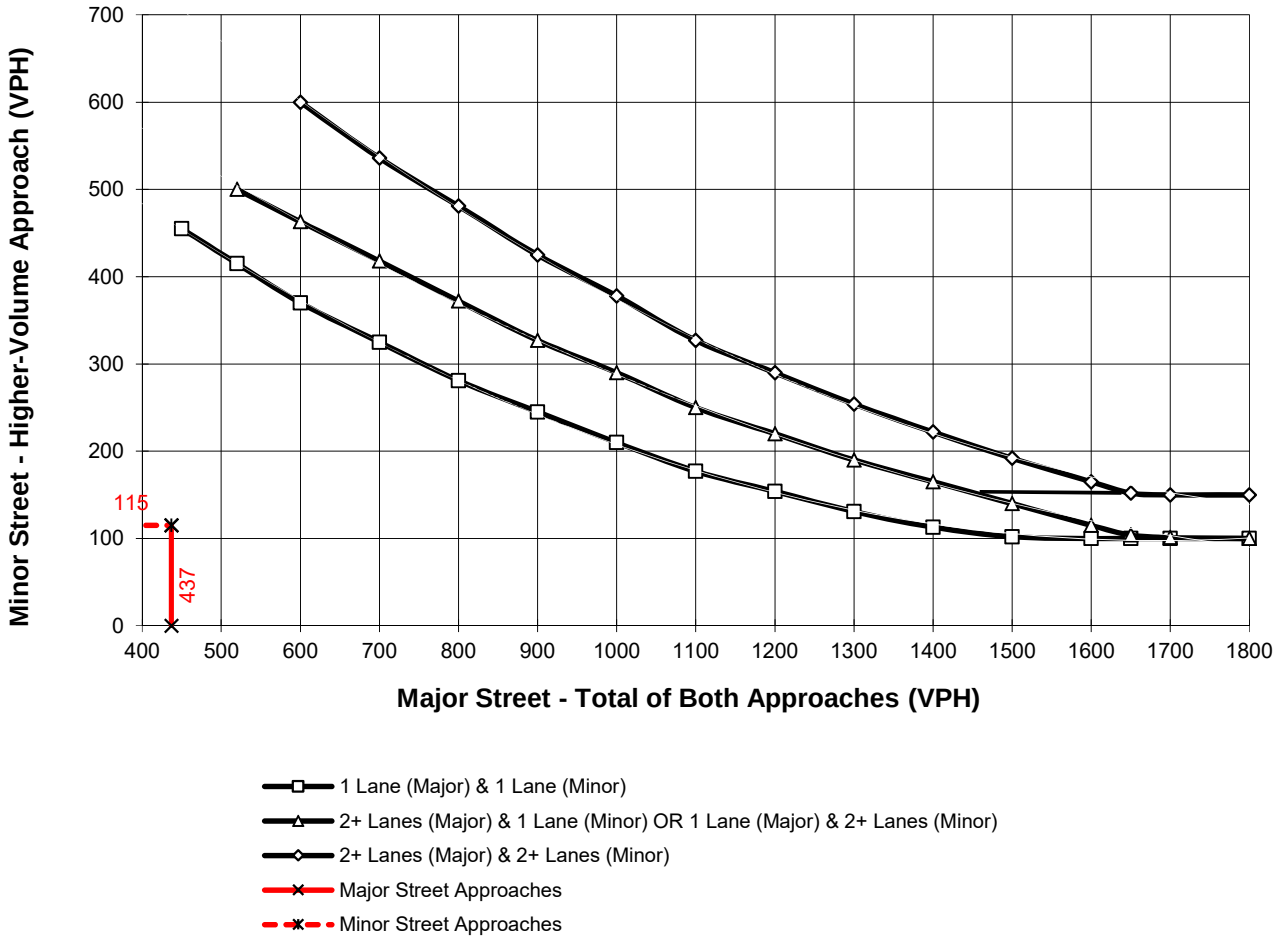
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **2023 With Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue**
Total of Both Approaches (VPH) = **437**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Cahuilla Drive**
High Volume Approach (VPH) = **115**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

California MUTCD 2014 Edition
(FHWA's MUTCD 2009, as amended for use in California)

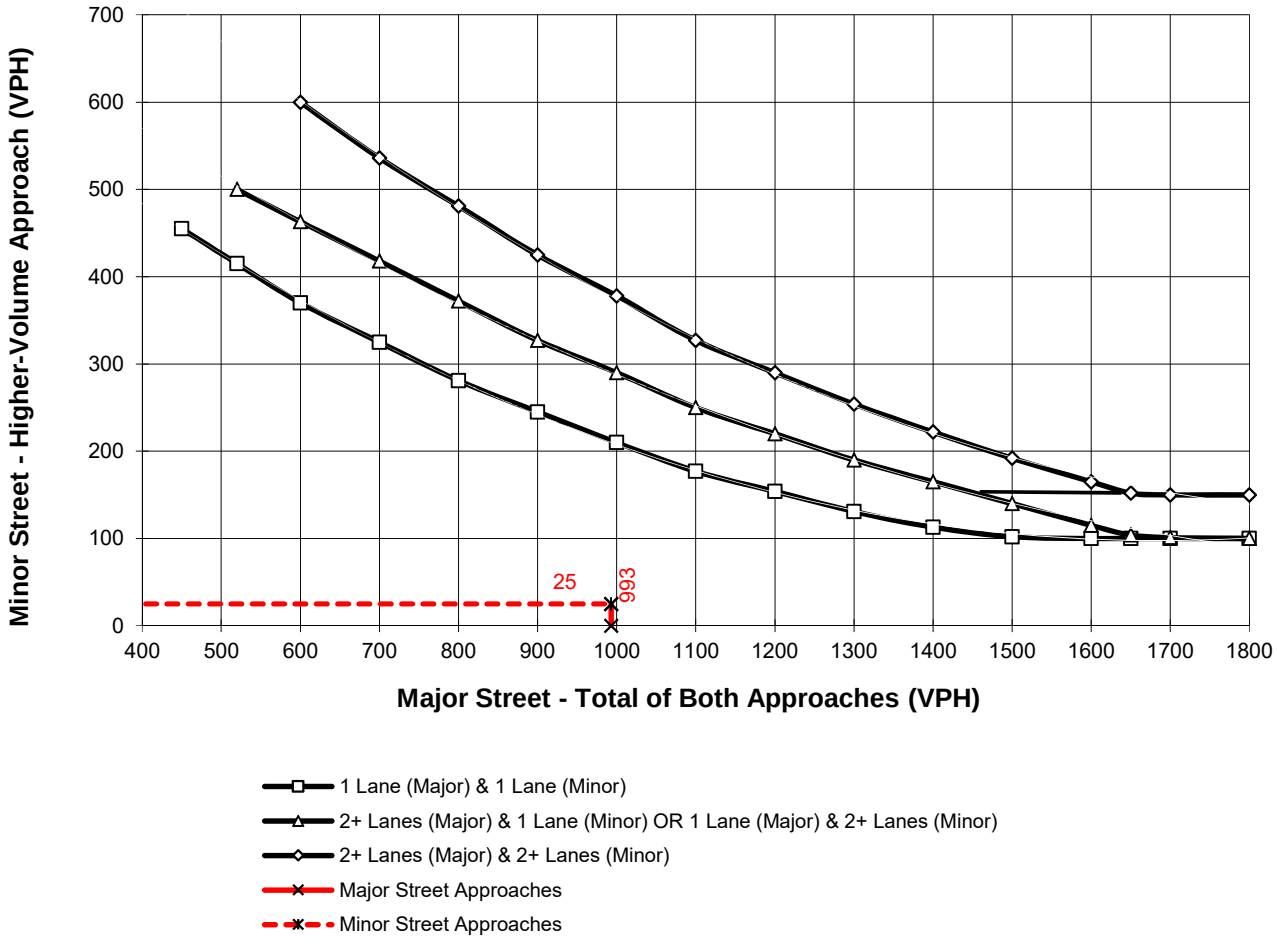
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **2023 With Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue** Total of Both Approaches (VPH) = **993**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Quarter Horse Road** High Volume Approach (VPH) = **25**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 6.5:

OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Queuing and Blocking Report
Opening Year Cumulative (2023) Without Project - AM Peak Hour 10/25/2018

Intersection: 4: Lasselle St. & Cahuillia Dr.

Movement	WB
Directions Served	R
Maximum Queue (ft)	76
Average Queue (ft)	30
95th Queue (ft)	60
Link Distance (ft)	458
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Lasselle St. & Driveway 1

Movement	WB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	34	674	668
Average Queue (ft)	9	371	380
95th Queue (ft)	31	657	663
Link Distance (ft)	202	975	975
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
Opening Year Cumulative (2023) Without Project - AM Peak Hour 10/25/2018

Intersection: 6: Lasselle St. & Krameria Av.

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	225	1078	1055	194	208	108	150	1004	1004	205	225	262
Average Queue (ft)	224	1048	1032	93	100	40	149	971	969	147	98	235
95th Queue (ft)	227	1065	1116	172	170	83	150	991	989	279	209	251
Link Distance (ft)		1029	1029		401	401		950	950			225
Upstream Blk Time (%)		94	46					77	47		0	55
Queuing Penalty (veh)		0	0					0	0		0	292
Storage Bay Dist (ft)	200			200			125			180	240	
Storage Blk Time (%)	88	4		1	0		73	7	36	0	0	55
Queuing Penalty (veh)	235	17		1	0		428	28	95	1	1	57

Intersection: 6: Lasselle St. & Krameria Av.

Movement	SB
Directions Served	TR
Maximum Queue (ft)	261
Average Queue (ft)	237
95th Queue (ft)	250
Link Distance (ft)	225
Upstream Blk Time (%)	56
Queuing Penalty (veh)	302
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Colt Wy./Driveway 2 & Krameria Av.

Movement	EB	EB	WB	NB
Directions Served	L	TR	L	LTR
Maximum Queue (ft)	27	11	38	104
Average Queue (ft)	2	0	12	52
95th Queue (ft)	12	6	32	86
Link Distance (ft)		401		152
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50		50	
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Queuing and Blocking Report
Opening Year Cumulative (2023) Without Project - AM Peak Hour 10/25/2018

Intersection: 9: Krameria Av. & Driveway/Quarter Horse Rd.

Movement	EB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T
Maximum Queue (ft)	28	44	26	94	72	29	65
Average Queue (ft)	7	12	5	19	8	3	14
95th Queue (ft)	25	37	22	61	40	18	44
Link Distance (ft)	233	137		656	656		453
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			50			100	
Storage Blk Time (%)				1			0
Queuing Penalty (veh)				0			0

Queuing and Blocking Report
Opening Year Cumulative (2023) Without Project - PM Peak Hour 10/24/2018

Intersection: 4: Lasselle St. & Cahuillia Dr.

Movement	WB	NB
Directions Served	R	R
Maximum Queue (ft)	86	6
Average Queue (ft)	34	0
95th Queue (ft)	66	4
Link Distance (ft)	458	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		140
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Lasselle St. & Driveway 1

Movement	WB	NB	SB	SB
Directions Served	R	TR	T	T
Maximum Queue (ft)	30	8	217	225
Average Queue (ft)	6	0	59	60
95th Queue (ft)	25	5	169	170
Link Distance (ft)	202	225	975	975
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
Opening Year Cumulative (2023) Without Project - PM Peak Hour 10/24/2018

Intersection: 6: Lasselle St. & Krameria Av.

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	225	1062	1000	149	116	56	149	354	304	130	210	257
Average Queue (ft)	223	847	492	67	37	20	106	175	141	20	94	216
95th Queue (ft)	240	1303	1264	121	82	41	172	300	256	77	187	271
Link Distance (ft)		1029	1029		401	401		953	953			225
Upstream Blk Time (%)		48	15								0	9
Queuing Penalty (veh)		0	0								0	62
Storage Bay Dist (ft)	200			200			125			180	240	
Storage Blk Time (%)	90	0		0			10	11	2	0	0	9
Queuing Penalty (veh)	60	1		0			42	16	2	0	0	11

Intersection: 6: Lasselle St. & Krameria Av.

Movement	SB
Directions Served	TR
Maximum Queue (ft)	257
Average Queue (ft)	216
95th Queue (ft)	272
Link Distance (ft)	225
Upstream Blk Time (%)	10
Queuing Penalty (veh)	70
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Colt Wy./Driveway 2 & Krameria Av.

Movement	EB	WB	NB
Directions Served	L	L	LTR
Maximum Queue (ft)	27	14	50
Average Queue (ft)	3	1	28
95th Queue (ft)	16	9	49
Link Distance (ft)			164
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	50	50	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Krameria Av. & Driveway/Quarter Horse Rd.

Movement	EB	NB
Directions Served	LTR	L
Maximum Queue (ft)	31	11
Average Queue (ft)	12	0
95th Queue (ft)	36	6
Link Distance (ft)	245	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		50
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	L	L	T	T	R	L
Maximum Queue (ft)	234	226	266	260	244	184	36	119	327	306	225	184
Average Queue (ft)	133	153	174	172	147	39	4	25	209	181	80	78
95th Queue (ft)	205	211	244	241	218	116	21	78	290	271	188	169
Link Distance (ft)			2427	2427	2427				1304	1304		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	325	325				300	310	310			200	200
Storage Blk Time (%)									0	4	0	0
Queuing Penalty (veh)									0	10	0	0

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	T	T	R	L	L	T	T	R
Maximum Queue (ft)	203	199	172	31	165	191	220	254	226
Average Queue (ft)	130	114	89	9	89	117	130	120	106
95th Queue (ft)	188	181	153	25	151	168	188	190	194
Link Distance (ft)		1103	1103	1103			2298	2298	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	200				215	215			215
Storage Blk Time (%)	0	0					0	0	1
Queuing Penalty (veh)	0	1					1	1	1

Network Summary

Network wide Queuing Penalty: 278

APPENDIX 6.6:

OPENING YEAR CUMULATIVE (2023) WITH PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Queuing and Blocking Report
Opening Year Cumulative (2023) With Project - AM Peak Hour 10/24/2018

Intersection: 4: Lasselle St. & Cahuillia Dr.

Movement	WB	NB	SB	SB
Directions Served	R	R	T	T
Maximum Queue (ft)	80	6	168	164
Average Queue (ft)	32	0	34	27
95th Queue (ft)	60	4	171	156
Link Distance (ft)	458		1025	1025
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		140		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Lasselle St. & Driveway 1

Movement	WB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	65	879	884
Average Queue (ft)	26	616	617
95th Queue (ft)	55	1131	1125
Link Distance (ft)	202	975	975
Upstream Blk Time (%)		6	5
Queuing Penalty (veh)		33	29
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
Opening Year Cumulative (2023) With Project - AM Peak Hour 10/24/2018

Intersection: 6: Lasselle St. & Krameria Av.

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	225	1080	1061	224	279	90	150	1007	1004	205	225	293
Average Queue (ft)	224	1047	1037	107	118	39	149	976	973	137	193	254
95th Queue (ft)	225	1063	1091	199	214	78	150	996	997	279	266	291
Link Distance (ft)		1029	1029		401	401		953	953			225
Upstream Blk Time (%)		95	44					71	53		23	62
Queuing Penalty (veh)		0	0					0	0		0	346
Storage Bay Dist (ft)	200			200			125			180	240	
Storage Blk Time (%)	90	3		4	1		69	14	38	0	23	62
Queuing Penalty (veh)	266	11		7	1		410	57	99	1	93	96

Intersection: 6: Lasselle St. & Krameria Av.

Movement	SB
Directions Served	TR
Maximum Queue (ft)	284
Average Queue (ft)	242
95th Queue (ft)	266
Link Distance (ft)	225
Upstream Blk Time (%)	46
Queuing Penalty (veh)	260
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Colt Wy./Driveway 2 & Krameria Av.

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	48	6	38	3	131	54
Average Queue (ft)	13	0	9	0	60	29
95th Queue (ft)	39	5	26	2	104	51
Link Distance (ft)		401		282	164	252
Upstream Blk Time (%)					0	
Queuing Penalty (veh)					0	
Storage Bay Dist (ft)	50		50			
Storage Blk Time (%)	0		0			
Queuing Penalty (veh)	1		0			

Intersection: 9: Krameria Av. & Driveway/Quarter Horse Rd.

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	39	50	28	118	30	74
Average Queue (ft)	18	15	5	20	4	13
95th Queue (ft)	43	42	23	73	20	47
Link Distance (ft)	245	150		658		453
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50		100	
Storage Blk Time (%)				1		0
Queuing Penalty (veh)				0		0

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	L	L	T	T	R	L
Maximum Queue (ft)	225	227	143	130	95	50	40	327	1356	1363	225	212
Average Queue (ft)	131	149	78	70	28	3	6	47	1323	1326	212	182
95th Queue (ft)	211	219	127	120	69	23	27	206	1345	1347	283	237
Link Distance (ft)			2427	2427	2427				1304	1304		
Upstream Blk Time (%)									53	78		
Queuing Penalty (veh)									0	0		
Storage Bay Dist (ft)	325	325				300	310	310			200	200
Storage Blk Time (%)								0	61	58	3	3
Queuing Penalty (veh)								0	17	229	18	9

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	T	T	R	L	L	T	T	R
Maximum Queue (ft)	225	449	403	40	179	195	463	586	240
Average Queue (ft)	203	235	183	13	105	128	201	290	211
95th Queue (ft)	245	396	309	32	180	196	464	611	287
Link Distance (ft)		1103	1103	1103			2298	2298	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	200				215	215			215
Storage Blk Time (%)	16	3			0	1	0	0	34
Queuing Penalty (veh)	50	13			0	1	0	1	71

Network Summary

Network wide Queuing Penalty: 2121

Queuing and Blocking Report
Opening Year Cumulative (2023) With Project - PM Peak Hour 10/24/2018

Intersection: 4: Lasselle St. & Cahuillia Dr.

Movement	WB	NB
Directions Served	R	R
Maximum Queue (ft)	82	12
Average Queue (ft)	38	0
95th Queue (ft)	71	6
Link Distance (ft)	458	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		140
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Lasselle St. & Driveway 1

Movement	WB	NB	SB	SB
Directions Served	R	T	T	T
Maximum Queue (ft)	62	8	279	302
Average Queue (ft)	28	0	95	98
95th Queue (ft)	54	5	258	261
Link Distance (ft)	202	225	975	975
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
Opening Year Cumulative (2023) With Project - PM Peak Hour 10/24/2018

Intersection: 6: Lasselle St. & Krameria Av.

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	225	1078	1064	178	111	52	150	370	327	205	225	258
Average Queue (ft)	224	1046	981	82	44	19	112	199	165	29	135	220
95th Queue (ft)	225	1060	1316	149	87	43	175	322	278	111	234	267
Link Distance (ft)		1029	1029		401	401		953	953			225
Upstream Blk Time (%)		96	32								1	13
Queuing Penalty (veh)		0	0								0	93
Storage Bay Dist (ft)	200			200			125			180	240	
Storage Blk Time (%)	93	2		0			12	17	4	0	1	13
Queuing Penalty (veh)	76	4		0			52	23	3	0	3	22

Intersection: 6: Lasselle St. & Krameria Av.

Movement	SB
Directions Served	TR
Maximum Queue (ft)	267
Average Queue (ft)	224
95th Queue (ft)	275
Link Distance (ft)	225
Upstream Blk Time (%)	16
Queuing Penalty (veh)	114
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Colt Wy./Driveway 2 & Krameria Av.

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	40	7	67	48
Average Queue (ft)	7	0	31	23
95th Queue (ft)	28	4	57	47
Link Distance (ft)			164	252
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50	50		
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 9: Krameria Av. & Driveway/Quarter Horse Rd.

Movement	EB	NB
Directions Served	LTR	L
Maximum Queue (ft)	39	11
Average Queue (ft)	18	1
95th Queue (ft)	44	9
Link Distance (ft)	245	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		50
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	L	L	T	T	R	L
Maximum Queue (ft)	242	248	246	242	224	137	36	116	340	318	222	193
Average Queue (ft)	140	157	167	170	147	34	4	20	214	186	78	80
95th Queue (ft)	216	223	232	233	222	104	22	73	304	284	177	177
Link Distance (ft)			2427	2427	2427				1304	1304		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	325	325				300	310	310			200	200
Storage Blk Time (%)									1	4	0	0
Queuing Penalty (veh)									0	10	0	0

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	T	T	R	L	L	T	T	R
Maximum Queue (ft)	206	226	173	30	172	190	215	222	205
Average Queue (ft)	132	117	88	7	87	113	130	122	103
95th Queue (ft)	193	189	153	24	151	165	194	192	186
Link Distance (ft)		1103	1103	1103			2298	2298	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	200				215	215			215
Storage Blk Time (%)	1	0			0	0	0	0	0
Queuing Penalty (veh)	1	1			0	0	1	0	1

Network Summary

Network wide Queuing Penalty: 406

APPENDIX 6.7:

OPENING YEAR CUMULATIVE (2023) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Timings
3: Lasselle St. & Iris Av.

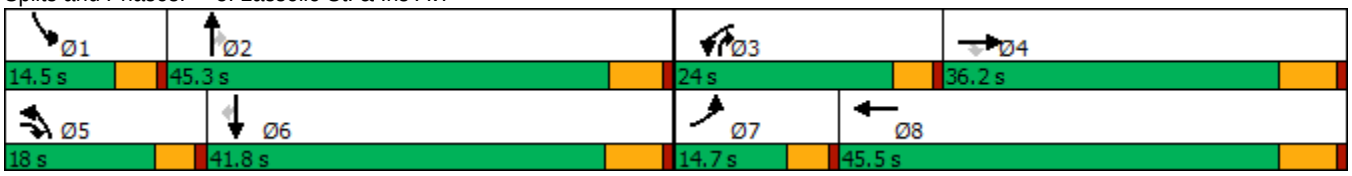
10/25/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	153	619	396	628	688	448	736	599	275	752	123
Future Volume (vph)	153	619	396	628	688	448	736	599	275	752	123
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	5	3	8	5	2	3	1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	5	3	8	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	36.2	9.6	9.6	36.2	9.6	41.8	9.6	9.6	40.2	40.2
Total Split (s)	14.7	36.2	18.0	24.0	45.5	18.0	45.3	24.0	14.5	41.8	41.8
Total Split (%)	12.3%	30.2%	15.0%	20.0%	37.9%	15.0%	37.8%	20.0%	12.1%	34.8%	34.8%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	3.6	4.8	3.6	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.2	0.0	-0.6	-2.2	-0.6	-1.8	-0.6	-0.6	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.6	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 107.1
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Lasselle St. & Iris Av.



HCM 6th Signalized Intersection Summary
3: Lasselle St. & Iris Av.

10/25/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	619	396	628	688	162	448	736	599	275	752	123
Future Volume (veh/h)	153	619	396	628	688	162	448	736	599	275	752	123
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	172	696	184	706	773	83	503	827	331	309	845	78
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	255	1150	520	660	1585	169	462	1210	805	347	1108	471
Arrive On Green	0.07	0.23	0.20	0.19	0.34	0.32	0.13	0.34	0.33	0.10	0.31	0.31
Sat Flow, veh/h	3563	5106	1580	3563	4676	499	3563	3554	1552	3563	3554	1512
Grp Volume(v), veh/h	172	696	184	706	561	295	503	827	331	309	845	78
Grp Sat Flow(s),veh/h/ln	1781	1702	1580	1781	1702	1771	1781	1777	1552	1781	1777	1512
Q Serve(g_s), s	5.1	13.2	9.5	20.0	14.1	14.3	14.0	21.6	14.2	9.3	23.2	4.0
Cycle Q Clear(g_c), s	5.1	13.2	9.5	20.0	14.1	14.3	14.0	21.6	14.2	9.3	23.2	4.0
Prop In Lane	1.00		1.00	1.00		0.28	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	255	1150	520	660	1154	600	462	1210	805	347	1108	471
V/C Ratio(X)	0.67	0.61	0.35	1.07	0.49	0.49	1.09	0.68	0.41	0.89	0.76	0.17
Avail Cap(c_a), veh/h	353	1523	636	660	1309	681	462	1360	870	347	1244	529
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.9	37.5	27.5	44.0	28.2	28.6	47.0	30.6	16.2	48.2	33.5	27.0
Incr Delay (d2), s/veh	1.2	0.5	0.4	55.1	0.3	0.6	68.0	1.2	0.3	23.2	2.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	5.3	3.5	13.4	5.4	5.8	10.3	8.9	4.6	5.1	9.7	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.1	38.0	27.9	99.1	28.6	29.2	114.9	31.8	16.5	71.4	36.1	27.1
LnGrp LOS	D	D	C	F	C	C	F	C	B	E	D	C
Approach Vol, veh/h		1052			1562			1661			1232	
Approach Delay, s/veh		38.2			60.6			53.9			44.4	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	41.1	24.0	28.3	18.0	37.6	11.7	40.6
Change Period (Y+Rc), s	4.6	* 6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	9.9	* 40	19.4	30.0	13.4	35.6	10.1	39.3
Max Q Clear Time (g_c+I1), s	11.3	23.6	22.0	15.2	16.0	25.2	7.1	16.3
Green Ext Time (p_c), s	0.0	5.9	0.0	4.2	0.0	4.0	0.1	5.1

Intersection Summary	
HCM 6th Ctrl Delay	50.7
HCM 6th LOS	D

Notes

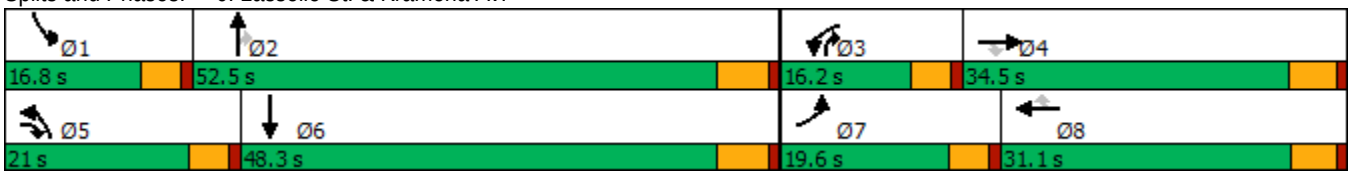
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	388	297	407	144	205	97	416	1197	262	156	819
Future Volume (vph)	388	297	407	144	205	97	416	1197	262	156	819
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	5	3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	5	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	9.6	9.6	31.1	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	19.6	34.5	21.0	16.2	31.1	31.1	21.0	52.5	16.2	16.8	48.3
Total Split (%)	16.3%	28.8%	17.5%	13.5%	25.9%	25.9%	17.5%	43.8%	13.5%	14.0%	40.3%
Yellow Time (s)	3.6	4.4	3.6	3.6	4.1	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.1	0.0	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.6	4.0	4.0	5.1	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 114.2
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	388	297	407	144	205	97	416	1197	262	156	819	286
Future Volume (veh/h)	388	297	407	144	205	97	416	1197	262	156	819	286
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	451	345	181	167	238	86	484	1392	220	181	952	306
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	485	418	558	190	357	284	528	1568	807	199	1033	330
Arrive On Green	0.14	0.22	0.21	0.11	0.19	0.18	0.15	0.42	0.41	0.11	0.38	0.37
Sat Flow, veh/h	3563	1870	1569	1781	1870	1564	3563	3741	1562	1781	2701	863
Grp Volume(v), veh/h	451	345	181	167	238	86	484	1392	220	181	658	600
Grp Sat Flow(s),veh/h/ln	1781	1870	1569	1781	1870	1564	1781	1870	1562	1781	1870	1694
Q Serve(g_s), s	14.4	20.1	9.7	10.6	13.5	5.5	15.3	39.5	9.1	11.5	38.4	38.9
Cycle Q Clear(g_c), s	14.4	20.1	9.7	10.6	13.5	5.5	15.3	39.5	9.1	11.5	38.4	38.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.51
Lane Grp Cap(c), veh/h	485	418	558	190	357	284	528	1568	807	199	715	648
V/C Ratio(X)	0.93	0.83	0.32	0.88	0.67	0.30	0.92	0.89	0.27	0.91	0.92	0.93
Avail Cap(c_a), veh/h	485	498	625	190	442	355	528	1583	813	199	723	655
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.0	42.4	27.0	50.5	43.0	40.6	48.1	30.8	15.7	50.3	33.7	34.3
Incr Delay (d2), s/veh	24.3	9.5	0.3	33.7	2.7	0.6	20.4	6.5	0.2	38.9	16.8	19.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	10.1	3.6	6.4	6.4	2.1	8.1	18.0	3.2	7.1	19.7	18.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.3	51.9	27.4	84.2	45.7	41.2	68.5	37.3	15.9	89.3	50.5	53.6
LnGrp LOS	E	D	C	F	D	D	E	D	B	F	D	D
Approach Vol, veh/h		977			491			2096			1439	
Approach Delay, s/veh		57.2			58.0			42.3			56.7	
Approach LOS		E			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.8	52.0	16.2	29.6	21.0	47.8	19.6	26.2
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	12.2	46.7	11.6	29.1	16.4	42.5	15.0	* 26
Max Q Clear Time (g_c+I1), s	13.5	41.5	12.6	22.1	17.3	40.9	16.4	15.5
Green Ext Time (p_c), s	0.0	3.9	0.0	1.5	0.0	1.1	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	50.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings
3: Lasselle St. & Iris Av.

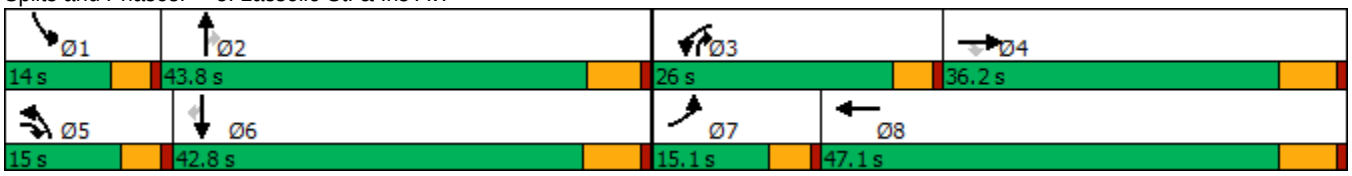
10/25/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	173	497	389	739	721	309	692	510	293	837	116
Future Volume (vph)	173	497	389	739	721	309	692	510	293	837	116
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	5	3	8	5	2	3	1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	5	3	8	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	36.2	9.6	9.6	36.2	9.6	41.8	9.6	9.6	40.2	40.2
Total Split (s)	15.1	36.2	15.0	26.0	47.1	15.0	43.8	26.0	14.0	42.8	42.8
Total Split (%)	12.6%	30.2%	12.5%	21.7%	39.3%	12.5%	36.5%	21.7%	11.7%	35.7%	35.7%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	3.6	4.8	3.6	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.2	0.0	-0.6	-2.2	-0.6	-1.8	-0.6	-0.6	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.6	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	Min

Intersection Summary

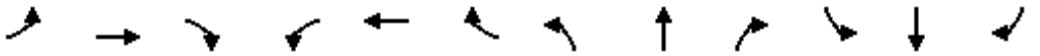
Cycle Length: 120
Actuated Cycle Length: 103.9
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Lasselle St. & Iris Av.



HCM 6th Signalized Intersection Summary
3: Lasselle St. & Iris Av.

10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	497	389	739	721	270	309	692	510	293	837	116
Future Volume (veh/h)	173	497	389	739	721	270	309	692	510	293	837	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.95	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	182	523	216	778	759	150	325	728	334	308	881	70
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	264	1220	491	714	1550	303	357	1138	790	324	1119	482
Arrive On Green	0.07	0.24	0.22	0.20	0.37	0.35	0.10	0.32	0.31	0.09	0.31	0.31
Sat Flow, veh/h	3563	5106	1555	3563	4244	828	3563	3554	1528	3563	3554	1532
Grp Volume(v), veh/h	182	523	216	778	607	302	325	728	334	308	881	70
Grp Sat Flow(s),veh/h/ln	1781	1702	1555	1781	1702	1668	1781	1777	1528	1781	1777	1532
Q Serve(g_s), s	5.5	9.5	12.2	22.0	15.1	15.6	9.9	19.2	15.1	9.4	24.8	3.6
Cycle Q Clear(g_c), s	5.5	9.5	12.2	22.0	15.1	15.6	9.9	19.2	15.1	9.4	24.8	3.6
Prop In Lane	1.00		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	264	1220	491	714	1244	609	357	1138	790	324	1119	482
V/C Ratio(X)	0.69	0.43	0.44	1.09	0.49	0.50	0.91	0.64	0.42	0.95	0.79	0.15
Avail Cap(c_a), veh/h	360	1497	575	714	1336	655	357	1288	855	324	1256	541
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	35.4	30.0	43.9	26.9	27.5	48.9	31.9	16.9	49.7	34.3	27.0
Incr Delay (d2), s/veh	1.4	0.2	0.6	60.8	0.3	0.6	26.1	0.9	0.4	36.3	3.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	3.8	4.4	15.2	5.8	6.0	5.6	8.0	4.9	5.7	10.5	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.0	35.7	30.7	104.7	27.2	28.1	75.0	32.8	17.3	86.0	37.4	27.2
LnGrp LOS	D	D	C	F	C	C	E	C	B	F	D	C
Approach Vol, veh/h		921			1687			1387			1259	
Approach Delay, s/veh		37.5			63.1			38.9			48.7	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	39.6	26.0	30.2	15.0	38.6	12.1	44.1
Change Period (Y+Rc), s	4.6	* 6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	9.4	* 38	21.4	30.0	10.4	36.6	10.5	40.9
Max Q Clear Time (g_c+I1), s	11.4	21.2	24.0	14.2	11.9	26.8	7.5	17.6
Green Ext Time (p_c), s	0.0	5.4	0.0	3.5	0.0	4.0	0.1	5.6

Intersection Summary	
HCM 6th Ctrl Delay	48.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

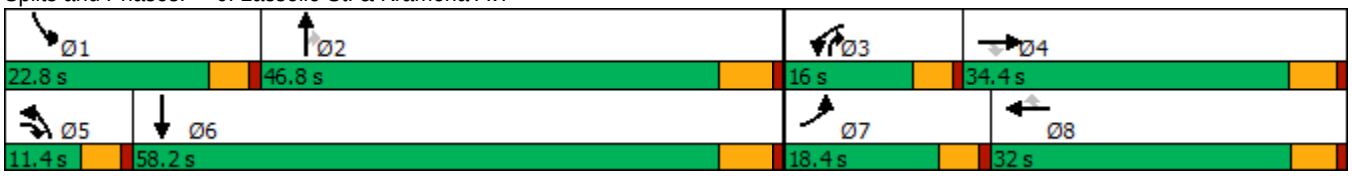
Timings
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	270	82	205	117	72	53	137	883	76	165	1180
Future Volume (vph)	270	82	205	117	72	53	137	883	76	165	1180
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	5	3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	5	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	9.6	9.6	31.1	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	18.4	34.4	11.4	16.0	32.0	32.0	11.4	46.8	16.0	22.8	58.2
Total Split (%)	15.3%	28.7%	9.5%	13.3%	26.7%	26.7%	9.5%	39.0%	13.3%	19.0%	48.5%
Yellow Time (s)	3.6	4.4	3.6	3.6	4.1	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.1	0.0	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.6	4.0	4.0	5.1	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 91.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	82	205	117	72	53	137	883	76	165	1180	182
Future Volume (veh/h)	270	82	205	117	72	53	137	883	76	165	1180	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	284	86	58	123	76	23	144	929	60	174	1242	180
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	395	294	320	167	255	192	243	1625	813	223	1570	226
Arrive On Green	0.11	0.16	0.14	0.09	0.14	0.12	0.07	0.43	0.42	0.13	0.49	0.47
Sat Flow, veh/h	3563	1870	1585	1781	1870	1556	3563	3741	1582	1781	3197	461
Grp Volume(v), veh/h	284	86	58	123	76	23	144	929	60	174	724	698
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1556	1781	1870	1582	1781	1870	1787
Q Serve(g_s), s	6.5	3.4	2.6	5.7	3.1	1.1	3.3	15.7	1.6	8.0	27.1	27.6
Cycle Q Clear(g_c), s	6.5	3.4	2.6	5.7	3.1	1.1	3.3	15.7	1.6	8.0	27.1	27.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	395	294	320	167	255	192	243	1625	813	223	919	878
V/C Ratio(X)	0.72	0.29	0.18	0.74	0.30	0.12	0.59	0.57	0.07	0.78	0.79	0.80
Avail Cap(c_a), veh/h	609	675	642	254	621	497	313	1900	929	397	1203	1149
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	31.4	27.9	37.2	32.8	32.9	38.1	17.9	10.4	35.7	17.8	18.1
Incr Delay (d2), s/veh	0.9	0.5	0.3	2.4	0.6	0.3	0.9	0.3	0.0	2.3	2.7	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	1.5	1.0	2.5	1.4	0.4	1.4	6.0	0.5	3.4	10.5	10.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.1	31.9	28.1	39.6	33.4	33.2	39.0	18.2	10.4	38.0	20.4	21.1
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	C	C
Approach Vol, veh/h		428			222			1133			1596	
Approach Delay, s/veh		34.9			36.8			20.5			22.6	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	40.6	11.9	17.2	9.8	45.4	13.3	15.8
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	18.2	41.0	11.4	29.0	6.8	52.4	13.8	* 27
Max Q Clear Time (g_c+I1), s	10.0	17.7	7.7	5.4	5.3	29.6	8.5	5.1
Green Ext Time (p_c), s	0.1	6.5	0.0	0.5	0.0	10.0	0.3	0.4

Intersection Summary	
HCM 6th Ctrl Delay	24.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 7.1:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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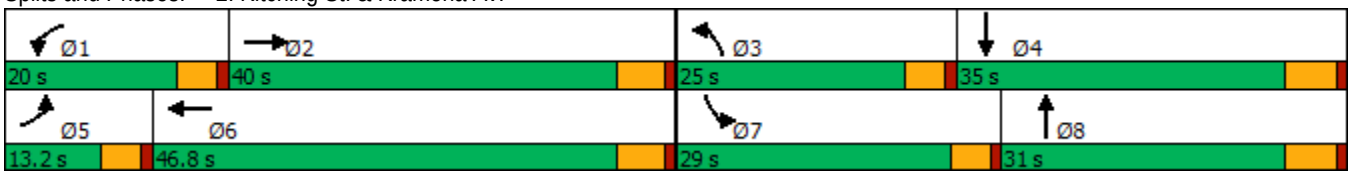
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	102	630	193	740	264	505	320	600
Future Volume (vph)	102	630	193	740	264	505	320	600
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	28.4	9.6	31.4	9.6	28.8	9.6	29.8
Total Split (s)	13.2	40.0	20.0	46.8	25.0	31.0	29.0	35.0
Total Split (%)	11.0%	33.3%	16.7%	39.0%	20.8%	25.8%	24.2%	29.2%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.4	-0.6	-1.8	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min

Intersection Summary

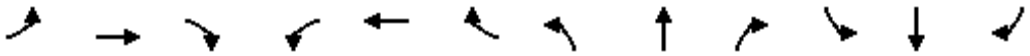
Cycle Length: 120
Actuated Cycle Length: 117.1
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kitching St. & Krameria Av.



HCM 6th Signalized Intersection Summary
2: Kitching St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	630	254	193	740	230	264	505	270	320	600	122
Future Volume (veh/h)	102	630	254	193	740	230	264	505	270	320	600	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1945	1945	1870	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	116	716	158	219	841	97	300	574	166	364	682	53
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	843	186	250	1147	132	334	663	191	397	936	73
Arrive On Green	0.10	0.34	0.33	0.18	0.42	0.40	0.23	0.29	0.27	0.27	0.33	0.31
Sat Flow, veh/h	1781	3062	675	1781	3423	395	1853	2888	832	1853	3555	276
Grp Volume(v), veh/h	116	455	419	219	478	460	300	386	354	364	373	362
Grp Sat Flow(s),veh/h/ln	1781	1945	1792	1781	1945	1872	1853	1945	1775	1853	1945	1886
Q Serve(g_s), s	7.3	24.7	24.7	13.6	23.5	23.5	17.9	21.4	21.6	21.7	19.3	19.3
Cycle Q Clear(g_c), s	7.3	24.7	24.7	13.6	23.5	23.5	17.9	21.4	21.6	21.7	19.3	19.3
Prop In Lane	1.00		0.38	1.00		0.21	1.00		0.47	1.00		0.15
Lane Grp Cap(c), veh/h	144	536	494	250	652	627	334	446	407	397	512	496
V/C Ratio(X)	0.81	0.85	0.85	0.87	0.73	0.73	0.90	0.86	0.87	0.92	0.73	0.73
Avail Cap(c_a), veh/h	144	615	567	250	731	704	342	461	421	407	530	514
HCM Platoon Ratio	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.3	35.1	35.5	45.9	28.8	29.0	43.1	38.9	39.5	40.7	34.6	34.8
Incr Delay (d2), s/veh	25.7	9.8	10.5	26.3	3.4	3.5	24.1	15.3	17.1	24.6	4.9	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	12.1	11.3	7.5	10.4	10.1	9.8	11.2	10.6	11.7	8.9	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.0	44.9	46.0	72.2	32.2	32.5	67.2	54.2	56.6	65.3	39.5	39.8
LnGrp LOS	E	D	D	E	C	C	E	D	E	E	D	D
Approach Vol, veh/h		990			1157			1040			1099	
Approach Delay, s/veh		49.0			39.9			58.8			48.1	
Approach LOS		D			D			E			D	

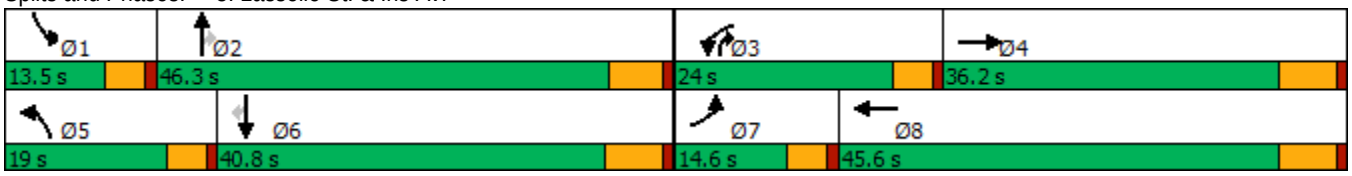
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	35.3	24.5	34.0	13.2	42.1	28.4	30.1
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	15.4	34.6	20.4	29.2	8.6	41.4	24.4	25.2
Max Q Clear Time (g_c+I1), s	15.6	26.7	19.9	21.3	9.3	25.5	23.7	23.6
Green Ext Time (p_c), s	0.0	3.2	0.0	2.5	0.0	5.2	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	48.7
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	184	681	672	908	477	793	642	303	809	156
Future Volume (vph)	184	681	672	908	477	793	642	303	809	156
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	3	1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	3	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	36.2	9.6	36.2	9.6	41.8	9.6	9.6	40.2	40.2
Total Split (s)	14.6	36.2	24.0	45.6	19.0	46.3	24.0	13.5	40.8	40.8
Total Split (%)	12.2%	30.2%	20.0%	38.0%	15.8%	38.6%	20.0%	11.3%	34.0%	34.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.8	3.6	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.2	-0.6	-2.2	-0.6	-1.8	-0.6	-0.6	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min	Min

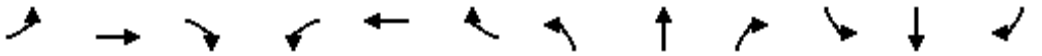
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 118.8
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Lasselle St. & Iris Av.



HCM 6th Signalized Intersection Summary
3: Lasselle St. & Iris Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	184	681	417	672	908	178	477	793	642	303	809	156
Future Volume (veh/h)	184	681	417	672	908	178	477	793	642	303	809	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	207	765	321	755	1020	157	536	891	492	340	909	115
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	280	934	388	588	1575	242	441	1227	790	279	1072	456
Arrive On Green	0.08	0.26	0.25	0.17	0.35	0.33	0.13	0.35	0.33	0.08	0.30	0.30
Sat Flow, veh/h	3456	3535	1470	3456	4455	684	3456	3554	1552	3456	3554	1510
Grp Volume(v), veh/h	207	736	350	755	779	398	536	891	492	340	909	115
Grp Sat Flow(s),veh/h/ln	1728	1702	1601	1728	1702	1735	1728	1777	1552	1728	1777	1510
Q Serve(g_s), s	6.9	23.9	24.3	20.0	22.5	22.7	15.0	25.7	27.0	9.5	28.2	6.8
Cycle Q Clear(g_c), s	6.9	23.9	24.3	20.0	22.5	22.7	15.0	25.7	27.0	9.5	28.2	6.8
Prop In Lane	1.00		0.92	1.00		0.39	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	280	899	423	588	1203	613	441	1227	790	279	1072	456
V/C Ratio(X)	0.74	0.82	0.83	1.28	0.65	0.65	1.22	0.73	0.62	1.22	0.85	0.25
Avail Cap(c_a), veh/h	312	933	439	588	1205	614	441	1279	812	279	1113	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	40.6	41.7	48.8	31.8	32.3	51.3	33.6	21.1	54.0	38.5	31.0
Incr Delay (d2), s/veh	6.6	5.7	12.0	140.3	1.2	2.4	116.1	2.0	1.4	125.7	6.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	10.2	10.6	19.7	8.9	9.5	13.4	10.9	9.2	8.9	12.5	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.4	46.2	53.7	189.0	33.1	34.7	167.3	35.6	22.5	179.8	44.6	31.3
LnGrp LOS	E	D	D	F	C	C	F	D	C	F	D	C
Approach Vol, veh/h		1293			1932			1919			1364	
Approach Delay, s/veh		50.4			94.4			69.0			77.2	
Approach LOS		D			F			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	45.0	24.0	35.1	19.0	39.5	13.5	45.5
Change Period (Y+Rc), s	4.6	* 6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	8.9	* 41	19.4	30.0	14.4	34.6	10.0	39.4
Max Q Clear Time (g_c+I1), s	11.5	29.0	22.0	26.3	17.0	30.2	8.9	24.7
Green Ext Time (p_c), s	0.0	5.8	0.0	2.1	0.0	2.3	0.0	6.1

Intersection Summary	
HCM 6th Ctrl Delay	74.5
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	97	1556	182	0	1149
Future Vol, veh/h	0	97	1556	182	0	1149
Conflicting Peds, #/hr	0	0	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	140	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	110	1768	207	0	1306

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	887	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.7	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	305	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	304	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.4	0	0
HCM LOS	C		

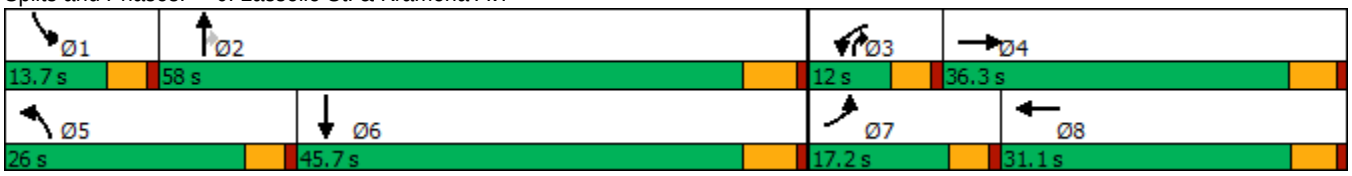
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	304	-
HCM Lane V/C Ratio	-	-	0.363	-
HCM Control Delay (s)	-	-	23.4	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	1.6	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	424	294	132	193	457	1290	288	115	971
Future Volume (vph)	424	294	132	193	457	1290	288	115	971
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	9.6	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	17.2	36.3	12.0	31.1	26.0	58.0	12.0	13.7	45.7
Total Split (%)	14.3%	30.3%	10.0%	25.9%	21.7%	48.3%	10.0%	11.4%	38.1%
Yellow Time (s)	3.6	4.4	3.6	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.1	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 116.4
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	424	294	447	132	193	107	457	1290	288	115	971	315
Future Volume (veh/h)	424	294	447	132	193	107	457	1290	288	115	971	315
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	493	342	344	153	224	97	531	1500	250	134	1129	339
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	388	450	398	121	502	210	334	1634	810	147	955	282
Arrive On Green	0.11	0.25	0.24	0.07	0.21	0.20	0.19	0.46	0.45	0.08	0.36	0.34
Sat Flow, veh/h	3456	1777	1571	1781	2432	1016	1781	3554	1562	1781	2689	795
Grp Volume(v), veh/h	493	342	344	153	161	160	531	1500	250	134	740	728
Grp Sat Flow(s),veh/h/ln	1728	1777	1571	1781	1777	1671	1781	1777	1562	1781	1777	1707
Q Serve(g_s), s	13.2	20.9	24.6	8.0	9.3	9.9	22.0	46.3	10.8	8.8	41.7	41.7
Cycle Q Clear(g_c), s	13.2	20.9	24.6	8.0	9.3	9.9	22.0	46.3	10.8	8.8	41.7	41.7
Prop In Lane	1.00		1.00	1.00		0.61	1.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	388	450	398	121	367	345	334	1634	810	147	631	606
V/C Ratio(X)	1.27	0.76	0.86	1.26	0.44	0.46	1.59	0.92	0.31	0.91	1.17	1.20
Avail Cap(c_a), veh/h	388	489	432	121	410	386	334	1634	810	147	631	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	40.5	42.6	54.7	40.7	41.2	47.7	29.7	16.3	53.4	37.9	38.3
Incr Delay (d2), s/veh	140.1	6.3	15.6	167.6	0.8	1.0	279.9	8.7	0.2	47.7	94.0	105.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.2	9.7	11.1	9.2	4.1	4.1	35.4	20.2	3.8	5.8	33.6	34.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	192.2	46.9	58.2	222.4	41.5	42.2	327.6	38.4	16.5	101.2	131.9	143.7
LnGrp LOS	F	D	E	F	D	D	F	D	B	F	F	F
Approach Vol, veh/h		1179			474			2281			1602	
Approach Delay, s/veh		111.0			100.1			103.3			134.7	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.7	58.0	12.0	33.7	26.0	45.7	17.2	28.5
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	9.1	52.2	7.4	30.9	21.4	39.9	12.6	* 26
Max Q Clear Time (g_c+I1), s	10.8	48.3	10.0	26.6	24.0	43.7	15.2	11.9
Green Ext Time (p_c), s	0.0	3.1	0.0	1.6	0.0	0.0	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	113.7
HCM 6th LOS	F

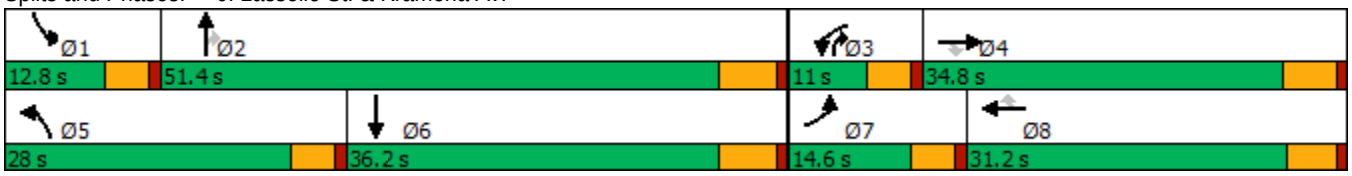
Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	424	294	447	132	193	107	457	1290	288	115	971
Future Volume (vph)	424	294	447	132	193	107	457	1290	288	115	971
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	34.4	9.6	31.1	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	14.6	34.8	34.8	11.0	31.2	31.2	28.0	51.4	11.0	12.8	36.2
Total Split (%)	13.3%	31.6%	31.6%	10.0%	28.4%	28.4%	25.5%	46.7%	10.0%	11.6%	32.9%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.1	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.1	0.0	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	5.4	4.0	4.0	5.1	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min

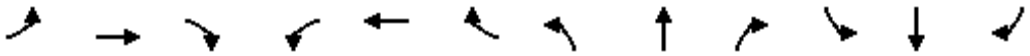
Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 105.4
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	424	294	447	132	193	107	457	1290	288	115	971	315
Future Volume (veh/h)	424	294	447	132	193	107	457	1290	288	115	971	315
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	493	342	344	153	224	97	531	1500	250	134	1129	339
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	177	485	387	117	417	333	400	1575	772	147	806	238
Arrive On Green	0.10	0.26	0.25	0.07	0.22	0.21	0.22	0.44	0.43	0.08	0.30	0.28
Sat Flow, veh/h	1781	1870	1572	1781	1870	1564	1781	3554	1547	1781	2678	791
Grp Volume(v), veh/h	493	342	344	153	224	97	531	1500	250	134	743	725
Grp Sat Flow(s),veh/h/ln	1781	1870	1572	1781	1870	1564	1781	1777	1547	1781	1777	1692
Q Serve(g_s), s	10.6	17.7	22.6	7.0	11.3	5.6	24.0	43.5	10.4	8.0	32.2	32.2
Cycle Q Clear(g_c), s	10.6	17.7	22.6	7.0	11.3	5.6	24.0	43.5	10.4	8.0	32.2	32.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	177	485	387	117	417	333	400	1575	772	147	535	509
V/C Ratio(X)	2.79	0.70	0.89	1.31	0.54	0.29	1.33	0.95	0.32	0.91	1.39	1.42
Avail Cap(c_a), veh/h	177	539	432	117	476	382	400	1575	772	147	535	509
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.2	35.9	38.9	50.0	36.7	35.3	41.5	28.7	16.1	48.7	37.4	37.8
Incr Delay (d2), s/veh	822.0	3.7	18.5	188.8	1.1	0.5	164.1	13.1	0.2	48.7	186.0	201.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	44.9	8.3	10.5	9.2	5.2	2.1	28.3	19.7	3.6	5.4	40.8	41.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	870.2	39.6	57.4	238.7	37.8	35.8	205.6	41.8	16.3	97.4	223.4	239.6
LnGrp LOS	F	D	E	F	D	D	F	D	B	F	F	F
Approach Vol, veh/h		1179			474			2281			1602	
Approach Delay, s/veh		392.1			102.2			77.1			220.2	
Approach LOS		F			F			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	51.4	11.0	31.7	28.0	36.2	14.6	28.1
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	8.2	45.6	6.4	29.4	23.4	30.4	10.0	* 26
Max Q Clear Time (g_c+I1), s	10.0	45.5	9.0	24.6	26.0	34.2	12.6	13.3
Green Ext Time (p_c), s	0.0	0.1	0.0	1.5	0.0	0.0	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	187.8
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	633	56	58	357	0	75	0	96	0	0	0
Future Vol, veh/h	8	633	56	58	357	0	75	0	96	0	0	0
Conflicting Peds, #/hr	0	0	2	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	822	73	75	464	0	97	0	125	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	464	0	0	897	0	0	1263	1495	450	1045	1531	232
Stage 1	-	-	-	-	-	-	881	881	-	614	614	-
Stage 2	-	-	-	-	-	-	382	614	-	431	917	-
Critical Hdwy	4.14	-	-	4.14	-	-	5	6.54	5	5	6.54	5
Critical Hdwy Stg 1	-	-	-	-	-	-	5	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1094	-	-	753	-	-	308	122	709	382	116	873
Stage 1	-	-	-	-	-	-	449	363	-	446	481	-
Stage 2	-	-	-	-	-	-	721	481	-	573	349	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1094	-	-	752	-	-	282	109	708	289	103	873
Mov Cap-2 Maneuver	-	-	-	-	-	-	402	279	-	352	233	-
Stage 1	-	-	-	-	-	-	444	359	-	442	433	-
Stage 2	-	-	-	-	-	-	649	433	-	468	345	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.4	16.6	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	531	1094	-	-	752	-	-	-
HCM Lane V/C Ratio	0.418	0.009	-	-	0.1	-	-	-
HCM Control Delay (s)	16.6	8.3	-	-	10.3	-	-	0
HCM Lane LOS	C	A	-	-	B	-	-	A
HCM 95th %tile Q(veh)	2	0	-	-	0.3	-	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	633	56	58	357	0	75	0	96	0	0	0
Future Vol, veh/h	8	633	56	58	357	0	75	0	96	0	0	0
Conflicting Peds, #/hr	0	0	2	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	822	73	75	464	0	97	0	125	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	464	0	0	897	0	0	1495	1495	861	1555	1531	464
Stage 1	-	-	-	-	-	-	881	881	-	614	614	-
Stage 2	-	-	-	-	-	-	614	614	-	941	917	-
Critical Hdwy	4.12	-	-	4.12	-	-	5	6.52	5	5	6.52	5
Critical Hdwy Stg 1	-	-	-	-	-	-	5	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1097	-	-	757	-	-	244	123	475	230	117	700
Stage 1	-	-	-	-	-	-	449	365	-	479	483	-
Stage 2	-	-	-	-	-	-	580	483	-	316	351	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1097	-	-	756	-	-	224	110	474	155	104	700
Mov Cap-2 Maneuver	-	-	-	-	-	-	369	280	-	148	235	-
Stage 1	-	-	-	-	-	-	444	361	-	475	435	-
Stage 2	-	-	-	-	-	-	522	435	-	231	347	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.4	22.7	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	421	1097	-	-	756	-	-	-
HCM Lane V/C Ratio	0.528	0.009	-	-	0.1	-	-	-
HCM Control Delay (s)	22.7	8.3	-	-	10.3	-	-	0
HCM Lane LOS	C	A	-	-	B	-	-	A
HCM 95th %tile Q(veh)	3	0	-	-	0.3	-	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	0	0	12	9	1	7	21	683	16	6	386	0
Future Vol, veh/h	0	0	12	9	1	7	21	683	16	6	386	0
Conflicting Peds, #/hr	0	0	0	0	0	69	0	0	21	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	17	13	1	10	29	949	22	8	536	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1645	1602	536	1600	1591	1050	536	0	0	992	0	0
Stage 1	552	552	-	1039	1039	-	-	-	-	-	-	-
Stage 2	1093	1050	-	561	552	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	79	106	545	85	107	276	1032	-	-	697	-	-
Stage 1	518	515	-	279	308	-	-	-	-	-	-	-
Stage 2	260	304	-	512	515	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	68	100	545	78	101	253	1032	-	-	683	-	-
Mov Cap-2 Maneuver	164	206	-	187	209	-	-	-	-	-	-	-
Stage 1	503	509	-	266	294	-	-	-	-	-	-	-
Stage 2	226	290	-	491	509	-	-	-	-	-	-	-

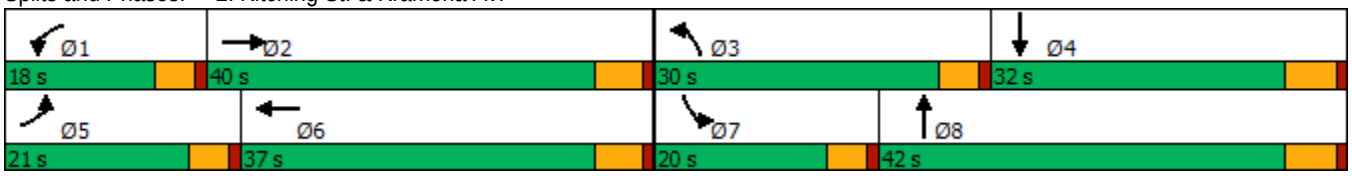
Approach	EB	WB	NB	SB
HCM Control Delay, s	11.8	24.2	0.3	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1032	-	-	545	211	683	-	-
HCM Lane V/C Ratio	0.028	-	-	0.031	0.112	0.012	-	-
HCM Control Delay (s)	8.6	-	-	11.8	24.2	10.3	-	-
HCM Lane LOS	A	-	-	B	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.4	0	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	116	448	97	413	222	646	109	441
Future Volume (vph)	116	448	97	413	222	646	109	441
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	28.4	9.6	31.4	9.6	28.8	9.6	29.8
Total Split (s)	21.0	40.0	18.0	37.0	30.0	42.0	20.0	32.0
Total Split (%)	17.5%	33.3%	15.0%	30.8%	25.0%	35.0%	16.7%	26.7%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.4	-0.6	-1.8	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	11.2	26.0	10.0	21.8	16.2	27.0	10.6	21.4
Actuated g/C Ratio	0.13	0.30	0.11	0.25	0.18	0.31	0.12	0.24
v/c Ratio	0.50	0.60	0.47	0.55	0.64	0.66	0.48	0.60
Control Delay	47.9	26.2	49.3	30.6	44.6	29.9	47.9	32.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.9	26.2	49.3	30.6	44.6	29.9	47.9	32.7
LOS	D	C	D	C	D	C	D	C
Approach Delay		29.2		33.6		33.2		35.1
Approach LOS		C		C		C		D

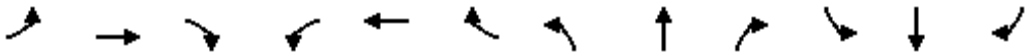
Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 87.6	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 32.6	Intersection LOS: C
Intersection Capacity Utilization 68.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Kitching St. & Krameria Av.



HCM 6th Signalized Intersection Summary
2: Kitching St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	448	268	97	413	107	222	646	126	109	441	120
Future Volume (veh/h)	116	448	268	97	413	107	222	646	126	109	441	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1945	1945	1870	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	120	462	270	100	426	92	229	666	124	112	455	88
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	677	393	144	870	186	293	979	182	161	746	143
Arrive On Green	0.09	0.29	0.27	0.08	0.28	0.26	0.16	0.31	0.28	0.09	0.24	0.21
Sat Flow, veh/h	1781	2295	1332	1781	3097	663	1853	3190	593	1853	3160	606
Grp Volume(v), veh/h	120	391	341	100	266	252	229	406	384	112	279	264
Grp Sat Flow(s),veh/h/ln	1781	1945	1682	1781	1945	1814	1853	1945	1838	1853	1945	1821
Q Serve(g_s), s	4.5	12.3	12.6	3.8	7.9	8.1	8.3	12.7	12.8	4.1	8.9	9.1
Cycle Q Clear(g_c), s	4.5	12.3	12.6	3.8	7.9	8.1	8.3	12.7	12.8	4.1	8.9	9.1
Prop In Lane	1.00		0.79	1.00		0.37	1.00		0.32	1.00		0.33
Lane Grp Cap(c), veh/h	169	574	496	144	546	510	293	597	564	161	459	430
V/C Ratio(X)	0.71	0.68	0.69	0.70	0.49	0.49	0.78	0.68	0.68	0.69	0.61	0.61
Avail Cap(c_a), veh/h	436	1008	871	359	924	862	693	1064	1005	427	784	734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	21.6	22.2	31.1	20.8	21.1	28.1	21.1	21.4	30.8	23.7	24.0
Incr Delay (d2), s/veh	2.1	1.4	1.7	2.3	0.7	0.7	1.7	1.4	1.5	2.0	1.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	5.3	4.7	1.6	3.4	3.2	3.5	5.3	5.1	1.8	3.8	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	23.1	23.9	33.4	21.5	21.8	29.8	22.4	22.8	32.8	25.0	25.4
LnGrp LOS	C	C	C	C	C	C	C	C	C	C	C	C
Approach Vol, veh/h		852			618			1019			655	
Approach Delay, s/veh		24.7			23.5			24.3			26.5	
Approach LOS		C			C			C			C	

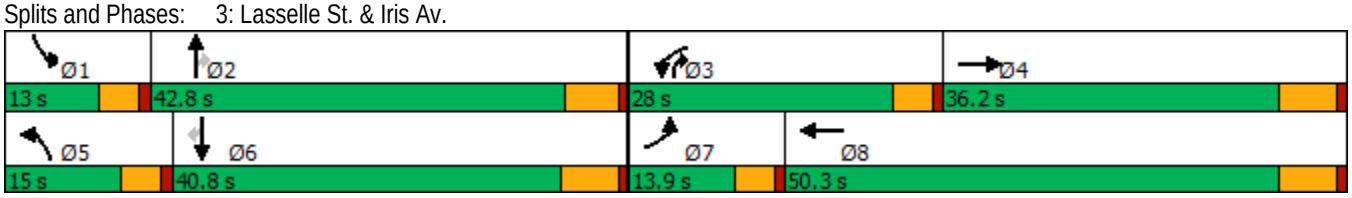
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	24.5	15.0	20.4	10.6	23.5	10.0	25.3
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	13.4	34.6	25.4	26.2	16.4	31.6	15.4	36.2
Max Q Clear Time (g_c+I1), s	5.8	14.6	10.3	11.1	6.5	10.1	6.1	14.8
Green Ext Time (p_c), s	0.1	4.4	0.3	2.6	0.1	2.9	0.1	4.5

Intersection Summary	
HCM 6th Ctrl Delay	24.7
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	259	757	799	988	326	748	548	322	907	146
Future Volume (vph)	259	757	799	988	326	748	548	322	907	146
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	3	1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	3	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	36.2	9.6	36.2	9.6	41.8	9.6	9.6	40.2	40.2
Total Split (s)	13.9	36.2	28.0	50.3	15.0	42.8	28.0	13.0	40.8	40.8
Total Split (%)	11.6%	30.2%	23.3%	41.9%	12.5%	35.7%	23.3%	10.8%	34.0%	34.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.8	3.6	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.2	-0.6	-2.2	-0.6	-1.8	-0.6	-0.6	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min	Min
Act Effct Green (s)	9.9	32.2	24.0	46.3	11.0	38.2	62.2	9.0	36.2	36.2
Actuated g/C Ratio	0.08	0.27	0.20	0.39	0.09	0.32	0.52	0.08	0.30	0.30
v/c Ratio	0.96	0.90	1.22	0.71	1.09	0.70	0.69	1.31	0.89	0.27
Control Delay	99.0	48.1	152.4	31.5	126.1	39.4	21.3	208.2	51.2	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.0	48.1	152.4	31.5	126.1	39.4	21.3	208.2	51.2	6.0
LOS	F	D	F	C	F	D	C	F	D	A
Approach Delay		57.3		77.8		50.7			83.2	
Approach LOS		E		E		D			F	

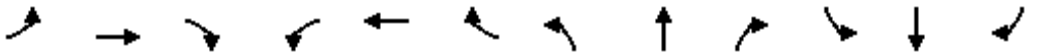
Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.4	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.31	
Intersection Signal Delay: 67.7	Intersection LOS: E
Intersection Capacity Utilization 96.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 3: Lasselle St. & Iris Av.



HCM 6th Signalized Intersection Summary
3: Lasselle St. & Iris Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	259	757	413	799	988	298	326	748	548	322	907	146
Future Volume (veh/h)	259	757	413	799	988	298	326	748	548	322	907	146
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.95	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	273	797	348	841	1040	286	343	787	374	339	955	102
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	287	931	403	697	1521	418	319	1125	788	261	1077	464
Arrive On Green	0.08	0.27	0.25	0.20	0.39	0.37	0.09	0.32	0.31	0.08	0.30	0.30
Sat Flow, veh/h	3456	3468	1503	3456	3933	1081	3456	3554	1527	3456	3554	1531
Grp Volume(v), veh/h	273	782	363	841	900	426	343	787	374	339	955	102
Grp Sat Flow(s),veh/h/ln	1728	1702	1567	1728	1702	1610	1728	1777	1527	1728	1777	1531
Q Serve(g_s), s	9.4	26.0	26.3	24.0	26.2	26.5	11.0	23.1	19.0	9.0	30.5	5.9
Cycle Q Clear(g_c), s	9.4	26.0	26.3	24.0	26.2	26.5	11.0	23.1	19.0	9.0	30.5	5.9
Prop In Lane	1.00		0.96	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	914	421	697	1317	623	319	1125	788	261	1077	464
V/C Ratio(X)	0.95	0.86	0.86	1.21	0.68	0.68	1.07	0.70	0.47	1.30	0.89	0.22
Avail Cap(c_a), veh/h	287	921	424	697	1324	626	319	1159	802	261	1099	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.3	41.4	42.5	47.5	30.4	31.1	54.0	35.7	19.1	55.0	39.5	31.0
Incr Delay (d2), s/veh	39.3	8.0	16.4	106.3	1.5	3.1	71.4	1.8	0.4	159.1	8.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	11.4	11.7	20.1	10.3	10.3	7.8	9.9	6.3	9.6	13.9	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.6	49.3	58.9	153.8	31.9	34.2	125.4	37.5	19.5	214.1	48.4	31.2
LnGrp LOS	F	D	E	F	C	C	F	D	B	F	D	C
Approach Vol, veh/h		1418			2167			1504			1396	
Approach Delay, s/veh		60.3			79.6			53.1			87.3	
Approach LOS		E			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	42.1	28.0	35.9	15.0	40.1	13.9	50.0
Change Period (Y+Rc), s	4.6	* 6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	8.4	* 37	23.4	30.0	10.4	34.6	9.3	44.1
Max Q Clear Time (g_c+I1), s	11.0	25.1	26.0	28.3	13.0	32.5	11.4	28.5
Green Ext Time (p_c), s	0.0	5.0	0.0	1.1	0.0	1.3	0.0	7.4

Intersection Summary	
HCM 6th Ctrl Delay	70.9
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	132	1080	91	0	1525
Future Vol, veh/h	0	132	1080	91	0	1525
Conflicting Peds, #/hr	0	0	0	2	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	140	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	136	1113	94	0	1572

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	559	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	472	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	471	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	471	-
HCM Lane V/C Ratio	-	-	0.289	-
HCM Control Delay (s)	-	-	15.7	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	1.2	-

Timings
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018

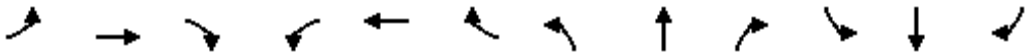
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	286	74	108	55	150	1072	84	136	1298
Future Volume (vph)	286	74	108	55	150	1072	84	136	1298
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	9.6	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	15.6	34.4	12.6	31.4	15.7	55.5	12.6	17.5	57.3
Total Split (%)	13.0%	28.7%	10.5%	26.2%	13.1%	46.3%	10.5%	14.6%	47.8%
Yellow Time (s)	3.6	4.4	3.6	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.1	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 107
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.

HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	286	74	225	108	55	64	150	1072	84	136	1298	200
Future Volume (veh/h)	286	74	225	108	55	64	150	1072	84	136	1298	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	301	78	142	114	58	34	158	1128	68	143	1366	199
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	384	256	229	151	255	137	198	1806	920	183	1557	225
Arrive On Green	0.11	0.14	0.13	0.09	0.12	0.10	0.11	0.51	0.50	0.10	0.50	0.48
Sat Flow, veh/h	3456	1777	1585	1781	2216	1189	1781	3554	1582	1781	3116	450
Grp Volume(v), veh/h	301	78	142	114	45	47	158	1128	68	143	773	792
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1628	1781	1777	1582	1781	1777	1789
Q Serve(g_s), s	8.5	3.9	8.5	6.3	2.3	2.6	8.7	22.9	1.9	7.8	38.6	39.8
Cycle Q Clear(g_c), s	8.5	3.9	8.5	6.3	2.3	2.6	8.7	22.9	1.9	7.8	38.6	39.8
Prop In Lane	1.00		1.00	1.00		0.73	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	384	256	229	151	205	188	198	1806	920	183	888	894
V/C Ratio(X)	0.78	0.30	0.62	0.75	0.22	0.25	0.80	0.62	0.07	0.78	0.87	0.89
Avail Cap(c_a), veh/h	400	539	481	153	486	445	208	1826	929	240	945	952
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.4	38.4	41.0	44.8	40.3	40.8	43.4	17.8	9.2	43.8	22.2	22.7
Incr Delay (d2), s/veh	8.5	0.7	2.7	16.7	0.5	0.7	16.8	0.7	0.0	8.3	8.5	9.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	1.7	3.4	3.4	1.0	1.1	4.6	8.5	0.6	3.7	16.3	17.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.9	39.0	43.7	61.5	40.8	41.4	60.3	18.4	9.2	52.1	30.7	32.3
LnGrp LOS	D	D	D	E	D	D	E	B	A	D	C	C
Approach Vol, veh/h		521			206			1354			1708	
Approach Delay, s/veh		47.7			52.4			22.8			33.3	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.3	54.9	12.5	18.5	15.1	54.1	15.1	15.8
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	12.9	49.7	8.0	29.0	11.1	51.5	11.0	* 26
Max Q Clear Time (g_c+I1), s	9.8	24.9	8.3	10.5	10.7	41.8	10.5	4.6
Green Ext Time (p_c), s	0.0	8.5	0.0	1.1	0.0	6.4	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

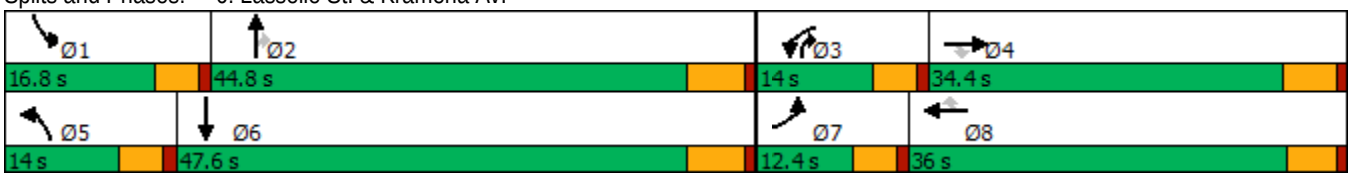
Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	286	74	225	108	55	64	150	1072	84	136	1298
Future Volume (vph)	286	74	225	108	55	64	150	1072	84	136	1298
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	34.4	9.6	31.1	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	12.4	34.4	34.4	14.0	36.0	36.0	14.0	44.8	14.0	16.8	47.6
Total Split (%)	11.3%	31.3%	31.3%	12.7%	32.7%	32.7%	12.7%	40.7%	12.7%	15.3%	43.3%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.1	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.1	0.0	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	5.4	4.0	4.0	5.1	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min
Act Effct Green (s)	11.5	14.8	13.4	9.4	16.0	14.9	10.1	42.5	52.0	11.4	43.9
Actuated g/C Ratio	0.12	0.16	0.14	0.10	0.17	0.16	0.11	0.45	0.55	0.12	0.47
v/c Ratio	1.39	0.27	0.58	0.65	0.18	0.19	0.84	0.71	0.10	0.67	0.97
Control Delay	239.4	36.6	12.3	60.0	33.8	2.0	77.9	25.5	4.1	56.8	43.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	239.4	36.6	12.3	60.0	33.8	2.0	77.9	25.5	4.1	56.8	43.0
LOS	F	D	B	E	C	A	E	C	A	E	D
Approach Delay		126.4			37.4			30.2			44.1
Approach LOS		F			D			C			D

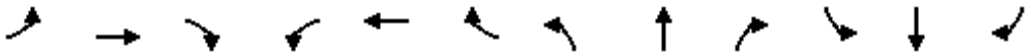
Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 94.3	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.39	
Intersection Signal Delay: 51.7	Intersection LOS: D
Intersection Capacity Utilization 83.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	286	74	225	108	55	64	150	1072	84	136	1298	200
Future Volume (veh/h)	286	74	225	108	55	64	150	1072	84	136	1298	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	301	78	142	114	58	34	158	1128	68	143	1366	199
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	262	197	155	241	181	200	1737	889	187	1501	217
Arrive On Green	0.09	0.14	0.12	0.09	0.13	0.12	0.11	0.49	0.48	0.10	0.48	0.46
Sat Flow, veh/h	1781	1870	1585	1781	1870	1555	1781	3554	1580	1781	3116	450
Grp Volume(v), veh/h	301	78	142	114	58	34	158	1128	68	143	774	791
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1555	1781	1777	1580	1781	1777	1789
Q Serve(g_s), s	8.4	3.3	7.7	5.6	2.5	1.8	7.7	21.2	1.8	7.0	35.6	36.7
Cycle Q Clear(g_c), s	8.4	3.3	7.7	5.6	2.5	1.8	7.7	21.2	1.8	7.0	35.6	36.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	168	262	197	155	241	181	200	1737	889	187	856	862
V/C Ratio(X)	1.79	0.30	0.72	0.74	0.24	0.19	0.79	0.65	0.08	0.77	0.90	0.92
Avail Cap(c_a), veh/h	168	638	516	200	672	539	200	1737	889	256	869	875
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	34.4	37.5	39.7	34.9	35.5	38.5	17.1	8.9	38.8	21.2	21.7
Incr Delay (d2), s/veh	379.5	0.6	4.9	6.5	0.5	0.5	17.6	0.9	0.0	5.6	12.7	14.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.2	1.5	3.2	2.7	1.1	0.7	4.2	7.7	0.6	3.2	15.7	16.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	419.9	35.0	42.5	46.2	35.4	36.0	56.1	17.9	9.0	44.4	33.9	36.1
LnGrp LOS	F	D	D	D	D	D	E	B	A	D	C	D
Approach Vol, veh/h		521			206			1354			1708	
Approach Delay, s/veh		259.4			41.5			21.9			35.8	
Approach LOS		F			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.4	47.6	11.7	16.5	14.0	46.9	12.4	15.8
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	12.2	39.0	9.4	29.0	9.4	41.8	7.8	* 31
Max Q Clear Time (g_c+I1), s	9.0	23.2	7.6	9.7	9.7	38.7	10.4	4.5
Green Ext Time (p_c), s	0.0	6.9	0.0	0.7	0.0	2.4	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	61.9
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	177	92	6	167	0	53	0	12	0	0	0
Future Vol, veh/h	24	177	92	6	167	0	53	0	12	0	0	0
Conflicting Peds, #/hr	0	0	3	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	203	106	7	192	0	61	0	14	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	192	0	0	312	0	0	425	521	158	364	574	96
Stage 1	-	-	-	-	-	-	315	315	-	206	206	-
Stage 2	-	-	-	-	-	-	110	206	-	158	368	-
Critical Hdwy	4.14	-	-	4.14	-	-	5	6.54	5	5	6.54	5
Critical Hdwy Stg 1	-	-	-	-	-	-	5	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1379	-	-	1245	-	-	693	458	936	733	428	992
Stage 1	-	-	-	-	-	-	767	654	-	777	730	-
Stage 2	-	-	-	-	-	-	926	730	-	828	620	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1379	-	-	1241	-	-	677	445	933	708	416	992
Mov Cap-2 Maneuver	-	-	-	-	-	-	705	560	-	712	537	-
Stage 1	-	-	-	-	-	-	749	639	-	761	726	-
Stage 2	-	-	-	-	-	-	921	726	-	799	606	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.3	10.4	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	738	1379	-	-	1241	-	-	-
HCM Lane V/C Ratio	0.101	0.02	-	-	0.006	-	-	-
HCM Control Delay (s)	10.4	7.7	-	-	7.9	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	177	92	6	167	0	53	0	12	0	0	0
Future Vol, veh/h	24	177	92	6	167	0	53	0	12	0	0	0
Conflicting Peds, #/hr	0	0	3	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	203	106	7	192	0	61	0	14	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	192	0	0	312	0	0	521	521	259	525	574	192
Stage 1	-	-	-	-	-	-	315	315	-	206	206	-
Stage 2	-	-	-	-	-	-	206	206	-	319	368	-
Critical Hdwy	4.12	-	-	4.12	-	-	5	6.52	5	5	6.52	5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1381	-	-	1248	-	-	633	460	851	631	429	907
Stage 1	-	-	-	-	-	-	696	656	-	796	731	-
Stage 2	-	-	-	-	-	-	796	731	-	693	621	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1381	-	-	1244	-	-	619	447	849	608	417	907
Mov Cap-2 Maneuver	-	-	-	-	-	-	639	562	-	624	538	-
Stage 1	-	-	-	-	-	-	680	641	-	780	727	-
Stage 2	-	-	-	-	-	-	792	727	-	668	607	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.3	11	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	670	1381	-	-	1244	-	-	-
HCM Lane V/C Ratio	0.112	0.02	-	-	0.006	-	-	-
HCM Control Delay (s)	11	7.7	-	-	7.9	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↑		↰	↑	
Traffic Vol, veh/h	7	0	9	0	0	0	2	132	0	1	164	15
Future Vol, veh/h	7	0	9	0	0	0	2	132	0	1	164	15
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	2	0	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	0	11	0	0	0	2	163	0	1	202	19

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	387	389	219	389	398	165	227	0	0	165	0	0
Stage 1	220	220	-	169	169	-	-	-	-	-	-	-
Stage 2	167	169	-	220	229	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	572	546	821	570	540	879	1341	-	-	1413	-	-
Stage 1	782	721	-	833	759	-	-	-	-	-	-	-
Stage 2	835	759	-	782	715	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	568	540	816	560	534	877	1333	-	-	1410	-	-
Mov Cap-2 Maneuver	625	581	-	619	577	-	-	-	-	-	-	-
Stage 1	777	716	-	831	756	-	-	-	-	-	-	-
Stage 2	834	756	-	770	710	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	0	0.1	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1333	-	-	720	-	1410	-	-
HCM Lane V/C Ratio	0.002	-	-	0.027	-	0.001	-	-
HCM Control Delay (s)	7.7	-	-	10.1	0	7.6	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

APPENDIX 7.2:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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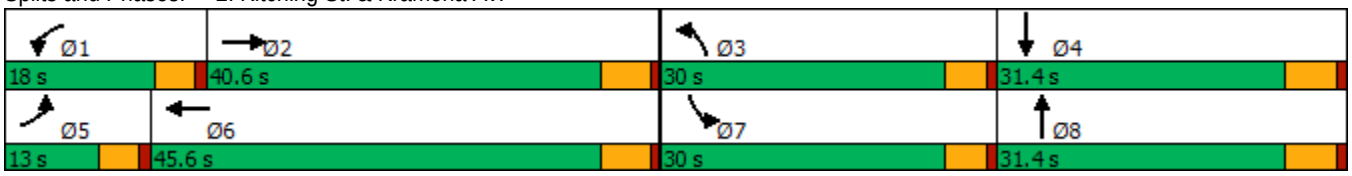
Timings
2: Kitching St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	102	643	196	754	264	505	336	600
Future Volume (vph)	102	643	196	754	264	505	336	600
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	28.4	9.6	31.4	9.6	28.8	9.6	29.8
Total Split (s)	13.0	40.6	18.0	45.6	30.0	31.4	30.0	31.4
Total Split (%)	10.8%	33.8%	15.0%	38.0%	25.0%	26.2%	25.0%	26.2%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.4	-0.6	-1.8	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min

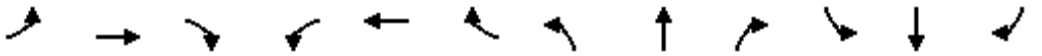
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 118.6
Natural Cycle: 105
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kitching St. & Krameria Av.



HCM 6th Signalized Intersection Summary
2: Kitching St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	643	254	196	754	241	264	505	275	336	600	122
Future Volume (veh/h)	102	643	254	196	754	241	264	505	275	336	600	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	731	158	223	857	110	300	574	171	382	682	53
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	841	182	214	1063	136	334	646	192	398	925	72
Arrive On Green	0.10	0.36	0.34	0.15	0.41	0.39	0.23	0.29	0.27	0.28	0.34	0.32
Sat Flow, veh/h	1781	2958	639	1781	3247	417	1781	2756	818	1781	3418	265
Grp Volume(v), veh/h	116	462	427	223	494	473	300	389	356	382	373	362
Grp Sat Flow(s),veh/h/ln	1781	1870	1727	1781	1870	1793	1781	1870	1704	1781	1870	1813
Q Serve(g_s), s	7.4	26.8	26.9	14.0	27.1	27.1	19.0	23.1	23.3	24.6	20.4	20.5
Cycle Q Clear(g_c), s	7.4	26.8	26.9	14.0	27.1	27.1	19.0	23.1	23.3	24.6	20.4	20.5
Prop In Lane	1.00		0.37	1.00		0.23	1.00		0.48	1.00		0.15
Lane Grp Cap(c), veh/h	138	532	491	214	612	587	334	438	399	398	506	490
V/C Ratio(X)	0.84	0.87	0.87	1.04	0.81	0.81	0.90	0.89	0.89	0.96	0.74	0.74
Avail Cap(c_a), veh/h	138	589	543	214	669	641	398	441	401	398	506	490
HCM Platoon Ratio	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.8	35.5	35.8	49.4	31.1	31.3	43.5	39.7	40.3	41.4	34.9	35.0
Incr Delay (d2), s/veh	33.5	12.3	13.2	72.4	6.7	7.0	18.6	19.2	21.3	34.3	5.6	5.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	12.9	12.2	10.2	12.1	11.7	9.4	12.0	11.3	13.6	9.2	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.3	47.8	49.1	121.8	37.8	38.3	62.1	58.9	61.6	75.7	40.5	40.9
LnGrp LOS	F	D	D	F	D	D	E	E	E	E	D	D
Approach Vol, veh/h		1005			1190			1045			1117	
Approach Delay, s/veh		52.7			53.7			60.7			52.6	
Approach LOS		D			D			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	37.1	25.8	35.5	13.0	42.1	30.0	31.2
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	13.4	35.2	25.4	25.6	8.4	40.2	25.4	25.6
Max Q Clear Time (g_c+I1), s	16.0	28.9	21.0	22.5	9.4	29.1	26.6	25.3
Green Ext Time (p_c), s	0.0	2.8	0.2	1.2	0.0	4.4	0.0	0.1

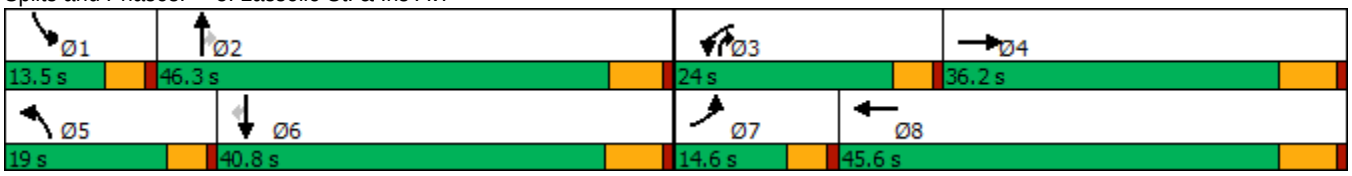
Intersection Summary	
HCM 6th Ctrl Delay	54.9
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	184	681	689	908	492	808	657	303	826	156
Future Volume (vph)	184	681	689	908	492	808	657	303	826	156
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	3	1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	3	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	36.2	9.6	36.2	9.6	41.8	9.6	9.6	40.2	40.2
Total Split (s)	14.6	36.2	24.0	45.6	19.0	46.3	24.0	13.5	40.8	40.8
Total Split (%)	12.2%	30.2%	20.0%	38.0%	15.8%	38.6%	20.0%	11.3%	34.0%	34.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.8	3.6	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.2	-0.6	-2.2	-0.6	-1.8	-0.6	-0.6	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min	Min

Intersection Summary

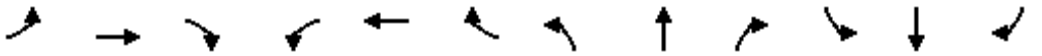
Cycle Length: 120
Actuated Cycle Length: 119.1
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Lasselle St. & Iris Av.



HCM 6th Signalized Intersection Summary
3: Lasselle St. & Iris Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	184	681	434	689	908	178	492	808	657	303	826	156
Future Volume (veh/h)	184	681	434	689	908	178	492	808	657	303	826	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	207	765	340	774	1020	157	553	908	509	340	928	115
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	279	920	405	586	1576	242	439	1229	790	278	1076	457
Arrive On Green	0.08	0.27	0.25	0.17	0.35	0.34	0.13	0.35	0.34	0.08	0.30	0.30
Sat Flow, veh/h	3456	3467	1528	3456	4455	684	3456	3554	1552	3456	3554	1510
Grp Volume(v), veh/h	207	751	354	774	779	398	553	908	509	340	928	115
Grp Sat Flow(s),veh/h/ln	1728	1702	1591	1728	1702	1735	1728	1777	1552	1728	1777	1510
Q Serve(g_s), s	6.9	24.5	24.9	20.0	22.6	22.8	15.0	26.5	28.5	9.5	29.1	6.8
Cycle Q Clear(g_c), s	6.9	24.5	24.9	20.0	22.6	22.8	15.0	26.5	28.5	9.5	29.1	6.8
Prop In Lane	1.00		0.96	1.00		0.39	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	279	903	422	586	1205	614	439	1229	790	278	1076	457
V/C Ratio(X)	0.74	0.83	0.84	1.32	0.65	0.65	1.26	0.74	0.64	1.22	0.86	0.25
Avail Cap(c_a), veh/h	310	929	434	586	1205	614	439	1273	809	278	1108	471
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.0	40.9	42.0	49.0	32.0	32.4	51.5	33.9	21.5	54.3	38.8	31.1
Incr Delay (d2), s/veh	6.7	6.4	13.3	156.5	1.2	2.4	134.0	2.2	1.7	127.9	7.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	10.6	11.0	21.0	9.0	9.5	14.5	11.3	9.8	8.9	13.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.8	47.2	55.4	205.6	33.2	34.8	185.5	36.2	23.2	182.2	45.9	31.4
LnGrp LOS	E	D	E	F	C	C	F	D	C	F	D	C
Approach Vol, veh/h		1312			1951			1970			1383	
Approach Delay, s/veh		51.4			101.9			74.7			78.2	
Approach LOS		D			F			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	45.2	24.0	35.3	19.0	39.7	13.5	45.8
Change Period (Y+Rc), s	4.6	* 6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	8.9	* 41	19.4	30.0	14.4	34.6	10.0	39.4
Max Q Clear Time (g_c+I1), s	11.5	30.5	22.0	26.9	17.0	31.1	8.9	24.8
Green Ext Time (p_c), s	0.0	5.4	0.0	1.8	0.0	1.9	0.0	6.1

Intersection Summary	
HCM 6th Ctrl Delay	78.8
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	107	1593	182	0	1201
Future Vol, veh/h	0	107	1593	182	0	1201
Conflicting Peds, #/hr	0	0	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	140	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	122	1810	207	0	1365

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	908	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.6	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	303	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	302	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	302	-
HCM Lane V/C Ratio	-	-	0.403	-
HCM Control Delay (s)	-	-	24.7	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	1.9	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	37	1821	27	0	1452
Future Vol, veh/h	0	37	1821	27	0	1452
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	40	1979	29	0	1578

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1004	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	240	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	240	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23	0	0
HCM LOS	C		

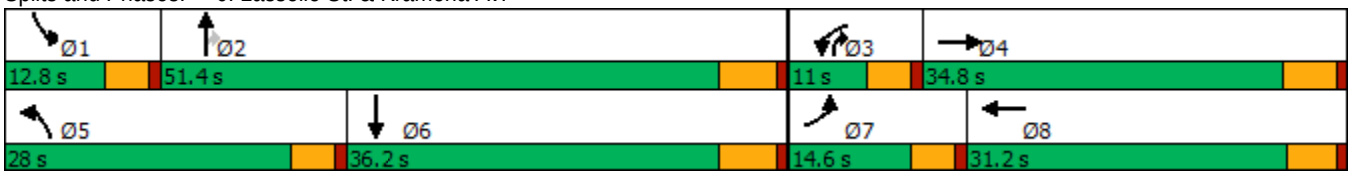
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	240	-
HCM Lane V/C Ratio	-	-	0.168	-
HCM Control Delay (s)	-	-	23	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.6	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	337	366	172	248	391	1293	288	232	971
Future Volume (vph)	337	366	172	248	391	1293	288	232	971
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	9.6	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	14.6	34.8	11.0	31.2	28.0	51.4	11.0	12.8	36.2
Total Split (%)	13.3%	31.6%	10.0%	28.4%	25.5%	46.7%	10.0%	11.6%	32.9%
Yellow Time (s)	3.6	4.4	3.6	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.1	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 107.7
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	337	366	403	172	248	107	391	1293	288	232	971	187
Future Volume (veh/h)	337	366	403	172	248	107	391	1293	288	232	971	187
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	392	426	293	200	288	97	455	1503	250	270	1129	190
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	343	518	353	117	578	190	401	1580	781	147	916	154
Arrive On Green	0.10	0.26	0.24	0.07	0.22	0.21	0.23	0.44	0.43	0.08	0.30	0.29
Sat Flow, veh/h	3456	2013	1373	1781	2617	862	1781	3554	1562	1781	3034	508
Grp Volume(v), veh/h	392	376	343	200	193	192	455	1503	250	270	659	660
Grp Sat Flow(s),veh/h/ln	1728	1777	1609	1781	1777	1702	1781	1777	1562	1781	1777	1765
Q Serve(g_s), s	10.6	21.2	21.6	7.0	10.2	10.6	24.0	43.4	10.2	8.8	32.2	32.2
Cycle Q Clear(g_c), s	10.6	21.2	21.6	7.0	10.2	10.6	24.0	43.4	10.2	8.8	32.2	32.2
Prop In Lane	1.00		0.85	1.00		0.51	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	343	457	414	117	392	376	401	1580	781	147	537	533
V/C Ratio(X)	1.14	0.82	0.83	1.71	0.49	0.51	1.13	0.95	0.32	1.84	1.23	1.24
Avail Cap(c_a), veh/h	343	513	465	117	453	434	401	1580	781	147	537	533
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	37.3	38.0	49.8	36.3	36.7	41.3	28.5	15.9	48.9	37.2	37.5
Incr Delay (d2), s/veh	92.6	9.4	10.9	353.3	1.0	1.1	87.1	13.0	0.2	401.8	118.6	122.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	10.1	9.5	14.5	4.4	4.5	19.7	19.6	3.5	20.2	30.8	31.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	140.6	46.7	48.9	403.1	37.3	37.8	128.4	41.5	16.2	450.7	155.9	159.8
LnGrp LOS	F	D	D	F	D	D	F	D	B	F	F	F
Approach Vol, veh/h		1111			585			2208			1589	
Approach Delay, s/veh		80.5			162.5			56.5			207.6	
Approach LOS		F			F			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	51.4	11.0	31.4	28.0	36.2	14.6	27.8
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	8.2	45.6	6.4	29.4	23.4	30.4	10.0	* 26
Max Q Clear Time (g_c+I1), s	10.8	45.4	9.0	23.6	26.0	34.2	12.6	12.6
Green Ext Time (p_c), s	0.0	0.2	0.0	2.2	0.0	0.0	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	116.4
HCM 6th LOS	F

Notes

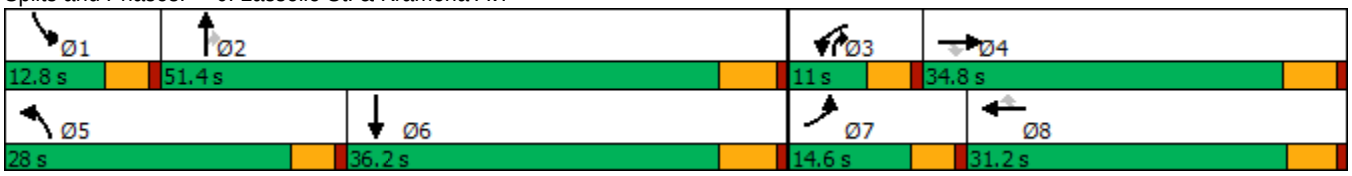
User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	427	324	447	156	222	107	457	1314	288	167	971
Future Volume (vph)	427	324	447	156	222	107	457	1314	288	167	971
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	34.4	9.6	31.1	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	14.6	34.8	34.8	11.0	31.2	31.2	28.0	51.4	11.0	12.8	36.2
Total Split (%)	13.3%	31.6%	31.6%	10.0%	28.4%	28.4%	25.5%	46.7%	10.0%	11.6%	32.9%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.1	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.1	0.0	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	5.4	4.0	4.0	5.1	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min

Intersection Summary

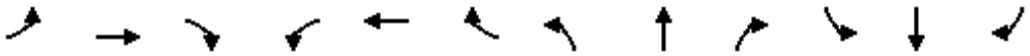
Cycle Length: 110
Actuated Cycle Length: 106.8
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	427	324	447	156	222	107	457	1314	288	167	971	315
Future Volume (veh/h)	427	324	447	156	222	107	457	1314	288	167	971	315
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	497	377	344	181	258	97	531	1528	250	194	1129	339
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	486	388	117	418	334	399	1574	771	146	806	238
Arrive On Green	0.10	0.26	0.25	0.07	0.22	0.21	0.22	0.44	0.43	0.08	0.30	0.28
Sat Flow, veh/h	1781	1870	1572	1781	1870	1564	1781	3554	1547	1781	2678	791
Grp Volume(v), veh/h	497	377	344	181	258	97	531	1528	250	194	743	725
Grp Sat Flow(s),veh/h/ln	1781	1870	1572	1781	1870	1564	1781	1777	1547	1781	1777	1692
Q Serve(g_s), s	10.6	20.0	22.6	7.0	13.3	5.6	24.0	45.0	10.4	8.8	32.2	32.2
Cycle Q Clear(g_c), s	10.6	20.0	22.6	7.0	13.3	5.6	24.0	45.0	10.4	8.8	32.2	32.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	176	486	388	117	418	334	399	1574	771	146	535	509
V/C Ratio(X)	2.82	0.78	0.89	1.55	0.62	0.29	1.33	0.97	0.32	1.32	1.39	1.42
Avail Cap(c_a), veh/h	176	538	432	117	475	382	399	1574	771	146	535	509
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.2	36.7	38.9	50.0	37.4	35.3	41.5	29.1	16.1	49.1	37.4	37.8
Incr Delay (d2), s/veh	833.2	6.4	18.2	286.8	1.9	0.5	164.6	16.2	0.2	185.5	186.5	202.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	45.4	9.7	10.4	12.4	6.2	2.1	28.3	21.0	3.6	11.3	40.9	41.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	881.4	43.1	57.1	336.8	39.4	35.8	206.1	45.4	16.4	234.6	224.0	240.1
LnGrp LOS	F	D	E	F	D	D	F	D	B	F	F	F
Approach Vol, veh/h		1218			536			2309			1662	
Approach Delay, s/veh		389.1			139.2			79.2			232.3	
Approach LOS		F			F			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	51.4	11.0	31.8	28.0	36.2	14.6	28.2
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	8.2	45.6	6.4	29.4	23.4	30.4	10.0	* 26
Max Q Clear Time (g_c+I1), s	10.8	47.0	9.0	24.6	26.0	34.2	12.6	15.3
Green Ext Time (p_c), s	0.0	0.0	0.0	1.6	0.0	0.0	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	195.2
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	193	637	56	58	343	8	75	2	96	8	2	109
Future Vol, veh/h	193	637	56	58	343	8	75	2	96	8	2	109
Conflicting Peds, #/hr	0	0	2	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	251	827	73	75	445	10	97	3	125	10	3	142

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	455	0	0	902	0	0	1742	1973	452	1517	2004	228
Stage 1	-	-	-	-	-	-	1368	1368	-	600	600	-
Stage 2	-	-	-	-	-	-	374	605	-	917	1404	-
Critical Hdwy	4.14	-	-	4.14	-	-	4	6.54	5	5	6.54	5
Critical Hdwy Stg 1	-	-	-	-	-	-	4	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	4	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1102	-	-	749	-	-	307	62	708	239	59	876
Stage 1	-	-	-	-	-	-	406	213	-	455	488	-
Stage 2	-	-	-	-	-	-	806	486	-	293	204	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1102	-	-	748	-	-	192	43	707	148	41	876
Mov Cap-2 Maneuver	-	-	-	-	-	-	269	124	-	104	77	-
Stage 1	-	-	-	-	-	-	313	164	-	351	439	-
Stage 2	-	-	-	-	-	-	604	437	-	183	157	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	1.5	24.7	14.7
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	402	1102	-	-	748	-	-	523
HCM Lane V/C Ratio	0.559	0.227	-	-	0.101	-	-	0.295
HCM Control Delay (s)	24.7	9.2	-	-	10.4	-	-	14.7
HCM Lane LOS	C	A	-	-	B	-	-	B
HCM 95th %tile Q(veh)	3.3	0.9	-	-	0.3	-	-	1.2

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	88	635	56	58	363	3	75	1	96	4	1	47
Future Vol, veh/h	88	635	56	58	363	3	75	1	96	4	1	47
Conflicting Peds, #/hr	0	0	2	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	114	825	73	75	471	4	97	1	125	5	1	61

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	475	0	0	900	0	0	1746	1717	864	1776	1751	473
Stage 1	-	-	-	-	-	-	1092	1092	-	623	623	-
Stage 2	-	-	-	-	-	-	654	625	-	1153	1128	-
Critical Hdwy	4.12	-	-	4.12	-	-	5	6.52	5	5	6.52	5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1087	-	-	755	-	-	189	90	474	183	86	694
Stage 1	-	-	-	-	-	-	260	291	-	474	478	-
Stage 2	-	-	-	-	-	-	456	477	-	240	279	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1087	-	-	754	-	-	146	72	473	114	69	694
Mov Cap-2 Maneuver	-	-	-	-	-	-	200	202	-	78	159	-
Stage 1	-	-	-	-	-	-	232	260	-	424	431	-
Stage 2	-	-	-	-	-	-	373	430	-	157	249	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	1.4	47.1	15.4
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	295	1087	-	-	754	-	-	415
HCM Lane V/C Ratio	0.757	0.105	-	-	0.1	-	-	0.163
HCM Control Delay (s)	47.1	8.7	-	-	10.3	-	-	15.4
HCM Lane LOS	E	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	5.7	0.4	-	-	0.3	-	-	0.6

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	8	0	18	10	1	7	23	685	17	6	387	0
Future Vol, veh/h	8	0	18	10	1	7	23	685	17	6	387	0
Conflicting Peds, #/hr	0	0	0	0	0	69	0	0	21	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	0	25	14	1	10	32	951	24	8	538	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1656	1614	538	1615	1602	1053	538	0	0	996	0	0
Stage 1	554	554	-	1048	1048	-	-	-	-	-	-	-
Stage 2	1102	1060	-	567	554	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	78	104	543	83	106	275	1030	-	-	695	-	-
Stage 1	517	514	-	275	305	-	-	-	-	-	-	-
Stage 2	257	301	-	508	514	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	67	98	543	75	99	252	1030	-	-	681	-	-
Mov Cap-2 Maneuver	162	204	-	182	206	-	-	-	-	-	-	-
Stage 1	501	508	-	261	290	-	-	-	-	-	-	-
Stage 2	223	286	-	479	508	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.9	24.9	0.3	0.2
HCM LOS	C	C		

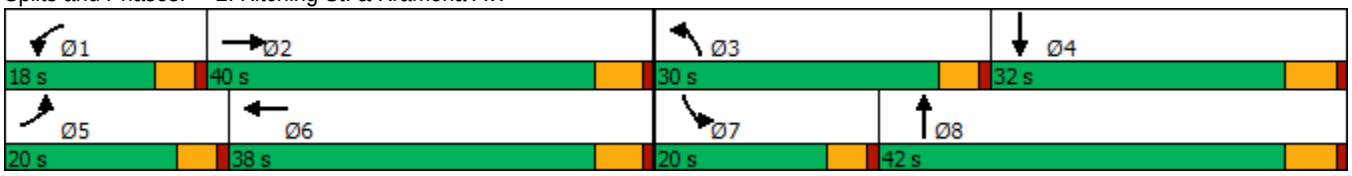
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1030	-	-	315	206	681	-	-
HCM Lane V/C Ratio	0.031	-	-	0.115	0.121	0.012	-	-
HCM Control Delay (s)	8.6	-	-	17.9	24.9	10.4	-	-
HCM Lane LOS	A	-	-	C	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.4	0	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	116	461	100	423	222	646	118	441
Future Volume (vph)	116	461	100	423	222	646	118	441
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	28.4	9.6	31.4	9.6	28.8	9.6	29.8
Total Split (s)	20.0	40.0	18.0	38.0	30.0	42.0	20.0	32.0
Total Split (%)	16.7%	33.3%	15.0%	31.7%	25.0%	35.0%	16.7%	26.7%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.4	-0.6	-1.8	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min

Intersection Summary

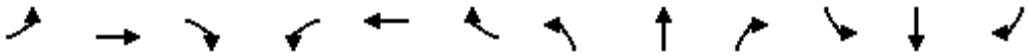
Cycle Length: 120
Actuated Cycle Length: 91
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kitching St. & Krameria Av.



HCM 6th Signalized Intersection Summary
2: Kitching St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	461	268	100	423	116	222	646	128	118	441	120
Future Volume (veh/h)	116	461	268	100	423	116	222	646	128	118	441	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	475	270	103	436	102	229	666	126	122	455	88
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	666	376	146	840	195	287	940	178	169	734	141
Arrive On Green	0.09	0.30	0.28	0.08	0.29	0.27	0.16	0.31	0.28	0.10	0.24	0.22
Sat Flow, veh/h	1781	2231	1260	1781	2928	679	1781	3058	578	1781	3039	583
Grp Volume(v), veh/h	120	398	347	103	277	261	229	407	385	122	279	264
Grp Sat Flow(s),veh/h/ln	1781	1870	1621	1781	1870	1736	1781	1870	1766	1781	1870	1751
Q Serve(g_s), s	4.8	14.0	14.2	4.2	9.2	9.4	9.1	14.2	14.3	4.9	9.8	10.0
Cycle Q Clear(g_c), s	4.8	14.0	14.2	4.2	9.2	9.4	9.1	14.2	14.3	4.9	9.8	10.0
Prop In Lane	1.00		0.78	1.00		0.39	1.00		0.33	1.00		0.33
Lane Grp Cap(c), veh/h	167	558	484	146	537	498	287	575	543	169	452	423
V/C Ratio(X)	0.72	0.71	0.72	0.70	0.52	0.52	0.80	0.71	0.71	0.72	0.62	0.62
Avail Cap(c_a), veh/h	386	912	790	338	861	799	627	963	909	386	709	664
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	23.1	23.6	33.0	22.0	22.3	29.8	22.6	22.9	32.5	25.0	25.3
Incr Delay (d2), s/veh	2.2	1.7	2.0	2.3	0.8	0.9	2.0	1.6	1.7	2.2	1.4	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	5.8	5.3	1.8	3.8	3.6	3.7	5.8	5.6	2.1	4.1	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	24.8	25.6	35.3	22.8	23.2	31.8	24.2	24.6	34.6	26.3	26.8
LnGrp LOS	C	C	C	D	C	C	C	C	C	C	C	C
Approach Vol, veh/h		865			641			1021			665	
Approach Delay, s/veh		26.5			25.0			26.1			28.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	26.0	15.9	21.8	10.9	25.2	11.0	26.7
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	13.4	34.6	25.4	26.2	15.4	32.6	15.4	36.2
Max Q Clear Time (g_c+I1), s	6.2	16.2	11.1	12.0	6.8	11.4	6.9	16.3
Green Ext Time (p_c), s	0.1	4.3	0.2	2.5	0.1	3.0	0.1	4.4

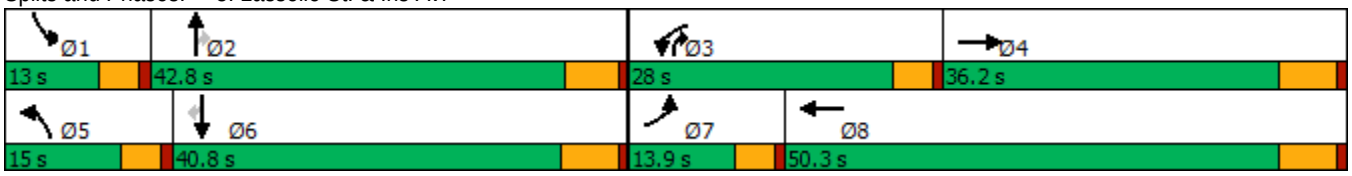
Intersection Summary	
HCM 6th Ctrl Delay	26.4
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	259	757	812	988	338	760	560	322	920	146
Future Volume (vph)	259	757	812	988	338	760	560	322	920	146
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	3	1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	3	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	36.2	9.6	36.2	9.6	41.8	9.6	9.6	40.2	40.2
Total Split (s)	13.9	36.2	28.0	50.3	15.0	42.8	28.0	13.0	40.8	40.8
Total Split (%)	11.6%	30.2%	23.3%	41.9%	12.5%	35.7%	23.3%	10.8%	34.0%	34.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.8	3.6	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.2	-0.6	-2.2	-0.6	-1.8	-0.6	-0.6	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min	Min

Intersection Summary

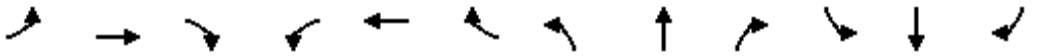
Cycle Length: 120
Actuated Cycle Length: 119.5
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Lasselle St. & Iris Av.



HCM 6th Signalized Intersection Summary
3: Lasselle St. & Iris Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	259	757	426	812	988	298	338	760	560	322	920	146
Future Volume (veh/h)	259	757	426	812	988	298	338	760	560	322	920	146
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.95	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	273	797	361	855	1040	286	356	800	386	339	968	102
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	287	919	414	696	1521	418	319	1127	788	261	1079	465
Arrive On Green	0.08	0.27	0.25	0.20	0.39	0.37	0.09	0.32	0.31	0.08	0.30	0.30
Sat Flow, veh/h	3456	3424	1540	3456	3933	1081	3456	3554	1527	3456	3554	1531
Grp Volume(v), veh/h	273	792	366	855	900	426	356	800	386	339	968	102
Grp Sat Flow(s),veh/h/ln	1728	1702	1560	1728	1702	1610	1728	1777	1527	1728	1777	1531
Q Serve(g_s), s	9.4	26.5	26.8	24.0	26.3	26.5	11.0	23.7	19.8	9.0	31.1	5.9
Cycle Q Clear(g_c), s	9.4	26.5	26.8	24.0	26.3	26.5	11.0	23.7	19.8	9.0	31.1	5.9
Prop In Lane	1.00		0.99	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	914	419	696	1317	623	319	1127	788	261	1079	465
V/C Ratio(X)	0.95	0.87	0.87	1.23	0.68	0.68	1.12	0.71	0.49	1.30	0.90	0.22
Avail Cap(c_a), veh/h	287	919	421	696	1322	625	319	1156	801	261	1097	472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.4	41.6	42.7	47.6	30.5	31.2	54.1	35.9	19.3	55.1	39.7	31.0
Incr Delay (d2), s/veh	39.7	8.8	17.9	115.6	1.5	3.1	85.7	2.0	0.5	160.1	9.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	11.7	12.0	21.0	10.4	10.3	8.4	10.1	6.6	9.6	14.3	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	94.2	50.3	60.6	163.2	31.9	34.2	139.8	37.9	19.8	215.2	49.5	31.2
LnGrp LOS	F	D	E	F	C	C	F	D	B	F	D	C
Approach Vol, veh/h		1431			2181			1542			1409	
Approach Delay, s/veh		61.3			83.8			56.9			88.0	
Approach LOS		E			F			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	42.2	28.0	36.0	15.0	40.2	13.9	50.1
Change Period (Y+Rc), s	4.6	* 6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	8.4	* 37	23.4	30.0	10.4	34.6	9.3	44.1
Max Q Clear Time (g_c+I1), s	11.0	25.7	26.0	28.8	13.0	33.1	11.4	28.5
Green Ext Time (p_c), s	0.0	5.0	0.0	0.8	0.0	0.9	0.0	7.3

Intersection Summary	
HCM 6th Ctrl Delay	73.5
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	138	1109	91	0	1566
Future Vol, veh/h	0	138	1109	91	0	1566
Conflicting Peds, #/hr	0	0	0	2	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	140	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	142	1143	94	0	1614

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	574	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	462	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	461	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	461	-
HCM Lane V/C Ratio	-	-	0.309	-
HCM Control Delay (s)	-	-	16.3	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	1.3	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	54	1397	57	0	1675
Future Vol, veh/h	0	54	1397	57	0	1675
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	59	1518	62	0	1821

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	790	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	333	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	333	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.1	0	0
HCM LOS	C		

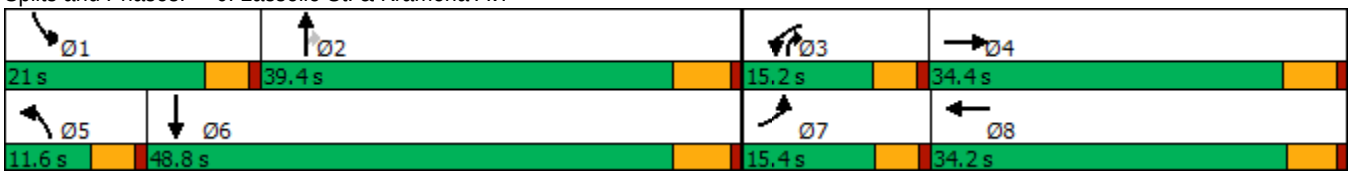
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	333	-
HCM Lane V/C Ratio	-	-	0.176	-
HCM Control Delay (s)	-	-	18.1	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.6	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	189	149	173	146	102	1109	84	272	1270
Future Volume (vph)	189	149	173	146	102	1109	84	272	1270
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	9.6	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	15.4	34.4	15.2	34.2	11.6	39.4	15.2	21.0	48.8
Total Split (%)	14.0%	31.3%	13.8%	31.1%	10.5%	35.8%	13.8%	19.1%	44.4%
Yellow Time (s)	3.6	4.4	3.6	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	-0.6	-1.1	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	None	Min

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 95.4
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	189	149	181	173	146	64	102	1109	84	272	1270	69
Future Volume (veh/h)	189	149	181	173	146	64	102	1109	84	272	1270	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	157	96	182	154	34	107	1167	68	286	1337	61
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	296	288	166	223	490	105	146	1344	775	330	1665	76
Arrive On Green	0.09	0.13	0.12	0.13	0.17	0.16	0.08	0.38	0.36	0.19	0.48	0.46
Sat Flow, veh/h	3456	2168	1254	1781	2899	623	1781	3554	1581	1781	3461	158
Grp Volume(v), veh/h	199	127	126	182	93	95	107	1167	68	286	685	713
Grp Sat Flow(s),veh/h/ln	1728	1777	1645	1781	1777	1745	1781	1777	1581	1781	1777	1842
Q Serve(g_s), s	5.0	6.0	6.5	8.9	4.1	4.3	5.2	27.2	2.1	13.9	29.1	29.3
Cycle Q Clear(g_c), s	5.0	6.0	6.5	8.9	4.1	4.3	5.2	27.2	2.1	13.9	29.1	29.3
Prop In Lane	1.00		0.76	1.00		0.36	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	296	236	218	223	300	295	146	1344	775	330	855	886
V/C Ratio(X)	0.67	0.54	0.58	0.82	0.31	0.32	0.73	0.87	0.09	0.87	0.80	0.80
Avail Cap(c_a), veh/h	440	604	559	223	600	589	151	1406	803	339	890	922
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	36.2	36.9	38.1	32.6	32.9	40.1	25.8	12.2	35.4	19.6	19.7
Incr Delay (d2), s/veh	1.0	1.9	2.4	19.2	0.6	0.6	13.9	5.9	0.0	19.3	5.2	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	2.6	2.7	5.0	1.8	1.8	2.8	11.4	0.7	7.4	11.6	12.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.7	38.1	39.3	57.3	33.2	33.5	54.0	31.7	12.2	54.7	24.8	24.8
LnGrp LOS	D	D	D	E	C	C	D	C	B	D	C	C
Approach Vol, veh/h		452			370			1342			1684	
Approach Delay, s/veh		39.6			45.1			32.5			29.9	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.6	37.8	15.2	15.9	11.3	47.0	11.7	19.4
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	16.4	33.6	10.6	29.0	7.0	43.0	10.8	* 29
Max Q Clear Time (g_c+I1), s	15.9	29.2	10.9	8.5	7.2	31.3	7.0	6.3
Green Ext Time (p_c), s	0.0	2.8	0.0	1.3	0.0	6.6	0.1	1.0

Intersection Summary	
HCM 6th Ctrl Delay	33.4
HCM 6th LOS	C

Notes

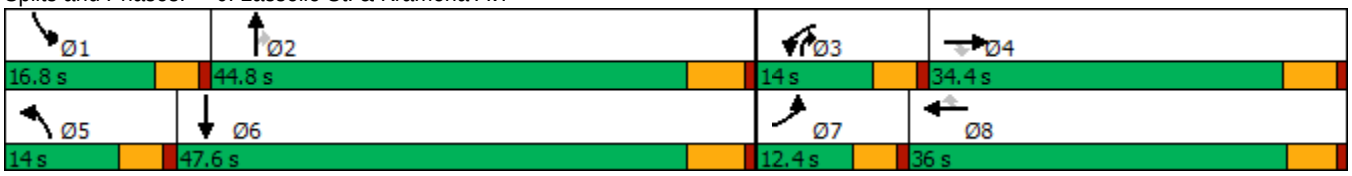
User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	296	89	225	126	77	64	150	1094	84	177	1298
Future Volume (vph)	296	89	225	126	77	64	150	1094	84	177	1298
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	34.4	9.6	31.1	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	12.4	34.4	34.4	14.0	36.0	36.0	14.0	44.8	14.0	16.8	47.6
Total Split (%)	11.3%	31.3%	31.3%	12.7%	32.7%	32.7%	12.7%	40.7%	12.7%	15.3%	43.3%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.1	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.1	0.0	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	5.4	4.0	4.0	5.1	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min

Intersection Summary

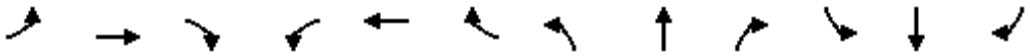
Cycle Length: 110
Actuated Cycle Length: 94.8
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	296	89	225	126	77	64	150	1094	84	177	1298	200
Future Volume (veh/h)	296	89	225	126	77	64	150	1094	84	177	1298	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	312	94	142	133	81	34	158	1152	68	186	1366	199
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	258	194	175	263	200	197	1626	858	230	1485	214
Arrive On Green	0.09	0.14	0.12	0.10	0.14	0.13	0.11	0.46	0.44	0.13	0.48	0.46
Sat Flow, veh/h	1781	1870	1585	1781	1870	1556	1781	3554	1580	1781	3116	450
Grp Volume(v), veh/h	312	94	142	133	81	34	158	1152	68	186	774	791
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1556	1781	1777	1580	1781	1777	1789
Q Serve(g_s), s	8.4	4.1	7.8	6.6	3.5	1.8	7.8	23.6	1.9	9.2	36.6	37.7
Cycle Q Clear(g_c), s	8.4	4.1	7.8	6.6	3.5	1.8	7.8	23.6	1.9	9.2	36.6	37.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	165	258	194	175	263	200	197	1626	858	230	847	853
V/C Ratio(X)	1.89	0.36	0.73	0.76	0.31	0.17	0.80	0.71	0.08	0.81	0.91	0.93
Avail Cap(c_a), veh/h	165	628	507	197	661	531	197	1626	858	252	855	861
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.1	35.4	38.3	39.8	35.0	35.2	39.3	19.7	9.9	38.3	22.0	22.5
Incr Delay (d2), s/veh	421.9	0.9	5.2	11.9	0.7	0.4	19.6	1.4	0.0	14.6	14.0	16.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.9	1.9	3.2	3.4	1.6	0.7	4.3	8.9	0.6	4.7	16.5	17.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	463.0	36.3	43.5	51.7	35.6	35.6	58.9	21.2	9.9	52.9	36.0	38.5
LnGrp LOS	F	D	D	D	D	D	E	C	A	D	D	D
Approach Vol, veh/h		548			248			1378			1751	
Approach Delay, s/veh		281.1			44.2			24.9			38.9	
Approach LOS		F			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.7	45.5	12.9	16.5	14.0	47.2	12.4	17.0
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	12.2	39.0	9.4	29.0	9.4	41.8	7.8	* 31
Max Q Clear Time (g_c+I1), s	11.2	25.6	8.6	9.8	9.8	39.7	10.4	5.5
Green Ext Time (p_c), s	0.0	6.4	0.0	0.8	0.0	1.7	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	68.2
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	216	194	92	6	158	8	53	2	12	17	2	166
Future Vol, veh/h	216	194	92	6	158	8	53	2	12	17	2	166
Conflicting Peds, #/hr	0	0	3	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	248	223	106	7	182	9	61	2	14	20	2	191

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	191	0	0	332	0	0	881	980	168	810	1029	96
Stage 1	-	-	-	-	-	-	775	775	-	201	201	-
Stage 2	-	-	-	-	-	-	106	205	-	609	828	-
Critical Hdwy	4.14	-	-	4.14	-	-	5	6.54	5	5	6.54	5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1380	-	-	1224	-	-	449	248	927	481	232	992
Stage 1	-	-	-	-	-	-	357	406	-	782	734	-
Stage 2	-	-	-	-	-	-	888	731	-	449	384	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1380	-	-	1221	-	-	308	202	924	405	189	992
Mov Cap-2 Maneuver	-	-	-	-	-	-	277	299	-	338	287	-
Stage 1	-	-	-	-	-	-	292	332	-	641	730	-
Stage 2	-	-	-	-	-	-	711	727	-	360	314	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.5	0.3	19.9	10.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	318	1380	-	-	1221	-	-	824
HCM Lane V/C Ratio	0.242	0.18	-	-	0.006	-	-	0.258
HCM Control Delay (s)	19.9	8.2	-	-	8	-	-	10.9
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.9	0.7	-	-	0	-	-	1

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	71	185	92	6	170	1	53	0	12	3	1	37
Future Vol, veh/h	71	185	92	6	170	1	53	0	12	3	1	37
Conflicting Peds, #/hr	0	0	3	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	213	106	7	195	1	61	0	14	3	1	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	196	0	0	322	0	0	665	643	269	647	696	196
Stage 1	-	-	-	-	-	-	433	433	-	210	210	-
Stage 2	-	-	-	-	-	-	232	210	-	437	486	-
Critical Hdwy	4.12	-	-	4.12	-	-	5	6.52	5	5	6.52	5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1377	-	-	1238	-	-	553	392	843	562	365	903
Stage 1	-	-	-	-	-	-	601	582	-	792	728	-
Stage 2	-	-	-	-	-	-	771	728	-	598	551	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1377	-	-	1234	-	-	498	365	841	525	340	903
Mov Cap-2 Maneuver	-	-	-	-	-	-	528	482	-	518	464	-
Stage 1	-	-	-	-	-	-	564	545	-	744	724	-
Stage 2	-	-	-	-	-	-	729	724	-	553	516	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.6	0.3	12.3	9.6
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	567	1377	-	-	1234	-	-	838
HCM Lane V/C Ratio	0.132	0.059	-	-	0.006	-	-	0.056
HCM Control Delay (s)	12.3	7.8	-	-	7.9	-	-	9.6
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.5	0.2	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↰	↑		↰	↑	
Traffic Vol, veh/h	12	0	12	0	0	0	10	134	1	1	164	15
Future Vol, veh/h	12	0	12	0	0	0	10	134	1	1	164	15
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	2	0	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	0	15	0	0	0	12	165	1	1	202	19

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	410	412	219	414	421	168	227	0	0	168	0	0
Stage 1	220	220	-	192	192	-	-	-	-	-	-	-
Stage 2	190	192	-	222	229	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	552	530	821	549	524	876	1341	-	-	1410	-	-
Stage 1	782	721	-	810	742	-	-	-	-	-	-	-
Stage 2	812	742	-	780	715	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	545	520	816	534	515	874	1333	-	-	1407	-	-
Mov Cap-2 Maneuver	608	568	-	597	561	-	-	-	-	-	-	-
Stage 1	770	716	-	801	734	-	-	-	-	-	-	-
Stage 2	805	734	-	765	710	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.4	0	0.5	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1333	-	-	697	-	1407	-	-
HCM Lane V/C Ratio	0.009	-	-	0.043	-	0.001	-	-
HCM Control Delay (s)	7.7	-	-	10.4	0	7.6	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

APPENDIX 7.3:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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(FHWA's MUTCD 2009, as amended for use in California)

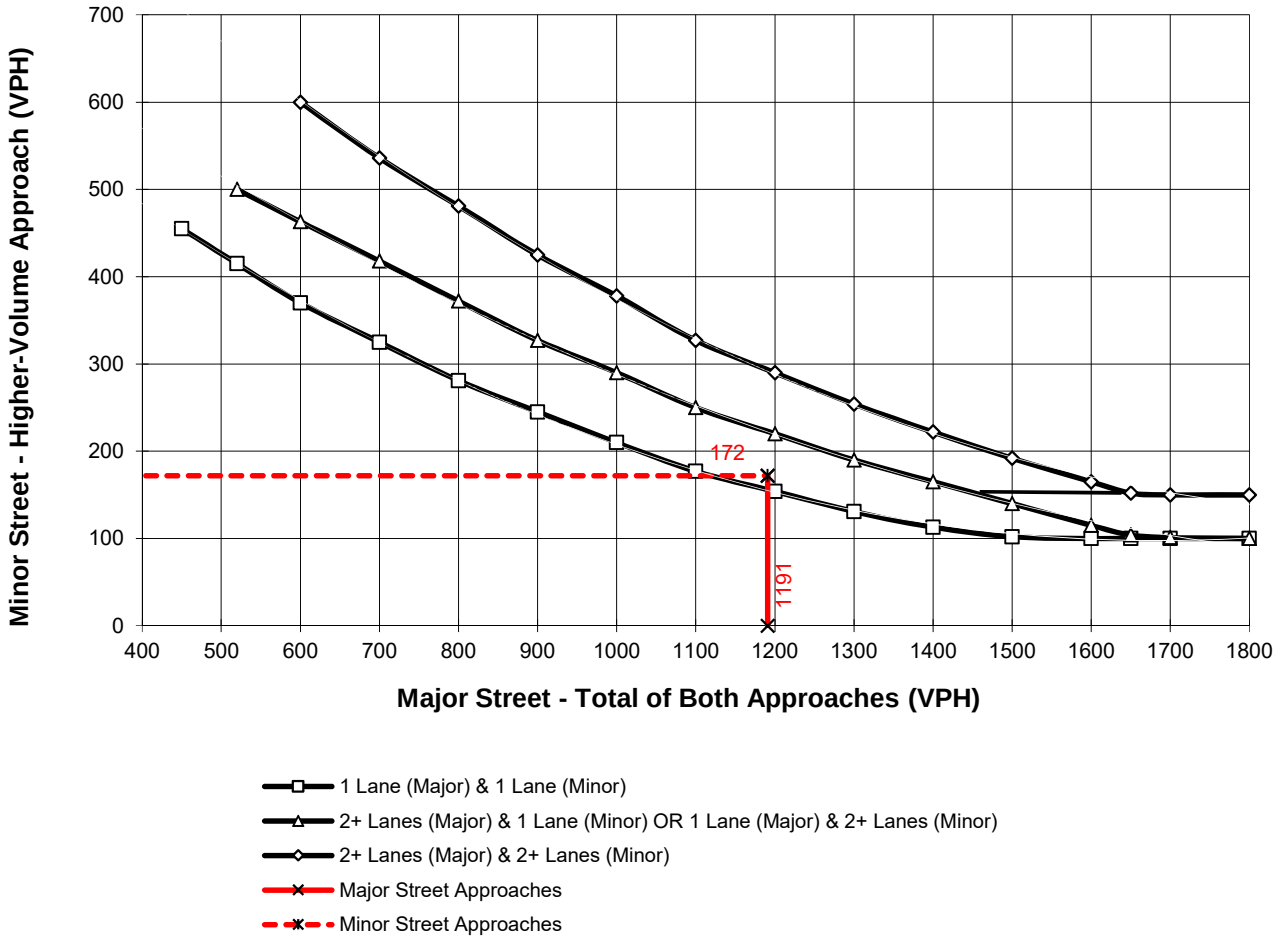
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **2040 Without Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue**
Total of Both Approaches (VPH) = **1191**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Colt Way**
High Volume Approach (VPH) = **172**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

California MUTCD 2014 Edition
(FHWA's MUTCD 2009, as amended for use in California)

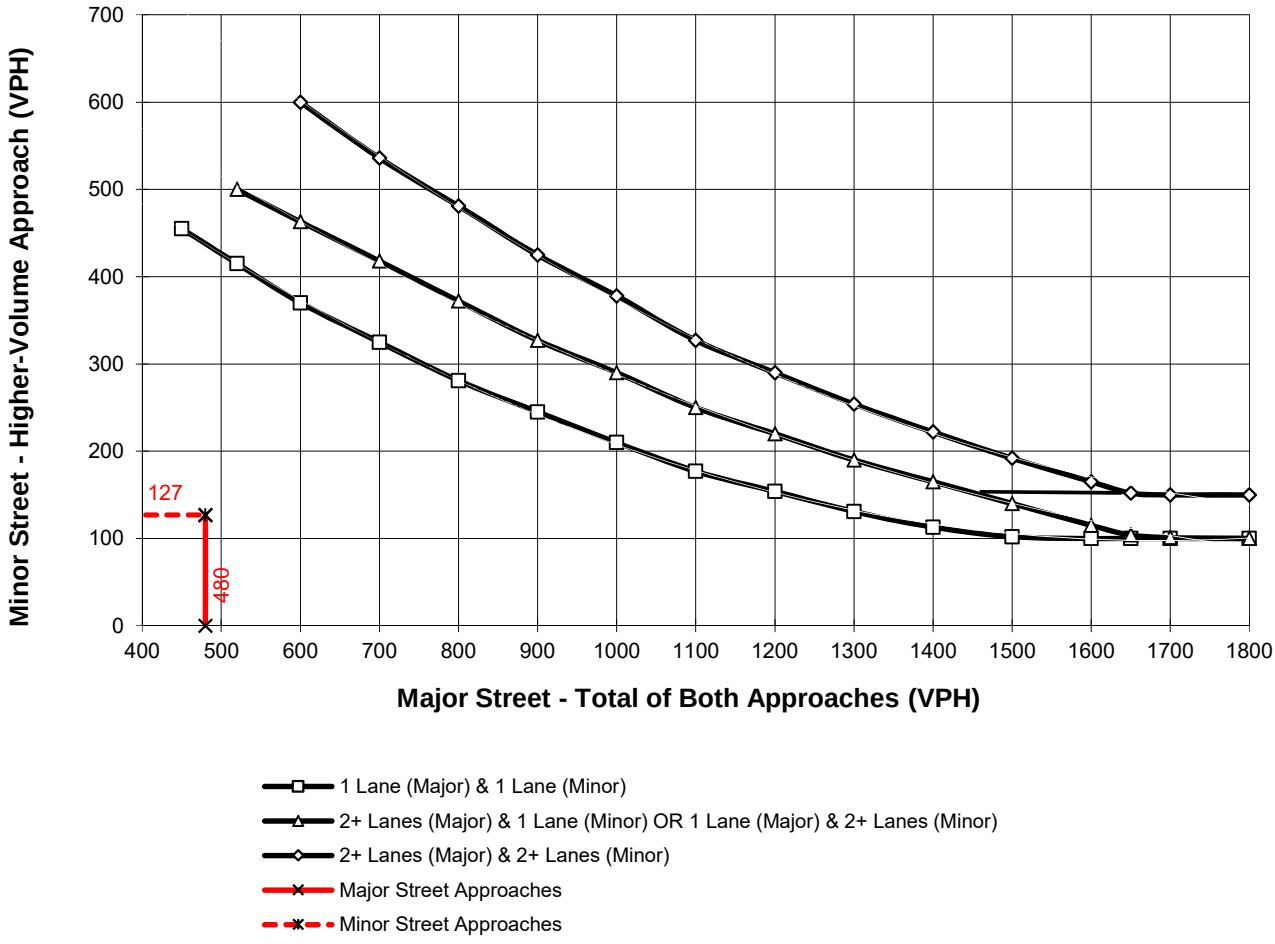
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **2040 Without Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue**
Total of Both Approaches (VPH) = **480**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Cahuilla Drive**
High Volume Approach (VPH) = **127**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

California MUTCD 2014 Edition
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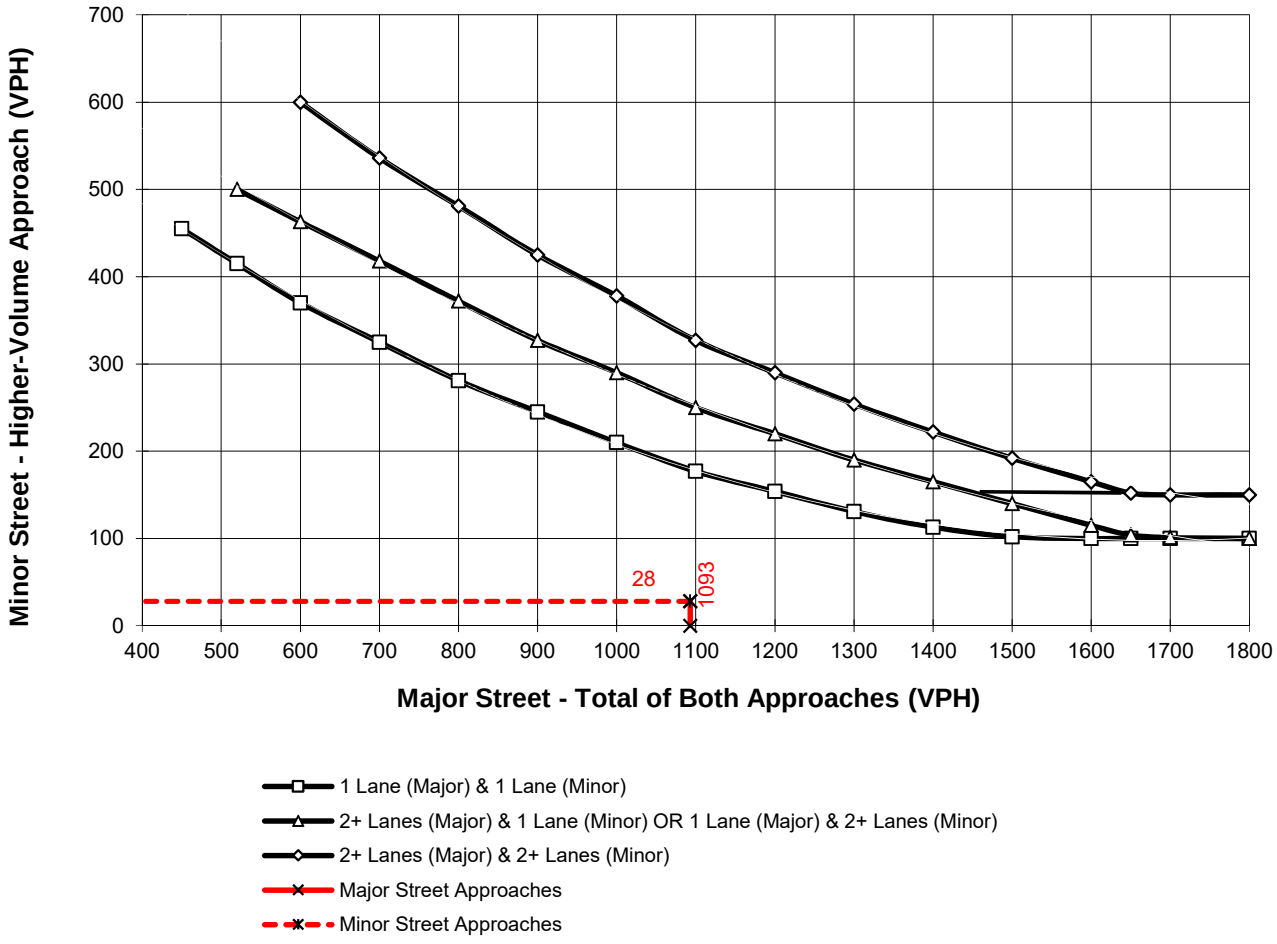
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **2040 Without Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue**
Total of Both Approaches (VPH) = **1093**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Quarter Horse Road**
High Volume Approach (VPH) = **28**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 7.4:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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California MUTCD 2014 Edition
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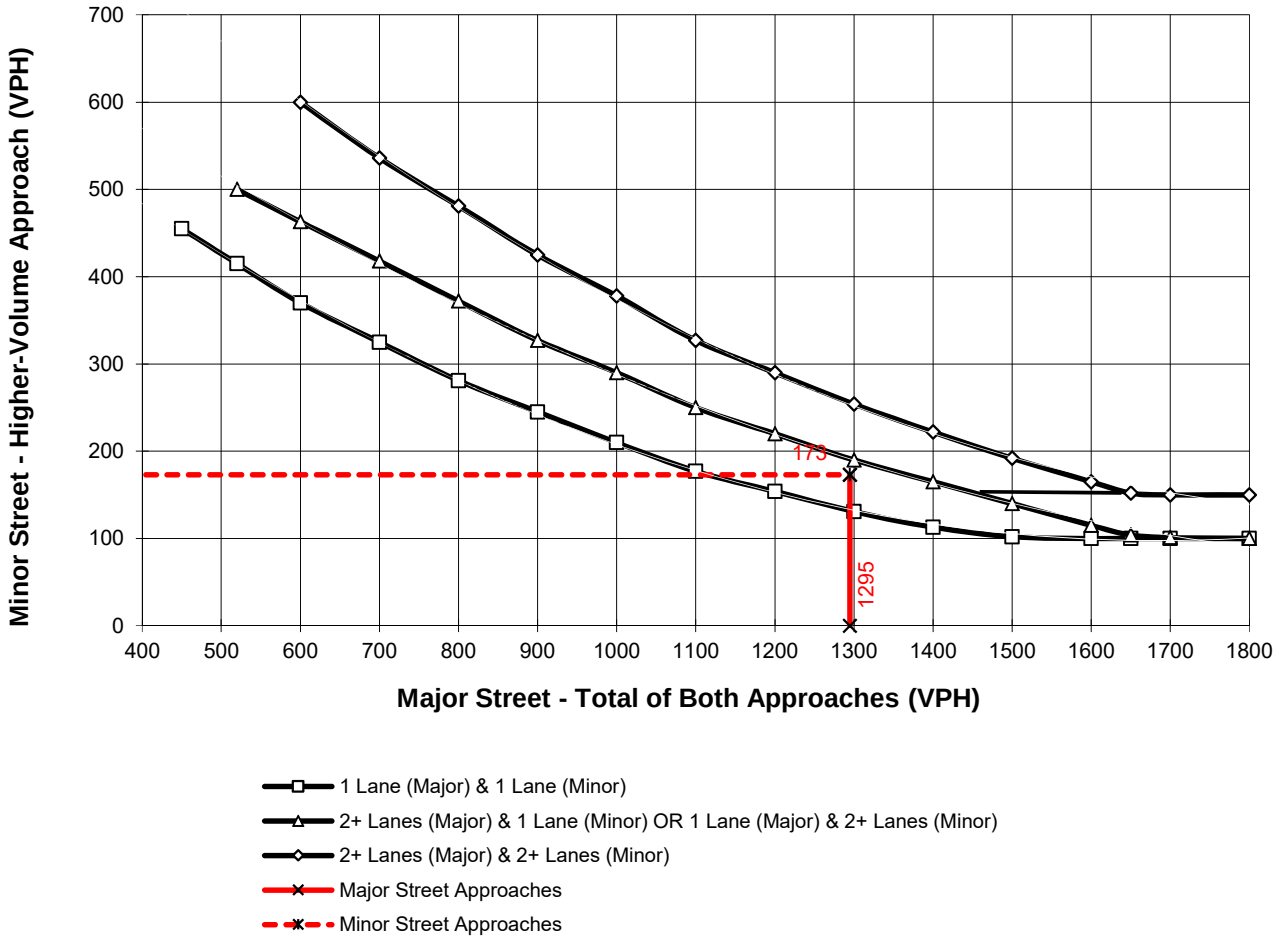
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **2040 With Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue**
Total of Both Approaches (VPH) = **1295**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Colt Way**
High Volume Approach (VPH) = **173**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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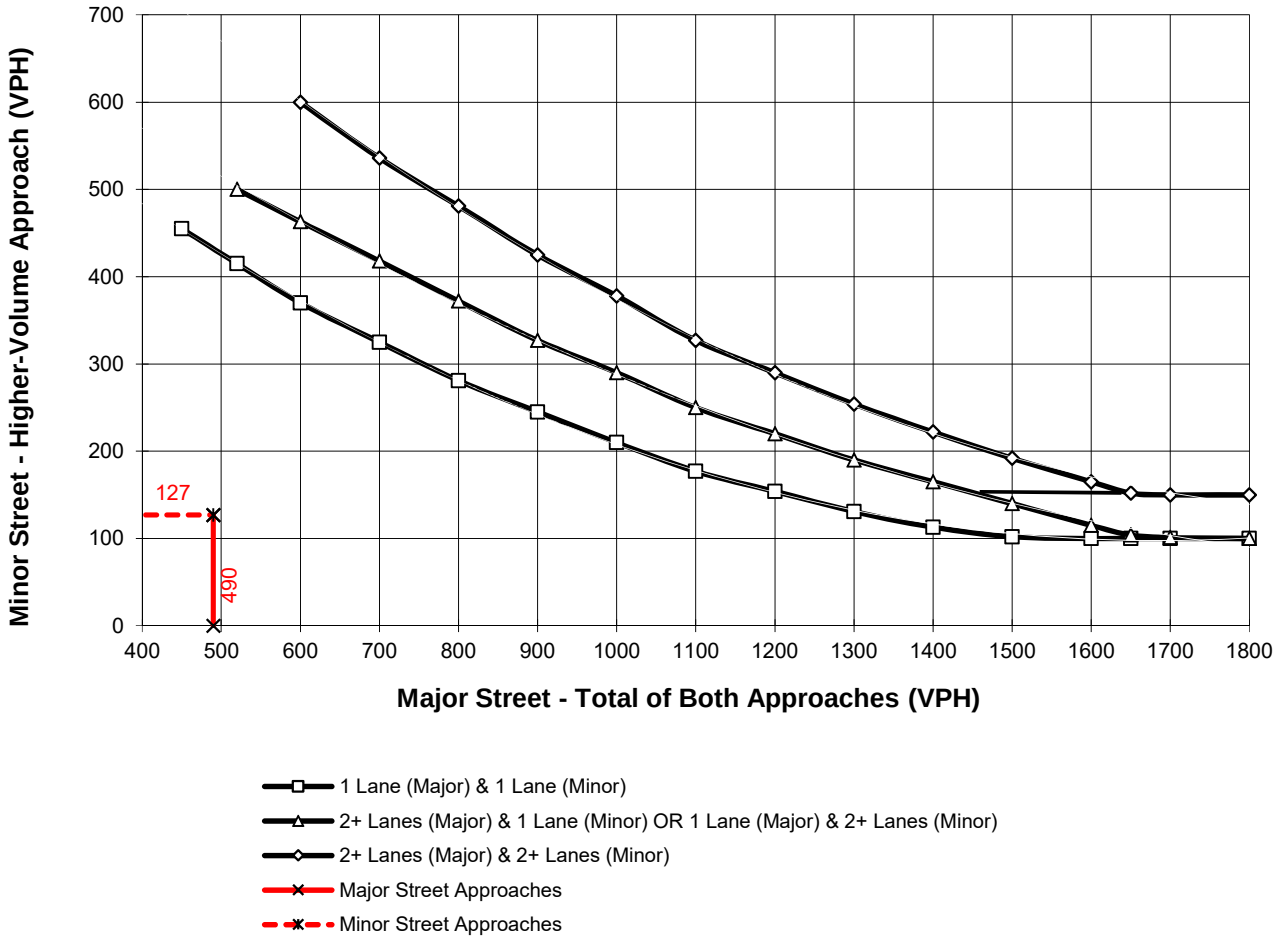
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **2040 With Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue**
Total of Both Approaches (VPH) = **490**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Cahuilla Drive**
High Volume Approach (VPH) = **127**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

California MUTCD 2014 Edition
(FHWA's MUTCD 2009, as amended for use in California)

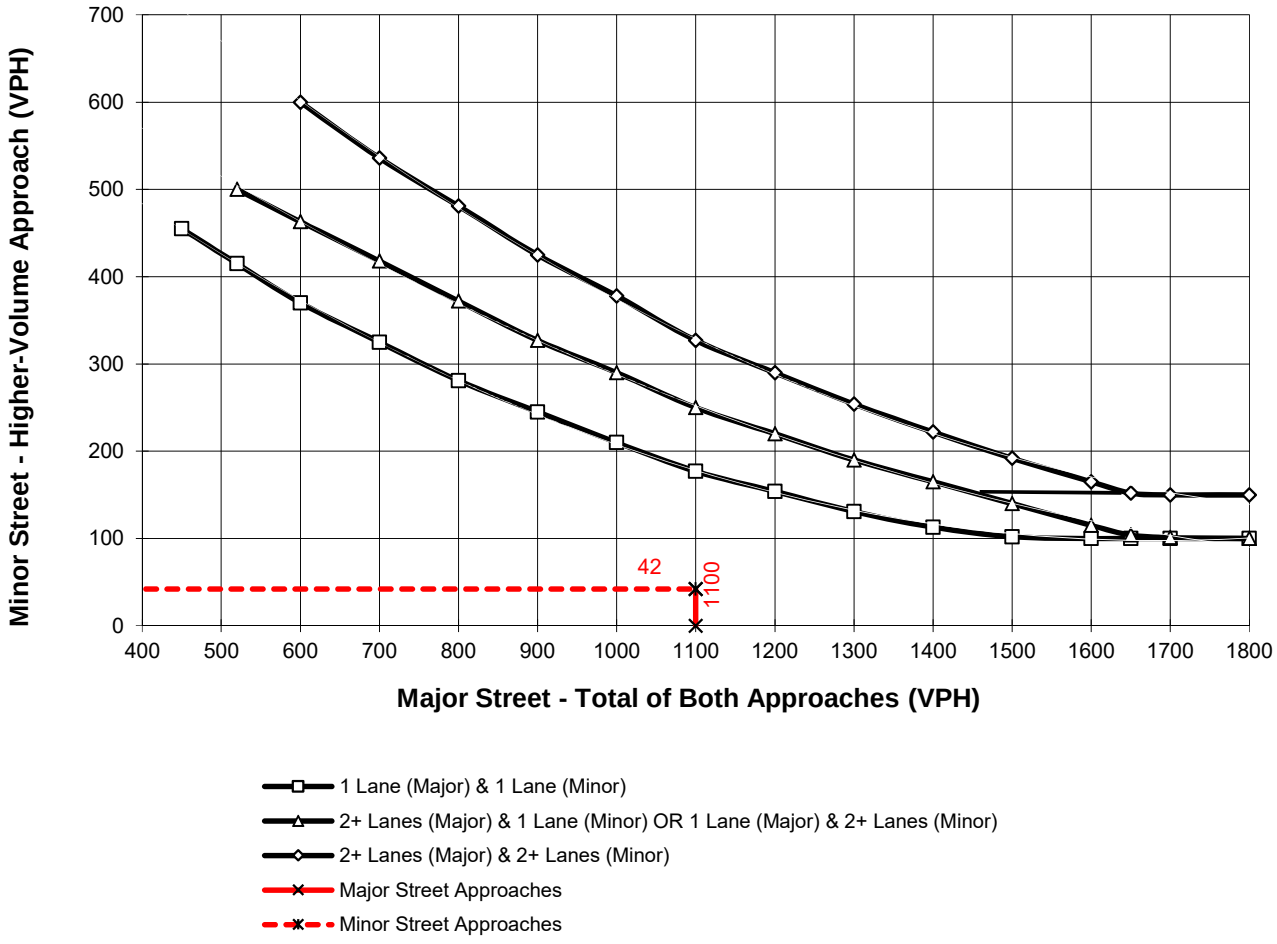
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **2040 With Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Krameria Avenue**
Total of Both Approaches (VPH) = **1100**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Quarter Horse Road**
High Volume Approach (VPH) = **42**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 7.5:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Queuing and Blocking Report
Horizon Year (2040) With Project - AM Peak Hour

10/25/2018

Intersection: 4: Lasselle St. & Cahuillia Dr.

Movement	WB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	87	786	760
Average Queue (ft)	38	351	333
95th Queue (ft)	71	842	809
Link Distance (ft)	458	1025	1025
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Lasselle St. & Driveway 1

Movement	WB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	65	1007	1012
Average Queue (ft)	25	963	966
95th Queue (ft)	55	1053	1053
Link Distance (ft)	202	975	975
Upstream Blk Time (%)		30	32
Queuing Penalty (veh)		179	193
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
Horizon Year (2040) With Project - AM Peak Hour

10/25/2018

Intersection: 6: Lasselle St. & Krameria Av.

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	225	1075	1059	221	322	95	150	1004	1002	205	225	287
Average Queue (ft)	224	1047	1017	115	144	40	149	975	974	140	158	241
95th Queue (ft)	226	1061	1225	215	267	79	150	993	999	277	264	268
Link Distance (ft)		1029	1029		401	401		953	953			225
Upstream Blk Time (%)		94	47		0			77	53		2	56
Queuing Penalty (veh)		0	0		1			0	0		0	405
Storage Bay Dist (ft)	200			200			125			180	240	
Storage Blk Time (%)	88	4		5	1		73	11	35	0	2	56
Queuing Penalty (veh)	286	19		11	2		480	51	101	1	12	93

Intersection: 6: Lasselle St. & Krameria Av.

Movement	SB
Directions Served	TR
Maximum Queue (ft)	266
Average Queue (ft)	238
95th Queue (ft)	254
Link Distance (ft)	225
Upstream Blk Time (%)	56
Queuing Penalty (veh)	409
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Colt Wy./Driveway 2 & Krameria Av.

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	35	11	38	37	154	59
Average Queue (ft)	12	0	11	2	65	27
95th Queue (ft)	34	5	29	24	121	50
Link Distance (ft)		401		282	164	252
Upstream Blk Time (%)					1	
Queuing Penalty (veh)					0	
Storage Bay Dist (ft)	50		50			
Storage Blk Time (%)	0		0	0		
Queuing Penalty (veh)	0		0	0		

Queuing and Blocking Report
Horizon Year (2040) With Project - AM Peak Hour

10/25/2018

Intersection: 9: Krameria Av. & Driveway/Quarter Horse Rd.

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	49	28	42	150	30	73
Average Queue (ft)	22	13	6	26	4	16
95th Queue (ft)	47	35	28	96	20	53
Link Distance (ft)	245	150		658		453
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50		100	
Storage Blk Time (%)			0	2		0
Queuing Penalty (veh)			0	0		0

Queuing and Blocking Report
Horizon Year (2040) Without Project - PM Peak Hour 10/24/2018

Intersection: 4: Lasselle St. & Cahuillia Dr.

Movement	WB	NB	SB	SB
Directions Served	R	R	T	T
Maximum Queue (ft)	95	5	44	33
Average Queue (ft)	40	0	3	3
95th Queue (ft)	75	4	39	35
Link Distance (ft)	458		1025	1025
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		140		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Lasselle St. & Driveway 1

Movement	SB	SB
Directions Served	T	T
Maximum Queue (ft)	661	676
Average Queue (ft)	406	406
95th Queue (ft)	929	917
Link Distance (ft)	975	975
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	2	2
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report
Horizon Year (2040) Without Project - PM Peak Hour 10/24/2018

Intersection: 6: Lasselle St. & Krameria Av.

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	225	1072	1062	148	97	59	150	432	409	205	224	263
Average Queue (ft)	224	1047	890	72	35	24	119	230	198	39	118	232
95th Queue (ft)	224	1060	1426	132	78	51	182	365	322	143	222	264
Link Distance (ft)		1029	1029		401	401		953	953			225
Upstream Blk Time (%)		96	29								0	29
Queuing Penalty (veh)		0	0								0	238
Storage Bay Dist (ft)	200			200			125			180	240	
Storage Blk Time (%)	94	2		0			11	20	6	0	0	29
Queuing Penalty (veh)	69	6		0			60	30	5	0	1	40

Intersection: 6: Lasselle St. & Krameria Av.

Movement	SB
Directions Served	TR
Maximum Queue (ft)	256
Average Queue (ft)	232
95th Queue (ft)	264
Link Distance (ft)	225
Upstream Blk Time (%)	31
Queuing Penalty (veh)	255
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Colt Wy./Driveway 2 & Krameria Av.

Movement	EB	EB	WB	NB
Directions Served	L	TR	L	LTR
Maximum Queue (ft)	27	3	17	67
Average Queue (ft)	4	0	1	32
95th Queue (ft)	20	2	7	56
Link Distance (ft)		401		164
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50		50	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: Krameria Av. & Driveway/Quarter Horse Rd.

Movement	EB	NB
Directions Served	LTR	L
Maximum Queue (ft)	31	6
Average Queue (ft)	13	0
95th Queue (ft)	37	4
Link Distance (ft)	245	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		50
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	L	L	T	T	R	L
Maximum Queue (ft)	241	293	330	327	301	287	130	298	402	406	225	203
Average Queue (ft)	158	174	226	231	211	104	37	94	255	253	186	109
95th Queue (ft)	230	254	305	302	283	233	96	207	361	380	267	195
Link Distance (ft)			2427	2427	2427				1304	1304		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	325	325				300	310	310			200	200
Storage Blk Time (%)		0	0		0	0			3	11	6	0
Queuing Penalty (veh)		0	1		2	0			3	46	21	0

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	T	T	R	L	L	T	T	R
Maximum Queue (ft)	225	312	269	86	227	240	2351	2349	240
Average Queue (ft)	158	185	162	30	226	239	2320	2315	172
95th Queue (ft)	226	275	245	64	230	239	2338	2332	302
Link Distance (ft)		1103	1103	1103			2298	2298	
Upstream Blk Time (%)							88	43	
Queuing Penalty (veh)							0	0	
Storage Bay Dist (ft)	200				215	215			215
Storage Blk Time (%)	1	5			22	76	9	14	1
Queuing Penalty (veh)	5	14			95	331	51	53	5

Network Summary

Network wide Queuing Penalty: 1336

APPENDIX 7.6:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Queuing and Blocking Report
Horizon Year (2040) With Project - AM Peak Hour

10/24/2018

Intersection: 4: Lasselle St. & Cahuillia Dr.

Movement	WB	NB	SB	SB
Directions Served	R	R	T	T
Maximum Queue (ft)	81	11	897	874
Average Queue (ft)	34	0	518	502
95th Queue (ft)	67	8	1108	1086
Link Distance (ft)	458		1025	1025
Upstream Blk Time (%)			13	12
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)		140		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Lasselle St. & Driveway 1

Movement	WB	NB	SB	SB
Directions Served	R	T	T	T
Maximum Queue (ft)	77	17	1024	1017
Average Queue (ft)	26	1	956	953
95th Queue (ft)	57	9	1090	1094
Link Distance (ft)	202	225	975	975
Upstream Blk Time (%)			34	38
Queuing Penalty (veh)			207	230
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Lasselle St. & Krameria Av.

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	225	1072	1062	224	279	104	150	1007	1010	205	225	294
Average Queue (ft)	224	1047	1034	118	130	42	149	976	974	145	179	250
95th Queue (ft)	225	1060	1102	218	224	81	150	997	997	283	273	285
Link Distance (ft)		1029	1029		401	401		953	953			225
Upstream Blk Time (%)		95	45					75	53		13	59
Queuing Penalty (veh)		0	0					0	0		0	431
Storage Bay Dist (ft)	200			200			125			180	240	
Storage Blk Time (%)	90	5		5	1		71	13	39	0	13	59
Queuing Penalty (veh)	291	20		11	2		467	61	111	1	61	99

Intersection: 6: Lasselle St. & Krameria Av.

Movement	SB
Directions Served	TR
Maximum Queue (ft)	277
Average Queue (ft)	241
95th Queue (ft)	260
Link Distance (ft)	225
Upstream Blk Time (%)	54
Queuing Penalty (veh)	394
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Colt Wy./Driveway 2 & Krameria Av.

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (ft)	47	9	26	130	71
Average Queue (ft)	13	0	9	61	27
95th Queue (ft)	37	4	24	105	55
Link Distance (ft)		401		164	252
Upstream Blk Time (%)				0	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)	50		50		
Storage Blk Time (%)	0		0		
Queuing Penalty (veh)	2		0		

Intersection: 9: Krameria Av. & Driveway/Quarter Horse Rd.

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	53	49	41	151	30	64
Average Queue (ft)	20	13	9	25	4	13
95th Queue (ft)	47	37	32	86	20	45
Link Distance (ft)	245	150		658		453
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50		100	
Storage Blk Time (%)			0	1		
Queuing Penalty (veh)			0	0		

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	L	L	T	T	R	L
Maximum Queue (ft)	308	318	381	342	127	84	64	335	1350	1356	225	212
Average Queue (ft)	218	232	111	98	48	14	22	154	1319	1326	222	206
95th Queue (ft)	339	350	261	214	102	58	55	397	1344	1345	252	230
Link Distance (ft)			2427	2427	2427				1304	1304		
Upstream Blk Time (%)									34	73		
Queuing Penalty (veh)									0	0		
Storage Bay Dist (ft)	325	325				300	310	310			200	200
Storage Blk Time (%)	1	3						0	55	50	19	38
Queuing Penalty (veh)	1	6						0	50	330	145	185

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	T	T	R	L	L	T	T	R
Maximum Queue (ft)	225	1152	1142	1127	227	240	2176	2180	240
Average Queue (ft)	223	1123	1116	994	225	239	1870	1845	236
95th Queue (ft)	239	1141	1137	1525	232	240	2666	2658	268
Link Distance (ft)		1103	1103	1103			2298	2298	
Upstream Blk Time (%)		84	44	23			25	28	
Queuing Penalty (veh)		0	0	0			0	0	
Storage Bay Dist (ft)	200				215	215			215
Storage Blk Time (%)	59	36			23	80	8	13	42
Queuing Penalty (veh)	285	184			70	249	33	64	130

Network Summary

Network wide Queuing Penalty: 4119

Queuing and Blocking Report
Horizon Year (2040) With Project - PM Peak Hour

10/24/2018

Intersection: 4: Lasselle St. & Cahuillia Dr.

Movement	WB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	92	84	62
Average Queue (ft)	40	5	3
95th Queue (ft)	74	55	46
Link Distance (ft)	458	1025	1025
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Lasselle St. & Driveway 1

Movement	WB	NB	SB	SB
Directions Served	R	TR	T	T
Maximum Queue (ft)	67	10	802	784
Average Queue (ft)	32	0	482	482
95th Queue (ft)	60	7	931	928
Link Distance (ft)	202	225	975	975
Upstream Blk Time (%)			0	0
Queuing Penalty (veh)			2	2
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Lasselle St. & Krameria Av.

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	225	1076	1054	176	147	77	149	400	355	205	225	277
Average Queue (ft)	224	1047	944	78	48	27	114	230	200	41	138	239
95th Queue (ft)	224	1062	1374	148	102	58	178	363	325	151	239	268
Link Distance (ft)		1029	1029		401	401		953	953			225
Upstream Blk Time (%)		97	33								1	35
Queuing Penalty (veh)		0	0								0	292
Storage Bay Dist (ft)	200			200			125			180	240	
Storage Blk Time (%)	95	2		0			7	24	10	0	1	35
Queuing Penalty (veh)	85	6		0			37	35	8	0	8	62

Intersection: 6: Lasselle St. & Krameria Av.

Movement	SB
Directions Served	TR
Maximum Queue (ft)	264
Average Queue (ft)	238
95th Queue (ft)	259
Link Distance (ft)	225
Upstream Blk Time (%)	36
Queuing Penalty (veh)	303
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Colt Wy./Driveway 2 & Krameria Av.

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (ft)	40	8	21	78	57
Average Queue (ft)	8	0	1	35	24
95th Queue (ft)	30	4	9	65	49
Link Distance (ft)		401		164	252
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	50		50		
Storage Blk Time (%)	0		0		
Queuing Penalty (veh)	0		0		

Intersection: 9: Krameria Av. & Driveway/Quarter Horse Rd.

Movement	EB	NB
Directions Served	LTR	L
Maximum Queue (ft)	36	28
Average Queue (ft)	17	2
95th Queue (ft)	43	12
Link Distance (ft)	245	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		50
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	L	L	T	T	R	L
Maximum Queue (ft)	293	304	314	332	306	292	126	334	463	494	225	195
Average Queue (ft)	177	191	228	231	211	105	31	91	266	274	188	108
95th Queue (ft)	265	279	302	307	284	219	80	225	393	430	280	203
Link Distance (ft)			2427	2427	2427				1304	1304		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	325	325				300	310	310			200	200
Storage Blk Time (%)	0	0	0		0	0		0	4	13	7	0
Queuing Penalty (veh)	0	1	0		1	0		0	4	57	27	0

Intersection: 10: Evans Rd. & Ramona Exwy.

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	T	T	R	L	L	T	T	R
Maximum Queue (ft)	224	330	284	84	227	240	2352	2354	240
Average Queue (ft)	154	193	168	32	225	239	2319	2318	173
95th Queue (ft)	229	286	249	67	234	240	2338	2335	304
Link Distance (ft)		1103	1103	1103			2298	2298	
Upstream Blk Time (%)							87	50	
Queuing Penalty (veh)							0	0	
Storage Bay Dist (ft)	200				215	215			215
Storage Blk Time (%)	2	6			21	75	7	13	2
Queuing Penalty (veh)	6	16			93	328	37	50	7

Network Summary

Network wide Queuing Penalty: 1468

APPENDIX 7.7:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Timings
2: Kitching St. & Krameria Av.

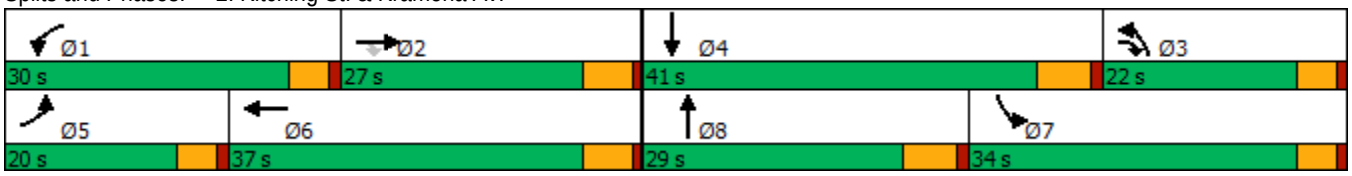
Continental Villages (JN 11575)
10/25/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	102	643	254	196	754	264	505	336	600
Future Volume (vph)	102	643	254	196	754	264	505	336	600
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	3	1	6	3	8	7	4
Permitted Phases			2						
Detector Phase	5	2	3	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	15.4	9.6	9.6	15.4	9.6	15.8	9.6	15.8
Total Split (s)	20.0	27.0	22.0	30.0	37.0	22.0	29.0	34.0	41.0
Total Split (%)	16.7%	22.5%	18.3%	25.0%	30.8%	18.3%	24.2%	28.3%	34.2%
Yellow Time (s)	3.6	4.4	3.6	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.4	-0.6	-1.8	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.6	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

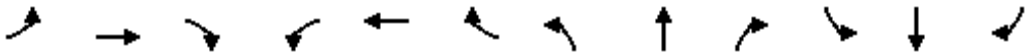
Cycle Length: 120
Actuated Cycle Length: 111.8
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kitching St. & Krameria Av.



HCM 6th Signalized Intersection Summary
2: Kitching St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	643	254	196	754	241	264	505	275	336	600	122
Future Volume (veh/h)	102	643	254	196	754	241	264	505	275	336	600	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1945	1945	1870	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	116	731	158	223	857	110	300	574	171	382	682	75
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	153	899	679	262	987	127	389	673	200	418	858	94
Arrive On Green	0.15	0.40	0.38	0.26	0.51	0.49	0.37	0.41	0.38	0.39	0.44	0.41
Sat Flow, veh/h	1781	3890	1578	1781	3377	433	1853	2866	851	1853	3431	377
Grp Volume(v), veh/h	116	731	158	223	494	473	300	389	356	382	386	371
Grp Sat Flow(s),veh/h/ln	1781	1945	1578	1781	1945	1865	1853	1945	1772	1853	1945	1863
Q Serve(g_s), s	6.2	16.5	1.8	11.8	22.1	22.1	14.1	18.0	18.2	19.3	17.0	17.1
Cycle Q Clear(g_c), s	6.2	16.5	1.8	11.8	22.1	22.1	14.1	18.0	18.2	19.3	17.0	17.1
Prop In Lane	1.00		1.00	1.00		0.23	1.00		0.48	1.00		0.20
Lane Grp Cap(c), veh/h	153	899	679	262	569	545	389	457	416	418	486	466
V/C Ratio(X)	0.76	0.81	0.23	0.85	0.87	0.87	0.77	0.85	0.86	0.91	0.79	0.80
Avail Cap(c_a), veh/h	288	904	681	468	648	621	389	491	447	561	727	696
HCM Platoon Ratio	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.1	27.6	5.1	35.7	22.5	22.8	29.2	27.6	28.4	29.1	25.7	26.0
Incr Delay (d2), s/veh	2.9	5.7	0.2	3.0	11.0	11.4	8.3	12.8	14.3	14.0	3.7	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	6.6	0.6	4.6	8.5	8.3	5.9	7.8	7.5	7.9	6.3	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.9	33.3	5.3	38.7	33.5	34.2	37.5	40.4	42.7	43.1	29.3	29.9
LnGrp LOS	D	C	A	D	C	C	D	D	D	D	C	C
Approach Vol, veh/h		1005			1190			1045			1139	
Approach Delay, s/veh		30.1			34.8			40.4			34.1	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.6	26.9	24.8	28.8	12.5	32.9	26.3	27.2
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	25.4	21.6	17.4	35.2	15.4	31.6	29.4	23.2
Max Q Clear Time (g_c+I1), s	13.8	18.5	16.1	19.1	8.2	24.1	21.3	20.2
Green Ext Time (p_c), s	0.2	1.5	0.1	3.9	0.1	3.4	0.4	1.3

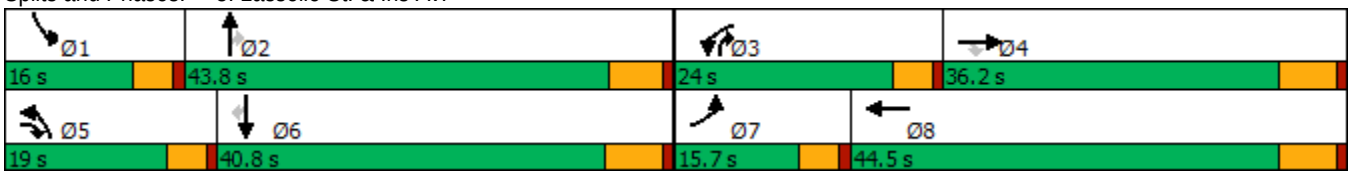
Intersection Summary	
HCM 6th Ctrl Delay	34.9
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	184	681	434	689	908	492	808	657	303	826	156
Future Volume (vph)	184	681	434	689	908	492	808	657	303	826	156
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	5	3	8	5	2	3	1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	5	3	8	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	36.2	9.6	9.6	36.2	9.6	41.8	9.6	9.6	40.2	40.2
Total Split (s)	15.7	36.2	19.0	24.0	44.5	19.0	43.8	24.0	16.0	40.8	40.8
Total Split (%)	13.1%	30.2%	15.8%	20.0%	37.1%	15.8%	36.5%	20.0%	13.3%	34.0%	34.0%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	3.6	4.8	3.6	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.2	0.0	-0.6	-2.2	-0.6	-1.8	-0.6	-0.6	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.6	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	Min

Intersection Summary

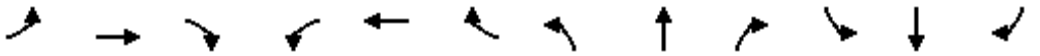
Cycle Length: 120
Actuated Cycle Length: 110.8
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Lasselle St. & Iris Av.



HCM 6th Signalized Intersection Summary
3: Lasselle St. & Iris Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	184	681	434	689	908	178	492	808	657	303	826	156
Future Volume (veh/h)	184	681	434	689	908	178	492	808	657	303	826	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	207	765	227	774	1020	101	553	908	396	340	928	115
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	288	1258	531	649	1634	161	487	1252	791	390	1163	470
Arrive On Green	0.10	0.28	0.26	0.23	0.41	0.38	0.17	0.42	0.40	0.14	0.39	0.39
Sat Flow, veh/h	3563	5611	1580	3563	5016	496	3563	3741	1551	3563	3741	1512
Grp Volume(v), veh/h	207	765	227	774	760	361	553	908	396	340	928	115
Grp Sat Flow(s),veh/h/ln	1781	1870	1580	1781	1870	1771	1781	1870	1551	1781	1870	1512
Q Serve(g_s), s	6.2	13.0	11.9	20.0	17.7	17.9	15.0	22.2	17.9	10.3	24.1	5.6
Cycle Q Clear(g_c), s	6.2	13.0	11.9	20.0	17.7	17.9	15.0	22.2	17.9	10.3	24.1	5.6
Prop In Lane	1.00		1.00	1.00		0.28	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	288	1258	531	649	1218	577	487	1252	791	390	1163	470
V/C Ratio(X)	0.72	0.61	0.43	1.19	0.62	0.63	1.14	0.73	0.50	0.87	0.80	0.24
Avail Cap(c_a), veh/h	380	1647	640	649	1381	654	487	1357	835	390	1255	507
HCM Platoon Ratio	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.1	35.3	26.4	42.4	27.2	27.6	45.5	27.7	15.7	46.6	30.5	24.8
Incr Delay (d2), s/veh	2.6	0.5	0.5	101.1	0.7	1.5	83.5	1.8	0.5	18.4	3.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	5.4	4.1	17.0	6.9	6.8	11.8	8.9	5.2	5.2	9.9	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.7	35.8	26.9	143.4	27.9	29.1	129.0	29.5	16.2	65.0	34.0	25.1
LnGrp LOS	D	D	C	F	C	C	F	C	B	E	C	C
Approach Vol, veh/h		1199			1895			1857			1383	
Approach Delay, s/veh		36.7			75.3			56.3			40.8	
Approach LOS		D			E			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	41.1	24.0	28.6	19.0	38.1	12.9	39.7
Change Period (Y+Rc), s	4.6	* 6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	11.4	* 38	19.4	30.0	14.4	34.6	11.1	38.3
Max Q Clear Time (g_c+I1), s	12.3	24.2	22.0	15.0	17.0	26.1	8.2	19.9
Green Ext Time (p_c), s	0.0	6.2	0.0	4.8	0.0	3.9	0.1	6.5

Intersection Summary	
HCM 6th Ctrl Delay	54.9
HCM 6th LOS	D

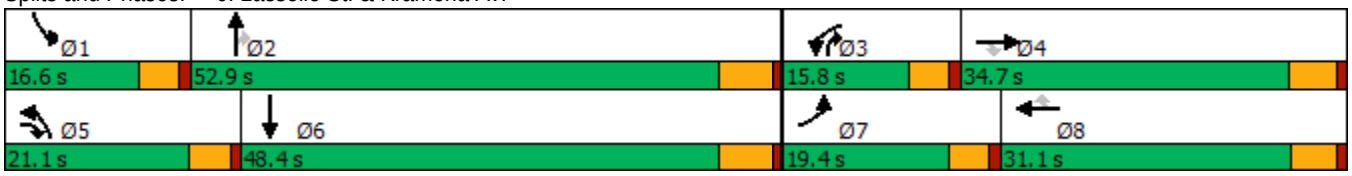
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	427	324	447	156	222	107	457	1314	288	167	971
Future Volume (vph)	427	324	447	156	222	107	457	1314	288	167	971
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	5	3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	5	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	9.6	9.6	31.1	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	19.4	34.7	21.1	15.8	31.1	31.1	21.1	52.9	15.8	16.6	48.4
Total Split (%)	16.2%	28.9%	17.6%	13.2%	25.9%	25.9%	17.6%	44.1%	13.2%	13.8%	40.3%
Yellow Time (s)	3.6	4.4	3.6	3.6	4.1	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.1	0.0	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.6	4.0	4.0	5.1	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min

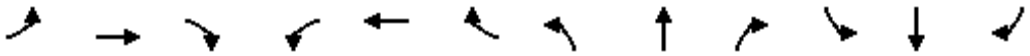
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 114.5
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.



HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	427	324	447	156	222	107	457	1314	288	167	971	315
Future Volume (veh/h)	427	324	447	156	222	107	457	1314	288	167	971	315
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	497	377	228	181	258	97	531	1528	134	194	1129	223
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	485	747	541	186	328	259	539	1618	825	199	1188	233
Arrive On Green	0.17	0.26	0.25	0.13	0.22	0.21	0.19	0.54	0.53	0.14	0.49	0.47
Sat Flow, veh/h	3563	3554	1568	1781	1870	1564	3563	3741	1562	1781	3026	594
Grp Volume(v), veh/h	497	377	228	181	258	97	531	1528	134	194	695	657
Grp Sat Flow(s),veh/h/ln	1781	1777	1568	1781	1870	1564	1781	1870	1562	1781	1870	1749
Q Serve(g_s), s	15.4	10.2	12.4	11.4	14.7	6.0	16.8	43.3	4.2	12.3	40.0	40.8
Cycle Q Clear(g_c), s	15.4	10.2	12.4	11.4	14.7	6.0	16.8	43.3	4.2	12.3	40.0	40.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.34
Lane Grp Cap(c), veh/h	485	747	541	186	328	259	539	1618	825	199	735	687
V/C Ratio(X)	1.02	0.51	0.42	0.97	0.79	0.37	0.99	0.94	0.16	0.98	0.95	0.96
Avail Cap(c_a), veh/h	485	965	638	186	448	360	539	1618	825	199	735	687
HCM Platoon Ratio	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.9	36.7	26.7	49.0	42.1	39.8	45.7	24.7	11.2	48.5	27.6	28.2
Incr Delay (d2), s/veh	47.1	0.5	0.5	57.8	6.3	0.9	34.8	11.7	0.1	56.9	21.1	23.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.6	4.2	4.4	7.9	7.0	2.3	9.5	18.2	1.4	8.2	19.3	19.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	94.0	37.2	27.2	106.8	48.4	40.7	80.5	36.4	11.3	105.4	48.8	52.2
LnGrp LOS	F	D	C	F	D	D	F	D	B	F	D	D
Approach Vol, veh/h		1102			536			2193			1546	
Approach Delay, s/veh		60.8			66.7			45.6			57.3	
Approach LOS		E			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.6	52.9	15.8	27.7	21.1	48.4	19.4	24.1
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	12.0	47.1	11.2	29.3	16.5	42.6	14.8	* 26
Max Q Clear Time (g_c+I1), s	14.3	45.3	13.4	14.4	18.8	42.8	17.4	16.7
Green Ext Time (p_c), s	0.0	1.5	0.0	2.7	0.0	0.0	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	54.2
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings
2: Kitching St. & Krameria Av.

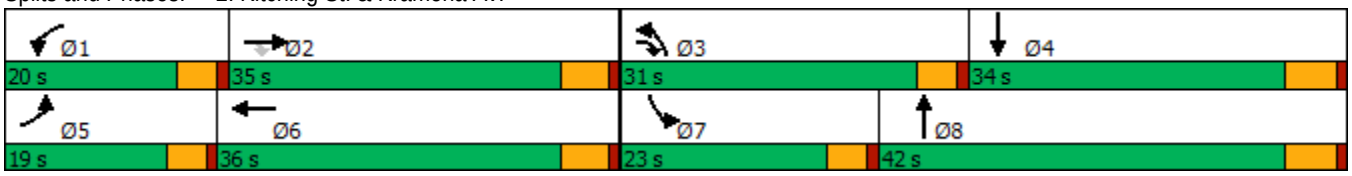
Continental Villages (JN 11575)
10/25/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	101	324	268	104	285	222	646	140	441
Future Volume (vph)	101	324	268	104	285	222	646	140	441
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	3	1	6	3	8	7	4
Permitted Phases			2						
Detector Phase	5	2	3	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	28.4	9.6	9.6	31.4	9.6	28.8	9.6	29.8
Total Split (s)	19.0	35.0	31.0	20.0	36.0	31.0	42.0	23.0	34.0
Total Split (%)	15.8%	29.2%	25.8%	16.7%	30.0%	25.8%	35.0%	19.2%	28.3%
Yellow Time (s)	3.6	4.4	3.6	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.4	-0.6	-1.8	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.6	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

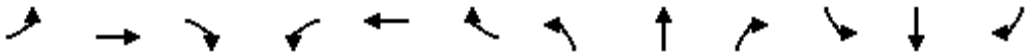
Cycle Length: 120
Actuated Cycle Length: 80.1
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kitching St. & Krameria Av.



HCM 6th Signalized Intersection Summary
2: Kitching St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	324	268	104	285	145	222	646	132	140	441	102
Future Volume (veh/h)	101	324	268	104	285	145	222	646	132	140	441	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	104	334	167	107	294	59	229	666	78	144	455	69
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	152	766	530	156	626	124	299	1043	122	202	833	126
Arrive On Green	0.09	0.23	0.20	0.10	0.23	0.20	0.18	0.35	0.31	0.12	0.29	0.26
Sat Flow, veh/h	1781	3741	1559	1781	3024	597	1781	3287	384	1781	3167	477
Grp Volume(v), veh/h	104	334	167	107	180	173	229	379	365	144	268	256
Grp Sat Flow(s),veh/h/ln	1781	1870	1559	1781	1870	1751	1781	1870	1801	1781	1870	1773
Q Serve(g_s), s	3.3	4.4	4.5	3.4	4.8	5.0	7.1	9.8	9.9	4.5	7.0	7.1
Cycle Q Clear(g_c), s	3.3	4.4	4.5	3.4	4.8	5.0	7.1	9.8	9.9	4.5	7.0	7.1
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.21	1.00		0.27
Lane Grp Cap(c), veh/h	152	766	530	156	387	362	299	593	571	202	492	467
V/C Ratio(X)	0.68	0.44	0.31	0.69	0.47	0.48	0.77	0.64	0.64	0.71	0.54	0.55
Avail Cap(c_a), veh/h	463	2008	1048	494	1036	970	833	1231	1185	586	972	921
HCM Platoon Ratio	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.4	19.5	13.9	25.3	19.5	19.8	22.5	16.0	16.2	24.4	17.6	17.9
Incr Delay (d2), s/veh	2.0	0.4	0.3	2.0	0.9	1.0	1.6	1.1	1.2	1.7	0.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.7	1.3	1.4	1.9	1.9	2.6	3.5	3.4	1.7	2.6	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.4	19.9	14.2	27.3	20.4	20.8	24.0	17.2	17.4	26.1	18.5	18.9
LnGrp LOS	C	B	B	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		605			460			973			668	
Approach Delay, s/veh		19.6			22.2			18.9			20.3	
Approach LOS		B			C			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	15.8	13.7	19.2	8.9	15.9	10.6	22.3
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	15.4	29.6	26.4	28.2	14.4	30.6	18.4	36.2
Max Q Clear Time (g_c+I1), s	5.4	6.5	9.1	9.1	5.3	7.0	6.5	11.9
Green Ext Time (p_c), s	0.1	2.6	0.3	2.7	0.1	1.9	0.1	4.3

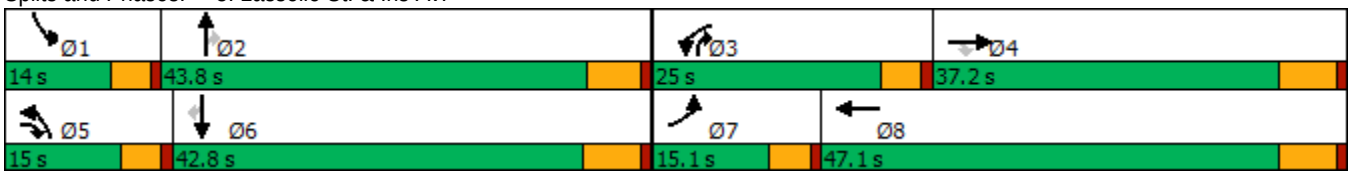
Intersection Summary	
HCM 6th Ctrl Delay	20.0
HCM 6th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	259	757	434	763	988	352	704	539	233	859	146
Future Volume (vph)	259	757	434	763	988	352	704	539	233	859	146
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	5	3	8	5	2	3	1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	5	3	8	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	36.2	9.6	9.6	36.2	9.6	41.8	9.6	9.6	40.2	40.2
Total Split (s)	15.1	37.2	15.0	25.0	47.1	15.0	43.8	25.0	14.0	42.8	42.8
Total Split (%)	12.6%	31.0%	12.5%	20.8%	39.3%	12.5%	36.5%	20.8%	11.7%	35.7%	35.7%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	3.6	4.8	3.6	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-2.2	0.0	-0.6	-2.2	-0.6	-1.8	-0.6	-0.6	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.6	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	Min

Intersection Summary

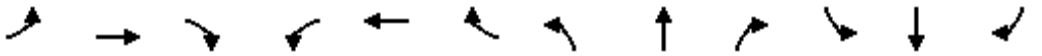
Cycle Length: 120
Actuated Cycle Length: 106.5
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Lasselle St. & Iris Av.



HCM 6th Signalized Intersection Summary
3: Lasselle St. & Iris Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	259	757	434	763	988	120	352	704	539	233	859	146
Future Volume (veh/h)	259	757	434	763	988	120	352	704	539	233	859	146
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	273	797	264	803	1040	-8	371	741	364	245	904	102
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	1438	516	674	1949	0	353	1184	767	321	1163	476
Arrive On Green	0.10	0.26	0.24	0.19	0.35	0.00	0.10	0.32	0.31	0.09	0.31	0.31
Sat Flow, veh/h	3563	5611	1556	3563	5611	0	3563	3741	1527	3563	3741	1532
Grp Volume(v), veh/h	273	797	264	803	1032	0	371	741	364	245	904	102
Grp Sat Flow(s),veh/h/ln	1781	1870	1556	1781	1870	0	1781	1870	1527	1781	1870	1532
Q Serve(g_s), s	8.3	13.7	15.2	21.0	16.3	0.0	11.0	18.7	17.5	7.5	24.4	5.5
Cycle Q Clear(g_c), s	8.3	13.7	15.2	21.0	16.3	0.0	11.0	18.7	17.5	7.5	24.4	5.5
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	350	1438	516	674	1949	0	353	1184	767	321	1163	476
V/C Ratio(X)	0.78	0.55	0.51	1.19	0.53	0.00	1.05	0.63	0.47	0.76	0.78	0.21
Avail Cap(c_a), veh/h	356	1679	583	674	2180	0	353	1342	831	321	1308	536
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.8	35.8	30.0	45.0	29.0	0.0	50.0	32.3	18.6	49.3	34.7	28.2
Incr Delay (d2), s/veh	9.4	0.3	0.8	100.1	0.2	0.0	61.7	0.8	0.5	9.4	2.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	6.0	5.5	18.2	6.9	0.0	7.8	8.2	5.7	3.6	10.8	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.3	36.1	30.8	145.1	29.2	0.0	111.6	33.1	19.0	58.7	37.4	28.4
LnGrp LOS	E	D	C	F	C	A	F	C	B	E	D	C
Approach Vol, veh/h		1334			1835			1476			1251	
Approach Delay, s/veh		39.6			79.9			49.4			40.9	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	39.5	25.0	32.4	15.0	38.5	14.9	42.5
Change Period (Y+Rc), s	4.6	* 6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	9.4	* 38	20.4	31.0	10.4	36.6	10.5	40.9
Max Q Clear Time (g_c+I1), s	9.5	20.7	23.0	17.2	13.0	26.4	10.3	18.3
Green Ext Time (p_c), s	0.0	5.7	0.0	4.9	0.0	4.3	0.0	6.8

Intersection Summary	
HCM 6th Ctrl Delay	54.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	189	149	181	173	146	64	102	1109	84	272	1270
Future Volume (vph)	189	149	181	173	146	64	102	1109	84	272	1270
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	5	3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	5	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	34.4	9.6	9.6	31.1	31.1	9.6	26.8	9.6	9.6	32.8
Total Split (s)	16.0	34.4	10.4	17.0	35.4	35.4	10.4	44.6	17.0	24.0	58.2
Total Split (%)	13.3%	28.7%	8.7%	14.2%	29.5%	29.5%	8.7%	37.2%	14.2%	20.0%	48.5%
Yellow Time (s)	3.6	4.4	3.6	3.6	4.1	4.1	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.4	0.0	-0.6	-1.1	0.0	-0.6	-1.8	-0.6	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.6	4.0	4.0	5.1	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min

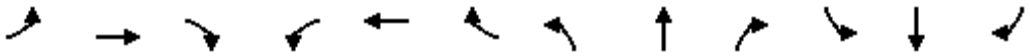
Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 105.6
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Lasselle St. & Krameria Av.

HCM 6th Signalized Intersection Summary
6: Lasselle St. & Krameria Av.

Continental Villages (JN 11575)
10/25/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	189	149	181	173	146	64	102	1109	84	272	1270	69
Future Volume (veh/h)	189	149	181	173	146	64	102	1109	84	272	1270	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	157	33	182	154	34	107	1167	68	286	1337	61
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	296	451	257	225	313	242	201	1390	799	329	1798	82
Arrive On Green	0.08	0.13	0.11	0.13	0.17	0.16	0.06	0.39	0.38	0.18	0.52	0.50
Sat Flow, veh/h	3563	3554	1585	1781	1870	1558	3563	3554	1581	1781	3461	158
Grp Volume(v), veh/h	199	157	33	182	154	34	107	1167	68	286	685	713
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1558	1781	1777	1581	1781	1777	1842
Q Serve(g_s), s	5.1	3.8	1.7	9.3	7.0	1.8	2.7	27.9	2.1	14.6	28.3	28.5
Cycle Q Clear(g_c), s	5.1	3.8	1.7	9.3	7.0	1.8	2.7	27.9	2.1	14.6	28.3	28.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	296	451	257	225	313	242	201	1390	799	329	923	957
V/C Ratio(X)	0.67	0.35	0.13	0.81	0.49	0.14	0.53	0.84	0.09	0.87	0.74	0.74
Avail Cap(c_a), veh/h	456	1153	570	247	627	504	243	1539	865	380	1027	1065
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	37.4	33.6	39.8	35.4	34.2	43.0	25.9	12.0	37.1	17.6	17.7
Incr Delay (d2), s/veh	1.0	0.5	0.2	14.8	1.2	0.3	0.8	4.0	0.0	15.6	2.6	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	1.6	0.6	4.9	3.2	0.7	1.2	11.4	0.7	7.4	10.7	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	37.8	33.8	54.7	36.6	34.4	43.8	29.9	12.1	52.7	20.2	20.3
LnGrp LOS	D	D	C	D	D	C	D	C	B	D	C	C
Approach Vol, veh/h		389			370			1342			1684	
Approach Delay, s/veh		40.0			45.3			30.1			25.8	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.3	40.7	15.8	15.9	9.3	52.7	11.8	20.0
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	19.4	38.8	12.4	29.0	5.8	52.4	11.4	* 30
Max Q Clear Time (g_c+I1), s	16.6	29.9	11.3	5.8	4.7	30.5	7.1	9.0
Green Ext Time (p_c), s	0.1	4.9	0.0	0.9	0.0	9.5	0.1	0.8

Intersection Summary	
HCM 6th Ctrl Delay	30.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

OFFICIAL MINUTES OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY

REGULAR MEETING – 7:00 PM
January 24, 2019

CALL TO ORDER

ROLL CALL

Planning Commission:	Jeffrey Barnes	Chair	Present
	Patricia Korzec	Vice-Chair	Present
	Robert Harris	Commissioner	Present
	JoAnn Stephan	Commissioner	Present
	Jeffrey Sims	Commissioner	Absent
	Ray L. Baker	Commissioner	Present
	Alvin Dejohnette	Commissioner	Present

PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was led by Commissioner Robert Harris.

APPROVAL OF AGENDA

Motion to approve the agenda was made by Commissioner Baker and seconded by Commissioner Harris.

Vote:	6-0
Ayes:	Vice-Chair Korzec, Commissioner Harris, Stephan, Baker, Chair Barnes and Commissioner Dejohnette.
Absent:	Commissioner Sims
Action:	**Approved**

STAFF PRESENT

Paul Early	City Attorney
Patty Nevins	Planning Official
Chris Ormsby	Senior Planner
Claudia Manrique	Associate Planner
Jeff Bradshaw	Associate Planner
Michael Lloyd	Assistant City Engineer
Adria Reinertson	Fire Marshal
Eric Lewis	City Traffic Engineer
Ashley Aparicio	Planning Commission Secretary

CONSENT CALENDAR

APPROVAL OF MINUTES

Planning Commission - Regular Meeting - January 10, 2019 7:00 PM

Motion to approve the minutes of January 10, 2019 was made by Vice-Chair Korzec and seconded by Commissioner Baker.

Vote:	6-0
Ayes:	Vice-Chair Korzec, Commissioner Harris, Stephan, Baker, Chair Barnes and Commissioner Dejohnette.
Absent:	Commissioner Sims
Action:	**Approved**

PUBLIC COMMENTS PROCEDURE

Rafael Brugueras

Rafael Brugueras stated that he would like to talk about the future for our young adults, between kindergarten and fifth graders. As Moreno Valley Unified School District is asking us for a request of theirs, I wrote down five things because it is very important to know that Moreno Valley is trying to accommodate many things and we are doing pretty well. Here are my five things.

1. Zone Change; everyone needs help, whether it is the school board or developers when it comes in front of the Commission.

2. In the future, we will have the Nason Corridor project. The school will be a great addition to that area. I went and saw phase II and how it will bring even more people to the area.

3. MV Elementary School on Cottonwood, in between Nason and Morrison. It currently holds 530 students, so think about how much Moreno Valley's District 3 has grown within the last several years. It cannot hold any more kids in that school so they have to go to other schools away from their community.

4. Moreno Valley is growing. We have many families moving to the City and with them, they bring their children who go to school from kindergarten to fifth grade.

5. The good thing about this project is that they are looking to put a two-story building and get away from the trailers so the kids could be all in one building rather than being scattered throughout the property.

NON-PUBLIC HEARING ITEMS

1. Request from the Moreno Valley Unified School District for land use verification of a potential new elementary school site and that it conforms to the Moreno Valley General Plan. (Report of: Planning Commission)

A. Staff recommends that the Planning Commission consider the location, purpose, and extent of a proposed real property acquisition by the Moreno Valley Unified School District ('District") and make a determination as to the conformity of the proposed acquisition with the Moreno Valley General Plan.

Motion to determine that the proposed acquisition conforms with the Moreno Valley General Plan was made by Vice-Chair Korzec and seconded by Commissioner Baker.

Vote:	6-0
Ayes:	Vice-Chair Korzec, Commissioner Harris, Stephan, Baker, Chair Barnes and Commissioner Dejohnette.
Absent:	Commissioner Sims
Action:	**Approved**

PUBLIC HEARING ITEMS

1. The proposal includes a General Plan Amendment, Specific Plan Amendment, Change of Zone, a Plot Plan for 112 residential units, and a Tentative Parcel Map 37514 on 11.63 acres, located at the northeast corner of Krameria Avenue and Lasselle Street (Report of: Planning Commission)

A. Staff recommends that the Planning Commission **APPROVE** Resolution No. 2019-03, and thereby **RECOMMEND** that the City Council:

   1. CERTIFY the Addendum prepared for General Plan Amendment PEN18-0119, Specific Plan Amendment PEN18-0120, Zone Change PEN18-0121, Parcel Map PEN18-0090 and Plot Plan PEN18-0107 on file with the Community Development Department, incorporated herein by this reference, has been completed in compliance with the California Environmental Quality Act, that the Planning Commission reviewed and considered the information contained in the Addendum and that the document reflects the City's independent judgment and analysis; attached hereto as Exhibit A; and

   2. APPROVE the Mitigation Monitoring Program prepared for Parcel Map PEN18-0090 and Plot Plan PEN18-0107, attached hereto as Exhibit B.

B. Staff recommends that the Planning Commission APPROVE Resolution No. 2019-04, and thereby RECOMMEND that the City Council:

1. APPROVE General Plan Amendment application PEN18-0119 based on the findings contained in this resolution, and as shown on the attachment included as Exhibit A.

C. Staff recommends that the Planning Commission APPROVE Resolution No. 2019-05, and thereby RECOMMEND that the City Council:

1. APPROVE Specific Plan Amendment application PEN18-0120 based on the findings contained in this resolution, and as shown on the attachment included as Exhibit A.

D. Staff recommends that the Planning Commission APPROVE Resolution No. 2019-06, and thereby RECOMMEND that the City Council:

1. APPROVE Zone Change application PEN18-0121 based on the findings contained in this resolution, and as shown on the attachment included as Exhibit A.

E. Staff recommends that the Planning Commission APPROVE Resolution No. 2019-07, and thereby RECOMMEND that the City Council:

1. APPROVE Plot Plan application PEN18-0107 based on the findings contained in this resolution, and subject to the conditions of approval included as Exhibit A.

F. Staff recommends that the Planning Commission APPROVE Resolution No. 2019-08, and thereby RECOMMEND that the City Council:

1. **APPROVE** Parcel Map application PEN18-0090 based on the findings contained in this resolution, and subject to the conditions of approval included as Exhibit A.

Public Hearing Opened: 7:41 p.m.

Public Comments

Ms. Smith supports the item.
Rafael Brugueras supports the item.
Eddy Sone opposes item.

Public Hearing Closed: 7:53 p.m.

Motion to approve Resolution Numbers 2019-03, 2019-04, 2019-05, 2019-06, 2019-07 and 2019-08 was made by Vice-Chair Korzec and seconded by Commissioner JoAnn Stephan.

Vote: 6-0
Ayes: Vice-Chair Korzec, Commissioner Harris, Stephan, Baker, Chair Barnes and Commissioner Dejohnette.
Absent: Commissioner Sims
Action: **Approved**

OTHER COMMISSION BUSINESS

No Items for Discussion

STAFF COMMENTS

Paul Early, City Attorney, stated he was asked to prepare the Commissioners for upcoming cannabis applications within the City.

He stated that the Commission might be aware that the Council has approved a certain number of permits and that there have been changes to our zoning code and our regulatory code which allows for these businesses, as long as they have been licensed by the state. The final piece of that puzzle for the applicants is to bring their specific individual projects to this Commission for consideration of their Conditional Use Permits. A Conditional Use Permit is required for each one of these uses.

Mr. Early indicated that it is anticipated that the applications are going to be coming to the Commission a couple at a time throughout this year and that they may be seeing a number of them. He suggested that if Commissioners have any questions and or concerns about this process, they could reach out to him at any time. He also noted that the determination to allow cannabis to be considered has already been made, and that future application decisions would be confined to determining compliance based on our code. He added that if there are any questions about the scope of their authority Commissioners should please contact him.

Commissioner Stephen asks if there are guidelines in place.

Mr. Early stated that each application will be different and unique based on their conditions and location. He advised that his biggest warning would be that they not be placed in a position where a Conditional Use Permit is denied because of a desire not to have cannabis. The Commission still has the same authority as with other Conditional Use Permits and should treat this like any other Conditional Use Permit; if the Commission is satisfied that all of the requirements of our code are met and that all conditions and land use issues have been addressed, then we should not be arbitrary by denying them.

He noted that this Commission had strong feelings about the subject matter so this is why he wanted to bring this before the applications started coming to them, adding that his door is open if there are any specific concerns. If there are regulatory issues such as the parcel design and the things that the Commission already has the scope and authority over, those are still all fair game in these coming hearings.

Chair Barnes asks if this was for the approval of the dispensaries.

Mr. Early stated that the Council had identified that dispensaries are allowed, as well as other types of uses including manufacturing, distribution, testing and that different types of uses have different impacts.

Commissioner Stephen asks if they can do a change of zone?

Mr. Early stated that a change of zone can always be applied for, and would come before this Commission. The ones that we are talking about have already gone through the process of identification of a location within the zone that was approved for these uses. The ones you see will not have general plan amendments, zone changes, or proximity to sensitive uses. The Commission will be dealing mostly with design, parcel map, etc.

Chair Barnes asks if there are any additional comments.

Patty Nevins, Planning Official stated she has two items tonight. For the first item, I wanted to thank the community for coming out on Saturday, January 12, 2019, for the Nason Corridor Study Community meeting for their input. There was a wonderful turnout despite the rain and she just wanted to say thank you. The second item was to advise that the Planning Commission does have three Planning Commissioner Terms Expiring on March 31st of this year. Both sitting Commissioners and other qualified residents can apply for these positions. In accordance with the city's operating policy for Boards, Commissions and Committees, all applicants, including incumbents, need to complete the standard application form. Interested persons could contact Angel Migao, the Executive Assistant to the Mayor and City Council, for an application. There is no set date for considerations of these applications, so she encouraged anyone looking to apply to do so as soon as early possible.

PLANNING COMMISSIONER COMMENTS

Chair Barnes asks which Commissioner terms are is expiring.

Patty Nevins stated that the terms of Chair Barnes, Vice-Chair Korzec and Commissioner Sims terms are expiring on March 31st.

ADJOURNMENT

There being no further business to come before the Planning Commission, Chairman Barnes adjourned the meeting at 8:08 PM.

Submitted by:

Approved by:

_____

Ashley Aparicio
Planning Commission Secretary

_____

Jeffrey Barnes
Chair

Report to City Council

TO:	Mayor and City Council Acting in its Capacity as President and Members of the Board of Directors of the Moreno Valley Community Services District (CSD)
FROM:	Marshall Eyerman, Chief Financial Officer Thomas M. DeSantis, City Manager
AGENDA DATE:	March 5, 2019
TITLE:	FISCAL YEAR 2018/19 MID-YEAR BUDGET REVIEW AND APPROVAL OF THE FISCAL YEAR 2018/19 MID-YEAR BUDGET AMENDMENTS

RECOMMENDED ACTION

Recommendations: That the City Council:

1. Receive and file the Fiscal Year 2018/19 Mid-Year Budget Review. (Attachment 1)

2. Adopt Resolution No. 2019-XX. A resolution of the City Council of the City of Moreno Valley, California, adopting the revised operating and capital budgets for Fiscal Year (FY) 2018/19.

3. Approve the revised City Position Summary. (Attachment 5)

4. Approve the Job Class Specifications for the Fleet & Facilities Maintenance Supervisor.

Recommendation: That the CSD:

1. Adopt Resolution No. CSD 2019-XX. A resolution of the Moreno Valley Community Services District of the City of Moreno Valley, California, adopting the revised operating and capital budget for FY 2018/19.

SUMMARY

This report provides the Mid-Year Budget Report which updates the Mayor and City

Council regarding current year financial trends and provides the Fiscal Year (FY) 2018/19 Mid-Year Budget Review through December 31, 2018. This report also requests the approval of recommended amendments to FY 2018/19 revenues and expenditures.

DISCUSSION

On May 2, 2017, the City Council adopted the two-year Budget for Fiscal Years 2017/18 and 2018/19. The budget included all component units of the City, including the General Fund, Community Services District, Housing Authority and Successor Agency. During the two-year budget period, the City Council will be updated of the City's financial condition through the process of Quarterly Budget Reviews. This ongoing process ensures a forum to review expenditure and revenue changes from the estimates made in the budget document. Additionally, any significant changes in projected revenue or unanticipated expenditures that may occur will be presented to the City Council.

This report provides the FY 2018/19 Mid-Year Review for the first six months, July thru December. The Mid-Year Budget Review will focus primarily on the City's General Fund. This review will also present six months operational results from other key funds.

The City Council's direction of "Maintain a Balanced General Fund Budget" serves as a foundation for the fiscal status of City operations. Ongoing funding is directed to sustain ongoing operational expenses; one-time funding is directed toward one-time expenditures. This report identifies the budget adjustments as recommended by the City Manager.

FISCAL YEAR 2018/19 MID-YEAR REVIEW:

This Mid-Year Report updates the Mayor and City Council regarding current year financial trends and provides the opportunity for the City Council to review the recommended actions as they relate to revenues and expenditures.

General Fund Revenue Update

Revenue receipts do not follow an even schedule. Although 50% of the fiscal year has elapsed, based on historic trends revenues are estimated to be at approximately 26% of the budgeted amount. Actual revenues received are currently 34% of budget. As the FY 2018/19 revenue estimates were developed prior to the adoption of the budget on May 2, 2017, the revenue estimates may require adjustments based on the current projected actuals. Although there will be variances in some of the amounts budgeted, the total is expected to remain within 1% of the amended budget for the year. It should be noted that the lag in timing of revenue receipts helps illustrate the need for an operating cash reserve throughout the fiscal year.

General Fund Expenditure Update

Although not all expenditures follow a straight-line spending pattern, operating expenditures should track close to within 50% of budget for the year at the end of the first six months. As of December 31, 2018, total General Fund expenditures were at 49%. This pace is within expectations for most activities in the General Fund.

FISCAL YEAR 2018/19 BUDGET ADJUSTMENTS

The FY 2018/19 General Fund revenue budget, as amended, totals approximately $110 million. Based on economic activity and revenue collections through December 2018, staff is recommending Mid-Year budget increase of $699,240 to approximately $110.7 million. The recommended increase includes an increase in engineering inspection fees based on projected trends and a replacement reserve transfer-in to cover a facilities management software replacement.

The FY 2018/19 General Fund expenditures budget as currently amended, and excluding one-time expenditures from fund balance, totals approximately $110 million. The recommended Mid-Year budget changes increase expenditures by $633,700 to $110.6 million. The recommended increase includes an increase in contracted engineering professional services based on projected trends and a facilities case management software purchase. This also includes an additional $50,000 for staff overtime to address potholes as a result of recent storms. Expenditures are offset with an increase in revenues. *The fund continues to be structurally balanced, without the use of fund balance for ongoing operations.* The specific budget adjustments for the General Fund are summarized in Exhibit A attached to the City Council Resolutions recommended for approval.

Fund	Type (Rev/Exp)	FY 2018/19 Amended Budget	Proposed Adjustments ($)	Proposed Adjustments (%)	FY 2018/19 Amended Budget
General Fund	Rev	$110,003,282	$699,240	<1%	$110,702,522
General Fund	Exp	$110,003,276	$633,700	<1%	$110,636,976
Net Total (1)		$6	$65,540		$65,546

(1) Excludes one-time expenditures from fund balance. In FY 18/19, Council approved the use of General Fund fund balance of $1,100,000 allocated to street improvements.

City Position Summary Action

The City Position Summary as amended by the City Council serves as an important internal control tool for City Council to establish authorized positions for the City while enabling staff to manage within the authorized and funded positions. The City Position Summary addresses career authorized positions and does not include temporary positions. As a result of operational changes, some positions are being requested to be added and adjusted based on current and projected demands for those positions and services. Staff recommends the following updates to the City Position Summary:

Department / Position Title	FY 2018/19

		Adjustments
Financial & Manager Services Department		
Senior Administrative Assistant/Financial Resources	FT	-1
Management Aide/Financial Resources (C18 $51,009.71 - $71,818.86) *Impact will be absorbed in current budget.*	FT	1
Senior Administrative Assistant/Financial Operations (New) (C17 $48,580.69 - $68,398.93) *Position funded through dedicated grant administration budget*	FT	1
Administrative Assistant/Moreno Valley Utility (New) (C16 $46,267.31- $65,141.65) *Impact will be absorbed in current budget.*	FT	1
Management Assistant/Purchasing (C24 $68,358.16 - $96,244.10) *Previously approved unfunded position. Funded from current savings.*	FT	-
Facilities Maintenance Supervisor/Facilities	FT	-1
Parks & Community Services Department		
Management Assistant (New) (C22 $62,002.72 - $87,296.14) *Position funded through dedicated grant administration budget*	FT	1
Public Works Department		
Fleet Supervisor	FT	-1
Fleet & Facilities Maintenance Supervisor (C27 $79,133.18 – 111,414.78) *Impact will be absorbed in current budget.*	FT	1
Vehicle/Equipment Technician (C17 $48,580.69 - $68,398.93) *Impact will be absorbed in current budget.*	FT	1
Total Position Control Roster Changes		**3**

*No additional General Fund budget required. New positions funded by Grants or Utility.

Summaries of Major Fund Changes for FY 2018/19

The following provides a summary of some of the proposed budget adjustments to other major funds. A complete list of all changes are identified in Exhibit A to the Resolutions.

Gas Tax (Fund 2000)

Revenue decrease of $250,493 based on the State of California, Department of Finance revised Gas Tax revenue estimates.

Measure A (Fund 2001)

Revenue increase of $215,000 based on Riverside County Transportation Commission Mid-Year revenue projections. Additional revenues may be programmed through future Capital Improvement Plans.

Electric (Fund 6010)

Expenditures are increasing by $1,325,000 based on expected power purchases and renewable energy expenditures.

ALTERNATIVES

1. Approve Recommended Actions as set forth in this staff report, including the approval of the budget adjustments for FY 2018/19, as presented in Exhibit A. The approval of these items will allow for ongoing activities to be carried out in the current fiscal year and the City is able to modify budgets and operations as necessary through this quarterly review, while retaining a structurally balanced General Fund budget. *Staff recommends this alternative.*

2. Do not approve proposed Recommended Actions as set forth in this staff report, including the resolutions adopting the budget adjustments to the FY 2018/19 budget, as presented in Exhibit A. *Staff does not recommend this alternative.*

FISCAL IMPACT

The City's Operating and Capital Budgets provide the funding and expenditure plan for all funds. As such, they serve as the City's financial plan for the fiscal year. The fiscal impacts for the proposed budget amendments and carryovers are identified in Exhibit A to the City Resolution.

NOTIFICATION

Publication of the agenda.

PREPARATION OF STAFF REPORT

Prepared By:
Stephanie Cuff
Management Analyst

Department Head Approval:
Marshall Eyerman
Chief Financial Officer/City Treasurer

Concurred By:
Brian Mohan
Financial Resources Division Manager

Approved by:
Thomas M. DeSantis
City Manager

CITY COUNCIL GOALS

Revenue Diversification and Preservation. Develop a variety of City revenue sources and policies to create a stable revenue base and fiscal policies to support essential City services, regardless of economic climate.

Public Safety. Provide a safe and secure environment for people and property in the community, control the number and severity of fire and hazardous material incidents, and provide protection for citizens who live, work and visit the City of Moreno Valley.

Public Facilities and Capital Projects. Ensure that needed public facilities, roadway improvements, and other infrastructure improvements are constructed and maintained.

CITY COUNCIL STRATEGIC PRIORITIES

1. **Economic Development**
2. **Public Safety**
3. **Library**
4. **Infrastructure**
5. **Beautification, Community Engagement, and Quality of Life**
6. **Youth Programs**

ATTACHMENTS

1. Mid-Year Financial Summary Report FY1819
2. City Resolution 2019-XX
3. CSD Resolution 2019-XX
4. Exhibit A - Proposed Amendments
5. City Position Summary FY 1819
6. Fleet and Facilities Maintenance Supervisor Class Specification

APPROVALS

Budget Officer Approval	✓ Approved	2/27/19 1:50 PM
City Attorney Approval	✓ Approved	2/28/19 3:14 PM
City Manager Approval	✓ Approved	2/28/19 4:06 PM

City of Moreno Valley
Fiscal Year 2018/19
Mid-Year Financial Summary

TO: Mayor and City Council

FROM: Marshall Eyerman, Chief Financial Officer/City Treasurer

DATE: March 5, 2019

INTRODUCTION

On May 2, 2017, the City Council adopted the Two-Year Operating Budget for Fiscal Years (FY) 2017/18 – 2018/19. During the two-year budget period the City Council will be kept apprised of the City's financial condition through the process of First Quarter, Mid-Year Budget and Third Quarter Reviews. This ongoing process ensures a forum to look at expenditure and revenue deviations from the estimates made in the budget document. Additionally, any significant changes in projected revenue or unanticipated expenditures that may occur will be shared with the City Council.

This report provides a review of the unaudited financial results at Mid-Year of FY 2018/19 (July 2018 – December 2018, 50% of the fiscal year).

CITYWIDE OPERATING REVENUE FY2016/17

The City ended FY 2016/17 with a budget surplus due to annual savings and reduction of expenses. The surplus reflects that the Operating Budget is being effectively managed and allows for the use of the funds for one-time expenditure. City Council appropriated the remaining $1,100,000 surplus for street improvements in FY 2018/19.

CITYWIDE OPERATING EXPENDITURE SUMMARY

The following table contains a summary of the adopted budget, amended budget and the Mid-Year expenditures. The totals represent each major fund type and component unit of the City.

Table 1. Citywide Operating Expenditures

Fund/Component Unit	FY 2018/19 Adopted Budget	FY 2018/19 Amended Budget	Actuals as of 12/31/18 (unaudited)	% of Amended Budget
General Fund	$ 104,746,641	$ 111,103,276	$ 54,775,823	49.3%
Community Services District (CSD)	20,009,590	20,919,213	8,720,139	41.7%
Successor Agency	4,773,517	4,308,217	2,020,134	46.9%
Housing Fund	250,000	250,000	168,962	67.6%
Special Revenue Funds	34,495,673	65,350,336	20,812,256	31.8%
Capital Projects Funds	3,316,702	21,861,430	3,350,281	15.3%
Electric Utility Funds	27,409,823	66,244,585	24,748,680	37.4%
Internal Service Funds	13,368,800	15,760,732	5,585,761	35.4%
Debt Service Funds	6,538,420	4,327,000	2,621,635	60.6%
Total	**$ 214,909,166**	**$ 310,124,789**	**$ 122,803,671**	**39.6%**

Actions taken by the City Council subsequent to the May 2, 2017 adoption of the two-year budget and included in the Amended Budget are:

- Throughout the fiscal year, there are also budget amendments to reflect the acceptance of grants and adjustments to contractual services and material/supplies. The individual amendments are reviewed as part of separate City Council agenda items.
    - Remaining $1.1M of the FY 16/17 General Fund surplus was appropriated for street improvements.
- On June 19, 2018, Council approved lease/purchase agreement and the financing associated with the streetlight purchase from Southern California Edison. The approval also allowed staff to return to Council with the proposed budget adjustments related to these complex financing transactions, which will occur in the next quarter reporting.

The majority of this Mid-Year update will focus on the General Fund, as it supports all basic services provided to City residents. Highlights for other key component funds will be discussed at a summary level as well.

GENERAL FUND OPERATING

Table 2. General Fund Operations

	FY 2018/19 Adopted Budget	FY 2018/19 Amended Budget	Actuals as of 12/31/2018 (unaudited)	% of Amended Budget
Revenues:				
Taxes:				
Property Tax	$ 14,422,000	$ 14,760,000	$ 4,605,591	31.2%
Property Tax in-lieu	19,000,000	19,920,000	-	0.0%
Utility Users Tax	16,400,000	16,000,000	7,287,585	45.5%
Sales Tax	18,746,000	19,918,810	7,310,041	36.7%
Other Taxes	12,526,500	12,339,000	3,285,829	26.6%
Licenses & Permits	2,799,824	4,402,072	2,447,019	55.6%
Intergovernmental	463,000	1,009,001	242,608	24.0%
Charges for Services	12,079,871	12,540,591	6,698,887	53.4%
Use of Money & Property	4,220,862	3,497,858	3,765,871	107.7%
Fines & Forfeitures	662,050	662,050	193,991	29.3%
Miscellaneous	69,647	69,647	114,544	164.5%
Total Revenues	**$ 101,389,754**	**$ 105,119,029**	**$ 35,951,966**	**34.2%**
Expenditures:				
Personnel Services	$ 17,623,387	$ 21,226,497	$ 10,609,340	50.0%
Contractual Services	73,725,763	73,675,718	35,907,678	48.7%
Material & Supplies	3,705,509	5,338,504	1,856,298	34.8%
Fixed Charges	5,739,869	5,824,611	2,947,736	50.6%
Fixed Assets	120,000	74,680	2,657	3.6%
Total Expenditures	**$ 100,914,528**	**$ 106,140,010**	**$ 51,323,708**	**48.4%**
Excess (Deficiency) of Revenues Over (Under) Expenditures	$ 475,226	$ (1,020,981)	$ (15,371,742)	
Transfers:				
Transfers In	$ 3,426,691	$ 4,884,253	$ 1,713,348	35.1%
Transfers Out	3,832,113	4,963,266	3,452,115	69.6%
Net Transfers	**$ (405,422)**	**$ (79,013)**	**$ (1,738,767)**	
Total Revenues & Transfers In	$ 104,816,445	$ 110,003,282	$ 37,665,314	34.2%
Total Expenditures & Transfers Out	104,746,641	111,103,276	54,775,823	49.3%
Net Change of Fund Balance	**$ 69,804**	**$ (1,099,994)**	**$ (17,110,509)**	

General Fund Operating Revenues

The General Fund is comprised of several revenue types. However, the main sources include property tax, utility users tax, and sales tax. Different economic activity cycles and pressures affect each of these.

Table 3. General Fund Operating Revenues

	FY 2018/19 Adopted Budget	FY 2018/19 Amended Budget	Actuals as of 12/31/2018 (unaudited)	% of Amended Budget
Revenues:				
Taxes:				
Property Tax	$ 14,422,000	$ 14,760,000	$ 4,605,591	31.2%
Property Tax in-lieu	19,000,000	19,920,000	-	0.0%
Utility Users Tax	16,400,000	16,000,000	7,287,585	45.5%
Sales Tax	18,746,000	19,918,810	7,310,041	36.7%
Other Taxes	12,526,500	12,339,000	3,285,829	26.6%
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Charges for Services	12,079,871	12,540,591	6,698,887	53.4%
Use of Money & Property	4,220,862	3,497,858	3,765,871	107.7%
Fines & Forfeitures	662,050	662,050	193,991	29.3%
Miscellaneous	69,647	69,647	114,544	164.5%
Total Revenues	**$ 101,389,754**	**$ 105,119,029**	**$ 35,951,966**	**34.2%**

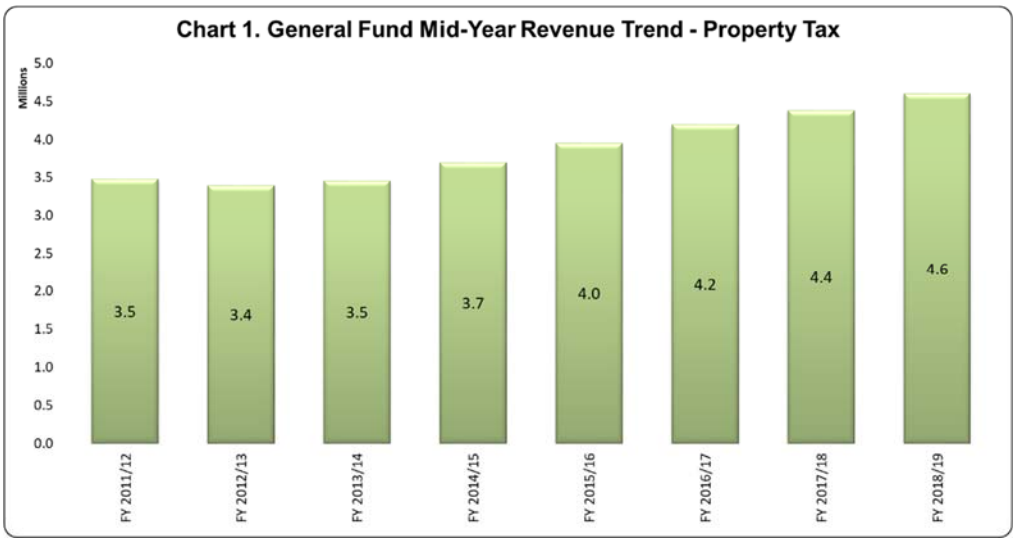
Property Taxes/Property Taxes In-Lieu

Property taxes were budgeted to increase by 4% from the FY 2017/18 Amended Budget. The annual schedule of property tax payments from the County of Riverside will provide payments to the City based on the following estimated schedule:

Secured Property Tax Payment Dates

Settlement 1	January
Settlement 2	May
Settlement 3	August
Teeter Settlement	October

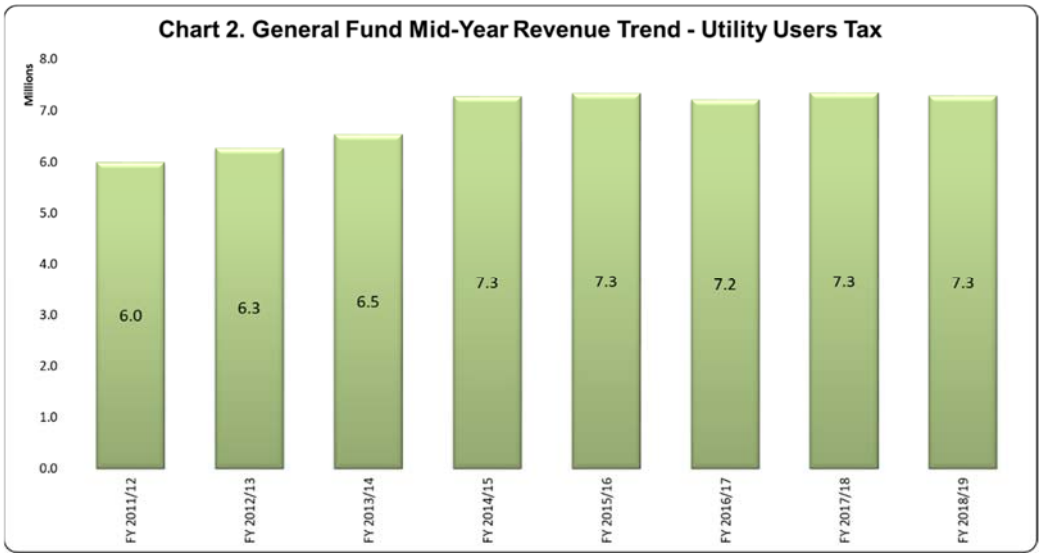
Based on historical averages of actual receipts, the City is estimated to receive 14% of the budgeted property tax revenue through Mid-Year. The City has currently received 13% through Mid-Year. Property taxes will continue to be monitored as property valuations may adjust through the year based on property sales and assessment appeals filed with the County.



Utility Users Tax

Utility Users taxes were budgeted to increase by 1% from the FY 2017/18 Amended Budget. This projection is primarily due to competitive forces within the communications markets. Both the wireless and wired markets experienced downturns year over year. Based on our discussions with utility tax experts, there are a couple of causes for this trend. First is competition and bundling practices within the market as more small players continue to join the market. Second is the migration of customers from contract plans to prepaid plans.

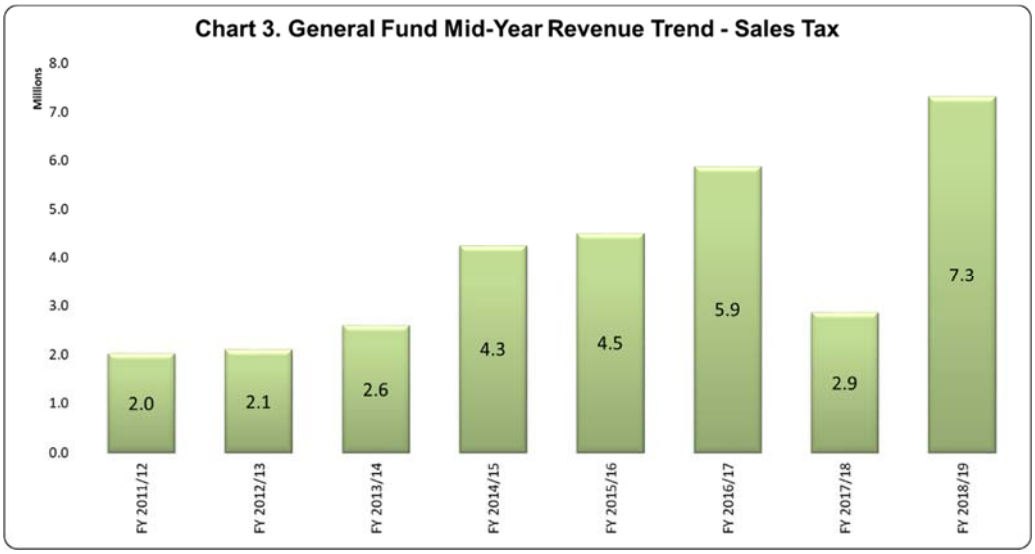
Based on historical averages of actual receipts, the City is estimated to receive 42.8% of the budgeted utility users tax revenue through Mid-Year. The City has currently received 43.2% through Mid-Year.



Sales Taxes

Sales taxes were budgeted to increase by 3% from the FY 2017/18 Amended Budget Sales tax receipts will need to be continually monitored through the year to determine if current trends begin to plateau or begin to decrease.

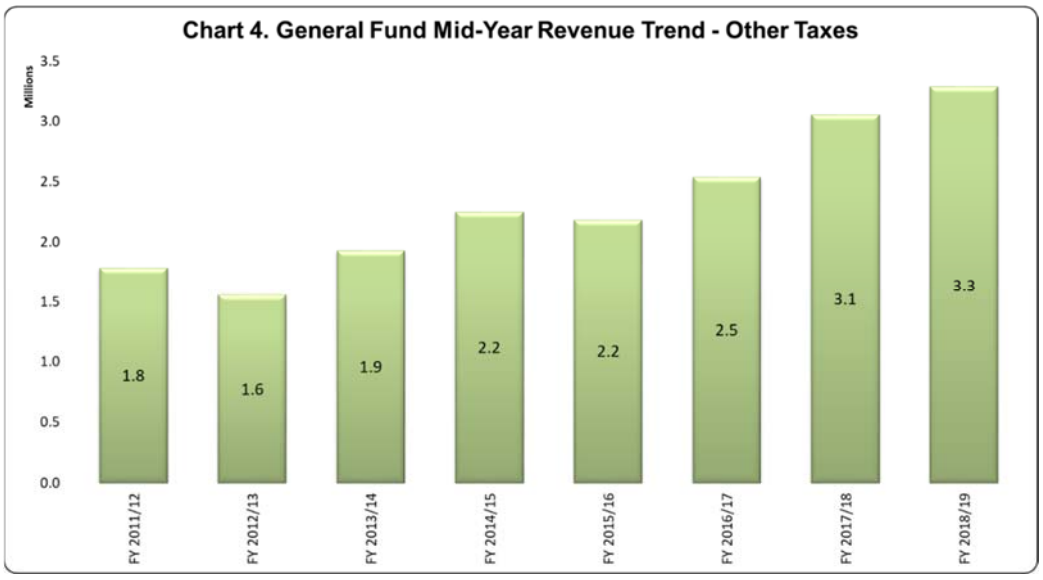
Based on historical averages of actual receipts, the City is estimated to receive 20% of the budgeted sales tax revenue through Mid-Year. The City has currently received 37% through Mid-Year.



Other Taxes

Other taxes are primarily composed of Business Gross Receipts, Transient Occupancy Tax, Documentary Transfer Tax, and Franchise Fees. Collectively, other taxes were budgeted to increase 3% from the FY 2017/18 Amended Budget.

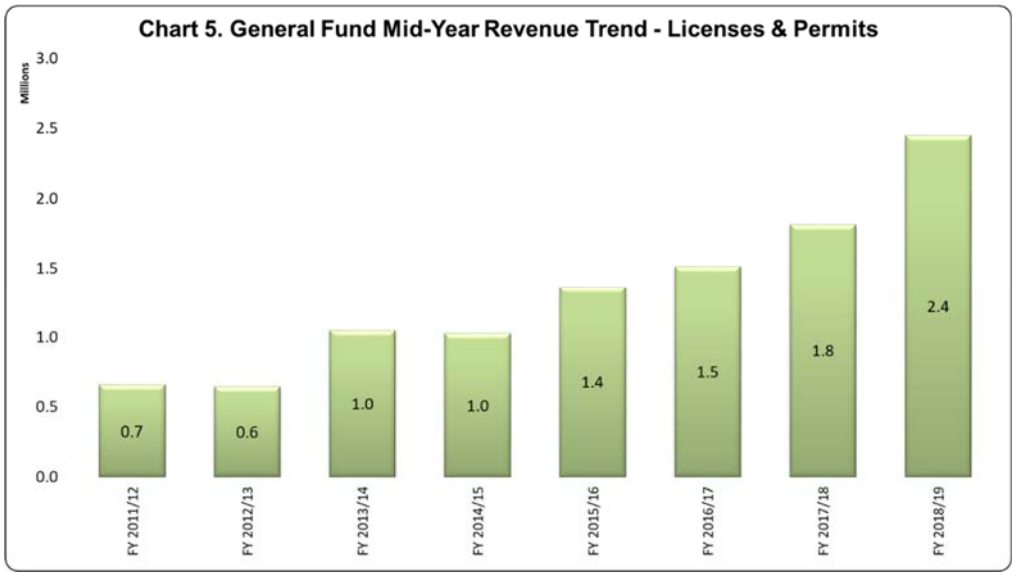
Based on historical averages of actual receipts, the City is estimated to receive 27% of the budgeted Other Taxes revenue through Mid-Year. The City has currently received 27% through Mid-Year.



Licenses & Permits

Licenses & Permits are primarily composed of Business and Animal Licenses, along with Building, Electrical, Mechanical, Plumbing and other permits. Collectively, Licenses & Permits were budgeted to increase by 5% from the FY 2017/18 Amended Budget. This increase reflects increases due to Commercial Cannabis Business Permits. This budget will be monitored for a possible future increase.

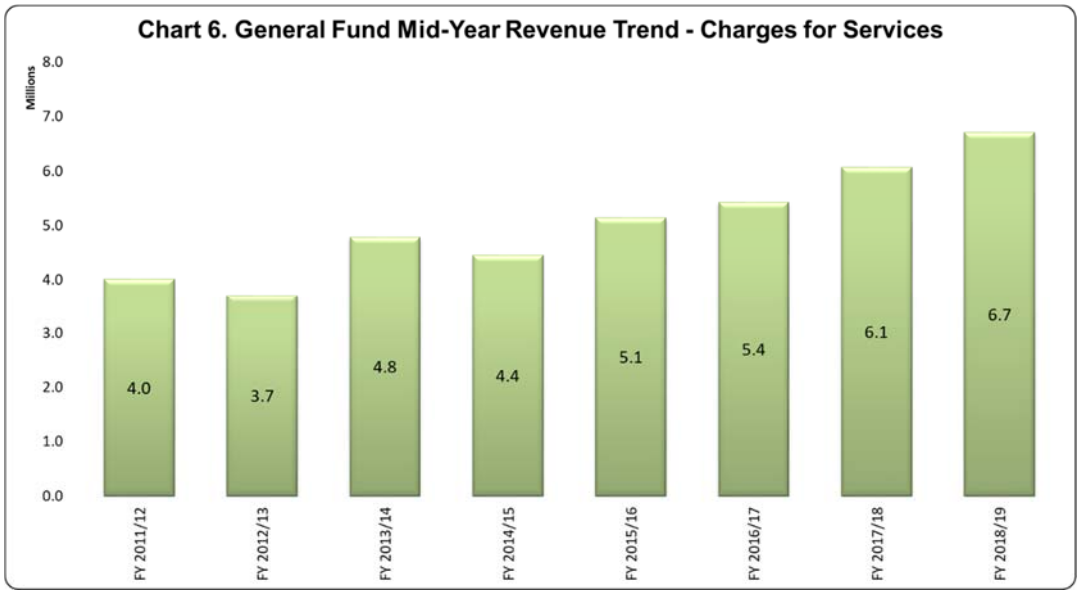
Based on historical averages of actual receipts, the City is estimated to receive 52% of the budgeted Licenses & Permits revenue through Mid-Year. The City has currently received 56% through Mid-Year. The higher growth rate is related primarily to the recent building and business license permit activities.



Charges for Services

Charges for Services are primarily composed of Plan Check Fees, Inspection Fees, Administrative Charges to other funds, and Parking Control Fines. Collectively, Charges for Services were conservatively budgeted to increase by 3% from the FY 2017/18 Amended Budget. This budget will be monitored for a possible future increase.

Based on historical averages of actual receipts, the City is estimated to receive 50% of the budgeted Charges for Services revenue through Mid-Year. The City has currently received 53% through Mid-Year.



Use of Money and Property

Investment income continues to remain low due to extremely low rates of return for fixed income investments, but has increased over the last year due to actions taken by the Federal Open Market Committee. The investments managed by Chandler Asset Management achieved a Yield to Maturity (YTM) for December 2018 of 2.14%. This compares to a YTM in December 2017 of 1.73 %. The investments managed by Insight Investments achieved a Yield to Maturity (YTM) for December 2018 of 1.90%. This compares to a YTM in December 2017 of 1.44%. In addition, the City maintained funds in the State Local Agency Investment Fund Pool (LAIF) with a YTM of 2.29%. This is a very low rate of return compared to historical experience, but is indicative of how investment income is performing everywhere, which is the reason the City utilizes the active management approach.

General Fund Expenditures

Expenditures are being spent in-line with prior year expenditures. Each Department's activities will be monitored throughout the year as they may be impacted by different operational activities and project timelines.

Table 4. General Fund Expenditures

	FY 2018/19 Adopted Budget	FY 2018/19 Amended Budget	Actuals as of 12/31/18 (unaudited)	% of Amended Budget
Department				
City Council	$ 1,019,127	$ 1,249,156	$ 444,982	35.6%
City Clerk	958,242	968,805	278,798	28.8%
City Manager	6,038,211	6,079,382	2,998,054	49.3%
City Attorney	899,961	893,528	369,118	41.3%
Community Development	9,170,762	9,772,797	4,321,189	44.2%
Economic Development	1,933,827	1,928,168	901,104	46.7%
Financial & Management Services	4,370,601	5,978,999	1,890,308	31.6%
Human Resources	1,080,522	1,211,758	609,546	50.3%
Public Works	7,293,505	9,119,594	4,239,467	46.5%
Non-Departmental	4,019,955	5,151,108	4,748,960	92.2%
Non-Public Safety Subtotal	$ 36,784,713	$ 42,353,295	$ 20,801,526	49.1%
Public Safety				
Police	$ 44,523,283	$ 44,980,812	$ 22,882,977	50.9%
Fire	23,438,645	23,769,169	11,091,320	46.7%
Public Safety Subtotal	$ 67,961,928	$ 68,749,981	$ 33,974,297	49.4%
Total	**$ 104,746,641**	**$ 111,103,276**	**$ 54,775,823**	

OTHER KEY FUNDS

The following summaries describe other major funds in the City.

Moreno Valley Community Services District

The Moreno Valley Community Services District (CSD) was formed by the voters in 1984 to collect fees and certain taxes to provide an array of services including parks, recreation and community services, streetlights, landscaping and ongoing maintenance. The CSD provides these services through separate "zones" that define the services that are provided.

For certain zones, the primary revenue source used to provide services to properties is parcel fees or taxes levied on properties via their annual tax bill. Proposition 218, passed by California voters in November 1996, and has posed a serious challenge to managing the future operation of the CSD zones. Prop. 218 requires any revenue increase to be addressed through a voting process by affected property owners. For a period following the initial implementation of Prop. 218, the CSD was successful in receiving approval for some new or increased revenues. There were also revenue increases due to the growth of developed parcels within the zones. However, due to cost increases that exceed any offsetting increases in the revenues over the

past years, and the recent economic downturn slowing new parcel growth, property owners have been resistant to efforts to fully fund service levels.

Table 5. CSD Operations

	FY 2018/19 Adopted Budget	FY 2018/19 Amended Budget	Actuals as of 12/31/18 (unaudited)	% of Amended Budget
Revenues:				
Taxes:				
Property Tax	$ 4,610,427	$ 4,610,427	$ 1,562,355	33.9%
Other Taxes	5,353,200	5,357,833	56,975	1.1%
Charges for Services	6,020,400	5,510,369	644,682	11.7%
Use of Money & Property	821,201	891,869	745,661	83.6%
Fines & Forfeitures	50,000	50,000	13,691	27.4%
Miscellaneous	13,500	32,700	30,150	92.2%
Transfers In	2,153,113	1,909,496	1,319,657	69.1%
Total Revenues	$ 19,021,841	$ 18,362,694	$ 4,373,171	23.8%
Expenditures:				
Library Services Fund (5010)	$ 2,433,229	$ 2,494,590	$ 1,132,207	45.4%
Zone A Parks Fund (5011)	9,563,447	9,844,959	4,494,349	45.7%
LMD 2014-01 Residential Street Lighting Fund (5012)	1,589,879	1,601,729	701,737	43.8%
Zone C Arterial Street Lighting Fund (5110)	901,354	913,854	340,538	37.3%
Zone D Standard Landscaping Fund (5111)	1,137,750	1,337,750	389,763	29.1%
Zone E Extensive Landscaping Fund (5013)	320,547	322,547	124,275	38.5%
5014 LMD 2014-02	2,389,330	2,644,730	844,766	31.9%
Zone M Median Fund (5112)	242,528	327,528	88,805	27.1%
CFD No. 1 (5113)	1,364,358	1,364,358	585,090	42.9%
Zone S (5114)	67,168	67,168	18,178	27.1%
5211 Zone A Parks - Restricted Assets	0	0	431	0%
Total Expenditures	$ 20,009,590	$ 20,919,213	$ 8,720,139	41.7%
Net Change or Adopted Use of Fund Balance	**$ (987,749)**	**$ (2,556,519)**	**$ (4,346,968)**	

Community Services District Zone A – Parks & Community Services

The largest Zone within the CSD is Zone A. It accounts for the administration and maintenance of the Parks & Community Services facilities and programs. Funding sources for these services come from a combination of property taxes, fees for service and smaller amounts from other City funds.

Table 6. CSD Zone A Operations

	FY 2018/19 Adopted Budget	FY 2018/19 Amended Budget	Actuals as of 12/31/18 (unaudited)	% of Amended Budget
Revenues:				
Taxes:				
Property Tax	$ 2,403,800	$ 2,403,800	$ 803,922	33.4%
Other Taxes	4,930,000	4,930,000	51,980	1.1%
Charges for Services	1,182,900	1,215,500	563,116	46.3%
Use of Money & Property	761,601	832,269	500,541	60.1%
Miscellaneous	11,500	30,700	26,607	86.7%
Transfers In	524,084	693,237	264,120	38.1%
Total Revenues	$ 9,813,885	$ 10,105,506	$ 2,210,286	21.9%
Expenditures:				
35010 Parks & Comm Svcs - Admin	$ 472,792	$ 472,792	$ 207,840	44.0%
35210 Park Maintenance - General	3,500,190	3,740,190	1,731,609	46.3%
35211 Contract Park Maintenance	508,471	508,471	180,032	35.4%
35212 Park Ranger Program	375,038	375,038	174,067	46.4%
35213 Golf Course Program	389,707	389,707	178,582	45.8%
35214 Parks Projects	211,309	211,309	98,588	46.7%
35310 Senior Program	571,579	571,579	264,577	46.3%
35311 Community Services	199,496	225,196	102,711	45.6%
35312 Community Events	98,937	98,937	74,809	75.6%
35313 Conf & Rec Cntr	557,610	566,610	259,424	45.8%
35314 Conf & Rec Cntr - Banquet	361,414	365,567	168,466	46.1%
35315 Recreation Programs	1,466,791	1,441,091	648,913	45.0%
35317 July 4th Celebration	132,183	132,183	60,473	45.7%
35318 Sports Programs	645,805	674,164	297,156	44.1%
35319 Towngate Community Center	72,125	72,125	30,245	41.9%
95011 Non-Dept Zone A Parks	-	-	16,856	0.0%
Total Expenditures	$ 9,563,447	$ 9,844,959	$ 4,494,349	45.7%
Net Change or Adopted Use of Fund Balance	**$ 250,438**	**$ 260,547**	**$ (2,284,063)**	

Electric Utility

The Moreno Valley Utility (MVU) manages the operation, maintenance and business planning of the City's electric utility. MVU's basic purpose is to purchase and distribute electricity to customers in newly developed areas of the City. The City began serving new customers in February 2004, and now serves more than 6,652 customers. As it reaches fiscal and operational maturity, MVU will continue to be a key component of the City's economic development strategy. The City Council has established special tiered rates for electric utility customers based upon factors such as the number of jobs created.

The main revenue source for this fund is derived from charges for services. The customer base includes residential, commercial and industrial customers. The growth in customer base will continue to provide for the ability to create rate stabilization and replacement reserve funding.

Table 7. MVU Operations

	FY 2018/19 Adopted Budget	FY 2018/19 Amended Budget	Actuals as of 12/31/2018 (unaudited)	% of Amended Budget
Revenues:				
Charges for Services	$ 31,641,643	$ 31,641,643	$ 17,498,971	55.3%
Use of Money & Property	155,500	155,500	248,523	159.8%
Miscellaneous	141,500	141,500	67,187	47.5%
Transfers In	-	8,030,892	8,032,392	100.0%
Total Revenues	$ 31,938,643	$ 39,969,535	$ 25,847,073	64.7%
Expenditures:				
45510 Electric Utility - General	$ 21,963,138	$ 30,433,853	$ 12,132,022	39.9%
45511 Public Purpose Program	2,060,185	2,060,185	332,171	16.1%
80005 CIP - Electric Utility	5,000	22,605,155	2,619,326	11.6%
96010 Non-Dept Electric	0	0	11,332	0.0%
96030 Non-Dept 2005 Lease Revenue Bonds	1,550,000	1,550,000	431,169	27.8%
96021 Non-Dept 2016 Tax LRB of 07 Tax	867,700	867,700	434,638	50.1%
96031 Non-Dept 2013 Refunding 05 LRB	179,500	37,500	184,425	491.8%
96032 Non-Dept 2014 Refunding 2005 LRB	119,300	119,300	59,859	50.2%
96040 Non-Dept 2015 Taxable LRB	665,000	460,000	432,847	94.1%
96050 Non-Dept 2018 Streetlight Fin	0	8,110,892	8,110,892	100.0%
Total Expenditures	$ 27,409,823	$ 66,244,585	$ 24,748,680	37.4%
Net Change or Adopted Use of Fund Balance	**$ 4,528,820**	**$ (26,275,050)**	**$ 1,098,393**	

MVU's revenues and expenses will fluctuate annually based on energy demands.

- On June 19, 2018, Council approved lease/purchase agreement and the financing associated with the streetlight purchase from Southern California Edison (96050).

SUMMARY

The City of Moreno Valley is experiencing certain levels of growth and continues to maintain a structurally balanced Budget without the use of reserves.

Although the City has experienced positive results in some areas through FY 2017/18 and through the Mid-Year of FY 2018/19, the City should look toward the future with constrained optimism as we proceed through the fiscal year.

As positive fund balances begin to grow, we will bring back to the City Council for discussion options to address the other challenges and unfunded liabilities.

RESOLUTION NO. 2019-XX

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, ADOPTING THE REVISED OPERATING AND CAPITAL BUDGETS FOR FISCAL YEAR 2018/19

WHEREAS, the City Council approved the Operating and Capital Budgets for the City for Fiscal Year 2018/19, a copy of which, as may have been amended by the City Council, is on file in the Office of the City Clerk and is available for public inspection; and

WHEREAS, the City Council approves amendments to the budgets throughout the fiscal year and such prior amendments are reflected within the current amended budget and further ratified as part of the adoption of the quarterly budget amendments; and

WHEREAS, the City Manager has heretofore submitted to the City Council proposed amendments to the Operating and Capital Budgets for the City for Fiscal Year 2018/19, a copy of which, as may have been amended by the City Council, is on file in the Office of the City Clerk and is available for public inspection; and

WHEREAS, the said proposed amendments to the Operating and Capital Budgets contain estimates of the services, activities and projects comprising the budget, and contains expenditure requirements and the resources available to the City; and

WHEREAS, the said proposed amendments to the Operating and Capital Budgets contain the estimates of uses of fund balance as required to stabilize the delivery of City services during periods of operational deficits; and

WHEREAS, the City Council has made such revisions to the proposed amended Operating and Capital Budgets as so desired; and

WHEREAS, the amended Operating and Capital Budgets, as herein approved, will enable the City Council to make adequate financial plans and will ensure that City officers can administer their respective functions in accordance with such plans.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

1. The proposed amendments to the Operating and Capital Budgets, as Exhibit A to this Resolution and as on file in the Office of the City Clerk, and as may have been amended by the City Council, are hereby approved and adopted as the annual Operating and Capital Budgets of the City of Moreno Valley for Fiscal Year 2018/19.

2. The Proposed Amendments to City Position Summary included within the staff report and contained in the City Position Summary attached as Attachment 5 and on file in the Office of the City Clerk, and as may have been amended by the City Council, is hereby adopted as part of the Approved City Position Summary of the City of Moreno Valley for Fiscal Year 2018/19.

3. The amounts of proposed expenditures, which include the uses of fund balance specified in the approved budget, are hereby appropriated for the various budget programs and units for said fiscal year.

4. Within fifteen (15) days after the adoption of this Resolution, the City Clerk shall certify to the adoption hereof and, as so certified, cause a copy to be posted in at least three (3) public places within the City.

BE IT FURTHER RESOLVED that this Resolution shall take effect immediately upon its adoption.

APPROVED AND ADOPTED this 5th day of March, 2019.

_____
Mayor of the City of Moreno Valley

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

_____
City Attorney

RESOLUTION JURAT

STATE OF CALIFORNIA)

COUNTY OF RIVERSIDE) ss.

CITY OF MORENO VALLEY)

I, Pat Jacquez-Nares, City Clerk of the City of Moreno Valley, California, do hereby certify that Resolution No. 2019-XX was duly and regularly adopted by the City Council of the City of Moreno Valley at a regular meeting thereof held on the 5th day of March, 2019 by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Council Members, Mayor Pro Tem and Mayor)

_____

CITY CLERK

(SEAL)

RESOLUTION NO. CSD 2019-XX

A RESOLUTION OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT OF THE CITY OF MORENO VALLEY, CALIFORNIA, ADOPTING THE REVISED OPERATING AND CAPITAL BUDGETS FOR FISCAL YEAR 2018/19

WHEREAS, the CSD Board approved the Operating and Capital Budgets for the City for Fiscal Year 2018/19, a copy of which, as may have been amended by the CSD Board, is on file in the Office of the City Clerk and is available for public inspection; and

WHEREAS, the CSD Board approves amendments to the budgets throughout the fiscal year and such prior amendments are reflected within the current amended budget and further ratified as part of the adoption of the quarterly budget amendments; and

WHEREAS, the City Manager has heretofore submitted to the President and Board Members of the Moreno Valley Community Services District proposed amendments to the Operating and Capital Budgets for the District for Fiscal Year 2018/19, a copy of which, as may have been amended by the District's Board of Directors, is on file in the Office of the City Clerk and is available for public inspection; and

WHEREAS, the said proposed amendments to the Operating and Capital Budgets contain estimates of the services, activities and projects comprising the budget, and contain expenditure requirements and the resources available to the Community Services District; and

WHEREAS, the said proposed amendments to the Operating and Capital Budgets contain the estimates of uses of fund balance as required to stabilize the delivery of CSD services during periods of operational deficits; and

WHEREAS, the President and Board of Directors have made such revisions to the proposed amended Operating and Capital Budgets as so desired; and

WHEREAS, the amended Operating and Capital Budgets, as herein approved, will enable the Community Services District to make adequate financial plans and will ensure that District officers can administer their respective functions in accordance with such plans.

NOW, THEREFORE, THE MORENO VALLEY COMMUNITY SERVICES DISTRICT OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

1. The proposed amendments to the Operating and Capital Budgets, as Exhibit

A to this Resolution and as on file in the Office of the City Clerk, and as may have been amended by the Community Services District's Board of Directors, is hereby approved and adopted as the annual Operating and Capital Budgets of the Moreno Valley Community Services District for the Fiscal Year 2018/19.

2. The amounts of proposed expenditures, which include the uses of fund balance specified in the approved budget, are hereby appropriated for the various budget programs and units for said fiscal year.

3. Pursuant to Section 61047 of the California Government Code, compensation for the City Council acting in the capacity of the Directors of the Community Services District, shall be $100 per meeting or for each day's service rendered as a Director, not to exceed six days or $600 in any calendar month. In addition, the Directors shall be compensated for actual and necessary traveling and incidental expenses incurred while on official business.

4. Within fifteen (15) days after the adoption of this Resolution, the City Clerk shall certify to the adoption hereof and, as so certified, cause a copy to be posted in at least three (3) public places within the City.

BE IT FURTHER RESOLVED that this Resolution shall take effect immediately upon its adoption.

APPROVED AND ADOPTED this 5th day of March, 2019.

_____
Mayor of the City of Moreno Valley,
Acting in the capacity of President of the
Moreno Valley Community Services District

ATTEST:

_____
City Clerk, acting in the capacity of
Secretary of the Moreno Valley
Community Services District

APPROVED AS TO FORM:

_____
City Attorney, acting in the capacity
of General Counsel of the Moreno
Valley Community Services District

RESOLUTION JURAT

STATE OF CALIFORNIA)

COUNTY OF RIVERSIDE) ss.

CITY OF MORENO VALLEY)

I, Pat Jacquez-Nares, Secretary of the Moreno Valley Community Services District, Moreno Valley, California do hereby certify that Resolution No. CSD 2019-XX was duly and regularly adopted by the Board of Directors of the Moreno Valley Community Services District at a regular meeting held on the 5th day of March, 2019 by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Board members, Vice-President and President)

_____

SECRETARY

(SEAL)

CITY OF MORENO VALLEY
GENERAL FUND
FY 2018/19 Proposed Amendments

Department	Fund	Account Description	General Ledger Account	Project	Fiscal Year 2018/19 Amended Budget	Proposed Amendment	Revised Budget	Description - Proposed Adjustment
Public Works	1010	Insp Fees - Engineering	1010-70-29-20410-523010		$ 450,000	$ 300,000	$ 750,000	Budgeting for expected expenditures which will be offset by inspection fees.
Fire	1010	Annual Fire Inspection Fees	1010-40-46-30210-520010		281,000	194,000	475,000	Budgeting for expected revenue with increased development.
Fire	1010	Fire Plan Check Fees	1010-40-46-30210-540030		329,760	(179,760)	150,000	Solar revenue is now within the Building Division.
Fire	1010	Nuisance Abatement Fees	1010-40-46-30211-501030		144,000	(25,000)	119,000	Adjusting budget based on revenue trends.
Fire	1010	Annual Fire Inspection Fees	1010-40-46-30211-520010		245,530	60,000	305,530	Adjusting budget based on revenue trends.
Financial & Management Services	1010	Transfers in - from EQUIP REPLACEMENT (FURN & EQUIP)	1010-99-99-91010-807510		250,000	350,000	600,000	Transfer in for ACP module subscription for facilities software replacement
REVENUE TOTAL					**$ 1,700,290**	**$ 699,240**	**$ 2,399,530**	
Public Works	1010	Professional Svcs - Other	1010-70-29-20410-620299		$ 175,000	$ 230,700	$ 405,700	Budgeting for expected expenditures which will be offset by inspection fees.
Public Works	1010	Transfers to GAS TAX FUND	1010-99-99-91010-902000		$ 250,000	$ 50,000	$ 300,000	Staff overtime to address potholes as a result of recent storms.
City Clerk	1010	Council - Dist 2 Discretionary	1010-10-01-10012-620112		3,000	3,000	6,000	Allocating discretionary budget.
Financial & Management Services	1010	Software Maint/Support/License	1010-30-40-18310-625010		0	350,000	350,000	ACP module subscription for facilities software replacement
EXPENSES TOTAL					**$ 428,000**	**$ 633,700**	**$ 1,061,700**	

CITY OF MORENO VALLEY
NON - GENERAL FUND
FY 2018/19 Proposed Amendments

Department	Fund	Account Description	General Ledger Account		Fiscal Year 2018/19 Amended Budget	Proposed Amendment	Revised Budget	Description - Proposed Adjustment
Public Works	2001	RCTC - Sales Tax	2001-99-99-92001-480180		$ 4,025,000	$ 215,000	$ 4,240,000	Riverside County Transportation Commission Mid-Year revenue projections.
Public Works	2000	State Gas Tax 2107	2000-99-99-92000-408000		1,501,775	24,392	1,526,167	Department of Finance revised Gas Tax revenue estimates.
Public Works	2000	State Gas Tax 2106	2000-99-99-92000-408020		727,150	(4,929)	722,221	Department of Finance revised Gas Tax revenue estimates.
Public Works	2000	State Gas Tax 2105	2000-99-99-92000-408030		1,209,759	(47,726)	1,162,033	Department of Finance revised Gas Tax revenue estimates.
Public Works	2000	State Gas Tax 2103	2000-99-99-92000-408040		791,239	(54,728)	736,511	Department of Finance revised Gas Tax revenue estimates.
Public Works	2000	State Gas Tax - Loan Repay	2000-99-99-92000-408050		235,039	(895)	234,144	Department of Finance revised Gas Tax revenue estimates.
Public Works	2000	State Gas Tax - RMRA	2000-99-99-92000-408060		3,459,343	(166,607)	3,292,736	Department of Finance revised Gas Tax revenue estimates.
Public Works	5112	Transfers in - from CFD No. 2014-01	5112-99-99-95112-802050		0	3,994	3,994	Transfer of revenue collected from CFD 2014-01 parcels (fund 2050) for the benefit of maintaining Zone M (fund 5112) medians.
Public Works	4105	Special Taxes	4105-99-99-94105-404000		118,200	(5,960)	112,240	Adjusting to match the Special Tax requirement for each bonded district.
Public Works	4105	Transfers In - From SUCCESSOR AGENCY ADMIN FUND	4105-99-99-94105-804800		283,200	(3,424)	279,776	Adjusting to match the Special Tax requirement for each bonded district.
Public Works	4106	Transfers In - From SUCCESSOR AGENCY ADMIN FUND	4106-99-99-94106-804800		1,190,000	(18,404)	1,171,596	Adjusting to match the Special Tax requirement for each bonded district.
Public Works	4108	Special Taxes	4108-99-99-94108-404000		430,390	(4,083)	426,307	Adjusting to match the Special Tax requirement for each bonded district.
Public Works	4114	Special Taxes	4114-99-99-94114-404000		199,890	(199,890)	0	Adjusting to match the Special Tax requirement for each bonded district.
Public Works	5013	Parcel Fees	5013-70-79-25705-500800		117,020	(46,636)	70,384	Allocating budget for expected parcel and transfer revenue.
Public Works	2000	Transfers in - from GENERAL FUND	2000-99-99-92000-801010		250,000	50,000	300,000	Staff overtime to address potholes as a result of recent storms.
Parks & Community Services	5011	Transfers in - from EQUIP REPLACEMENT (FURN & EQUIP)	5011-99-99-95011-807510		165,000	20,985	185,985	Allocating budget for replacement of scoreboard equipment. Replacement funds available.
Financial & Management Services	2512	Fed Grant-Operating Revenue	2512-99-99-92512-485000		3,968,980	(1,003)	3,967,977	Bringing fund into balance.
Financial & Management Services	7220	Transfers in - from ELECTRIC FUND	7220-99-99-97220-806010		0	5,354	5,354	Budgeting for camera equipment for the City network.
Parks & Community Services	2019	Transfers in - from DIF - QUIMBY IN-LIEU PARK FEES	2019-99-99-92019-802906		0	387,650	387,650	Reallocating budget with a net affect of zero.
Parks & Community Services	2905	Transfers in - from DIF - QUIMBY IN-LIEU PARK FEES	2905-99-95-92905-802906		0	1,093,091	1,093,091	Reallocating budget with a net affect of zero.
REVENUE TOTAL					**$ 18,671,985**	**$ 1,246,181**	**$ 19,918,166**	
Parks & Community Services	5211	Mach-Equip-Repl - Furn & Equip	5211-50-57-35210-660320		$ -	$ 33,000	$ 33,000	FY 17/18 approved budget for equipment replacement.
Financial & Management Services	7220	Depreciation	7220-99-99-97220-694110		800,000	(250,000)	550,000	Based on incurred depreciation expense thru 12/31/18.
Public Works	2000	Benefits - Bank	2000-70-77-45220-612120		(4,250)	23,436	19,186	Reallocate personnel budget.
Public Works	2000	Benefits - Medicare	2000-70-77-45220-612130		(330)	2,071	1,741	Reallocate personnel budget.
Public Works	2000	Benefits - Group Life Insurance	2000-70-77-45220-612140		(116)	730	614	Reallocate personnel budget.
Public Works	2000	Benefits - ST/LT Disability	2000-70-77-45220-612145		(187)	1,187	1,000	Reallocate personnel budget.
Public Works	2000	Benefits - Annuity	2000-70-77-45220-612160		(300)	1,500	1,200	Reallocate personnel budget.
Public Works	2001	Benefits - Bank	2001-70-77-45230-612120		9,593	4,250	13,843	Reallocate personnel budget.
Public Works	2001	Benefits - Medicare	2001-70-77-45230-612130		871	330	1,201	Reallocate personnel budget.
Public Works	2001	Benefits - Group Life Insurance	2001-70-77-45230-612140		308	116	424	Reallocate personnel budget.
Public Works	2001	Benefits - ST/LT Disability	2001-70-77-45230-612145		499	187	686	Reallocate personnel budget.
Public Works	2001	Benefits - Annuity	2001-70-77-45230-612160		600	300	900	Reallocate personnel budget.
Public Works	2050	Communications	2050-70-79-25722-620410		210	2,090	2,300	Allocating budget for expected project expenditures.
Public Works	2050	Utilities - Electricity	2050-70-79-25722-621010		11,200	36,800	48,000	Allocating budget for expected project expenditures.
Public Works	2050	Utilities - Water	2050-70-79-25722-621030		5,400	6,500	11,900	Allocating budget for expected project expenditures.
Public Works	2050	Transfers to ZONE "M" MEDIAN FUND	2050-99-99-92050-905112		0	3,994	3,994	Transfer of revenue collected from CFD 2014-01 parcels (fund 2050) for the benefit of maintaining Zone M (fund 5112) medians.
Public Works	5013	Communications	5013-70-79-25705-620410		170	330	500	Allocating budget for expected expenditures.
Public Works	5013	Communications	5013-70-79-25713-620410		200	600	800	Allocating budget for expected expenditures.
Public Works	5013	Communications	5013-70-79-25714-620410		200	600	800	Allocating budget for expected expenditures.
Public Works	5014	Communications	5014-70-79-25721-620410	SD LMD ZN 03-MVRW	6,660	580	7,240	Allocating budget for expected project expenditures.
Public Works	5014	Communications	5014-70-79-25721-620410	SD LMD ZN 05-SR	6,660	270	6,930	Allocating budget for expected project expenditures.
Public Works	5014	Communications	5014-70-79-25721-620410	SD LMD ZN 06-MF	6,660	160	6,820	Allocating budget for expected project expenditures.
Public Works	5014	Communications	5014-70-79-25721-620410	SD LMD ZN 07-CEL	6,660	280	6,940	Allocating budget for expected project expenditures.
Public Works	5014	Communications	5014-70-79-25721-620410	SD LMD ZN 09-SV	6,660	480	7,140	Allocating budget for expected project expenditures.
Public Works	5111	Communications	5111-70-79-25704-620410		6,280	3,620	9,900	Allocating budget for expected expenditures.
Public Works	5112	Communications	5112-70-79-25719-620410		2,460	340	2,800	Allocating budget for expected expenditures.
Public Works	5114	Communications	5114-70-79-25720-620410		1,520	80	1,600	Allocating budget for expected expenditures.
Public Works	4105	Professional Svcs - Other	4105-99-99-94105-620299		3,200	150	3,350	Adjusting to match the Special Tax requirement for each bonded district.
Public Works	4105	Interest Expense	4105-99-99-94105-670410		91,620	(9,943)	81,677	Adjusting to match the Special Tax requirement for each bonded district.
Public Works	4105	Admin Chrg - Special Dist	4105-99-99-94105-692020		32,700	(3,628)	29,072	Adjusting to match the Special Tax requirement for each bonded district.
Public Works	4106	Interest Expense	4106-99-99-94106-670410		160,110	(24,003)	136,107	Adjusting to match the Special Tax requirement for each bonded district.
Public Works	4108	Professional Svcs - Other	4108-99-99-94108-620299		18,200	(14,000)	4,200	Adjusting to match the Special Tax requirement for each bonded district.
Public Works	4114	Professional Svcs - Other	4114-99-99-94114-620299		6,950	300	7,250	Adjusting to match the Special Tax requirement for each bonded district.
Public Works	4114	Agency Svcs - Cnty	4114-99-99-94114-620320		200	(200)	0	Adjusting to match the Special Tax requirement for each bonded district.

CITY OF MORENO VALLEY
NON - GENERAL FUND
FY 2018/19 Proposed Amendments

Department	Fund	Account Description	General Ledger Account		Fiscal Year 2018/19 Amended Budget	Proposed Amendment	Revised Budget	Description - Proposed Adjustment
Public Works	4800	Transfers to TOWNGATE IMPR SPCL TAX	4800-99-99-94800-904105		283,200	(3,424)	279,776	Adjusting to match the Special Tax requirement for each bonded district.
Public Works	4800	Transfers to 2007 TOWNGATE SPCL TAX	4800-99-99-94800-904106		1,190,000	(18,404)	1,171,596	Adjusting to match the Special Tax requirement for each bonded district.
Public Works	2006	Salaries-Reimbursable (In/Out)	2006-70-79-25701-611510		(754,500)	(96,948)	(851,448)	True up of allocation of salaries reimbursable.
Public Works	2050	Salaries-Reimbursable (In/Out)	2050-70-79-25722-611510		3,600	(1,343)	2,257	True up of allocation of salaries reimbursable.
Public Works	5111	Salaries-Reimbursable (In/Out)	5111-70-79-25704-611510		121,800	11,725	133,525	True up of allocation of salaries reimbursable.
Public Works	5013	Salaries-Reimbursable (In/Out)	5013-70-79-25705-611510		72,800	10,749	83,549	True up of allocation of salaries reimbursable.
Public Works	5014	Salaries-Reimbursable (In/Out)	5014-70-79-25721-611510	SD LMD ZN 01-TG	344,400	5,912	350,312	True up of allocation of salaries reimbursable.
Public Works	5014	Salaries-Reimbursable (In/Out)	5014-70-79-25721-611510	SD LMD ZN 01A-RP	344,400	1,839	346,239	True up of allocation of salaries reimbursable.
Public Works	5014	Salaries-Reimbursable (In/Out)	5014-70-79-25721-611510	SD LMD ZN 02-HS	344,400	15,090	359,490	True up of allocation of salaries reimbursable.
Public Works	5014	Salaries-Reimbursable (In/Out)	5014-70-79-25721-611510	SD LMD ZN 03-MVRW	344,400	18,212	362,612	True up of allocation of salaries reimbursable.
Public Works	5014	Salaries-Reimbursable (In/Out)	5014-70-79-25721-611510	SD LMD ZN 03A-LPP	344,400	1,466	345,866	True up of allocation of salaries reimbursable.
Public Works	5014	Salaries-Reimbursable (In/Out)	5014-70-79-25721-611510	SD LMD ZN 04-MVRE	344,400	15,185	359,585	True up of allocation of salaries reimbursable.
Public Works	5014	Salaries-Reimbursable (In/Out)	5014-70-79-25721-611510	SD LMD ZN 05-SR	344,400	1,750	346,150	True up of allocation of salaries reimbursable.
Public Works	5014	Salaries-Reimbursable (In/Out)	5014-70-79-25721-611510	SD LMD ZN 06-MF	344,400	2,850	347,250	True up of allocation of salaries reimbursable.
Public Works	5014	Salaries-Reimbursable (In/Out)	5014-70-79-25721-611510	SD LMD ZN 07-CEL	344,400	3,107	347,507	True up of allocation of salaries reimbursable.
Public Works	5014	Salaries-Reimbursable (In/Out)	5014-70-79-25721-611510	SD LMD ZN 08-SM	344,400	1,418	345,818	True up of allocation of salaries reimbursable.
Public Works	5014	Salaries-Reimbursable (In/Out)	5014-70-79-25721-611510	SD LMD ZN 09-SV	344,400	1,025	345,425	True up of allocation of salaries reimbursable.
Public Works	5112	Salaries-Reimbursable (In/Out)	5112-70-79-25719-611510		24,300	2,910	27,210	True up of allocation of salaries reimbursable.
Public Works	5114	Salaries-Reimbursable (In/Out)	5114-70-79-25720-611510		4,400	445	4,845	True up of allocation of salaries reimbursable.
Public Works	2050	Maint & Repair - Bldg & Ground	2050-70-79-25722-620910		16,730	600	17,330	Adjustments for proposed tree trimming.
Public Works	5013	Maint & Repair - Bldg & Ground	5013-70-79-25713-620910		73,700	1,000	74,700	Adjustments for proposed tree trimming.
Public Works	5014	Maint & Repair - Bldg & Ground	5014-70-79-25721-620910	SD LMD ZN 01A-RP	1,451,600	1,000	1,452,600	Adjustments for proposed tree trimming.
Public Works	5014	Maint & Repair - Bldg & Ground	5014-70-79-25721-620910	SD LMD ZN 02-HS	1,451,600	2,000	1,453,600	Adjustments for proposed tree trimming.
Public Works	5014	Maint & Repair - Bldg & Ground	5014-70-79-25721-620910	SD LMD ZN 03-MVRW	1,451,600	700	1,452,300	Adjustments for proposed tree trimming.
Public Works	5014	Maint & Repair - Bldg & Ground	5014-70-79-25721-620910	SD LMD ZN 03A-LPP	1,451,600	1,000	1,452,600	Adjustments for proposed tree trimming.
Public Works	5014	Maint & Repair - Bldg & Ground	5014-70-79-25721-620910	SD LMD ZN 05-SR	1,451,600	1,000	1,452,600	Adjustments for proposed tree trimming.
Public Works	5014	Maint & Repair - Bldg & Ground	5014-70-79-25721-620910	SD LMD ZN 06-MF	1,451,600	1,000	1,452,600	Adjustments for proposed tree trimming.
Public Works	5014	Maint & Repair - Bldg & Ground	5014-70-79-25721-620910	SD LMD ZN 07-CEL	1,451,600	600	1,452,200	Adjustments for proposed tree trimming.
Public Works	5014	Maint & Repair - Bldg & Ground	5014-70-79-25721-620910	SD LMD ZN 08-SM	1,451,600	1,100	1,452,700	Adjustments for proposed tree trimming.
Public Works	5014	Maint & Repair - Bldg & Ground	5014-70-79-25721-620910	SD LMD ZN 09-SV	1,451,600	500	1,452,100	Adjustments for proposed tree trimming.
Public Works	5111	Maint & Repair - Bldg & Ground	5111-70-79-25704-620910		386,300	3,600	389,900	Adjustments for proposed tree trimming.
Public Works	5114	Maint & Repair - Bldg & Ground	5114-70-79-25720-620910		31,900	400	32,300	Adjustments for proposed tree trimming.
Public Works	2001	CIP Other	2001-70-78-80001-720199	801 0017 70 78	0	60,000	60,000	Allocating budget for the Pavement Rehabilitation program.
Public Works	3002	CIP Other	3002-70-77-80001-720199	801 0011 70 77	2,350,014	(2,200,000)	150,014	Decreasing project budget due to funding changes.
Public Works	3002	CIP Other	3002-70-77-80001-720199	801 0047 70 77	2,350,014	(150,014)	2,200,000	Decreasing budget due to project completion.
Public Works	2001	CIP Other	2001-70-77-80001-720199	801 0009 70 77	1,668,515	(1,746)	1,666,769	Decreasing budget due to project completion.
Public Works	2000	Salaries-Overtime	2000-70-78-45311-611210		43,000	50,000	93,000	Staff overtime to address potholes as a result of recent storms.
Community Development	2013	Nuisance Abatement	2013-14-10-14011-625015		45,000	40,000	85,000	Allocating budget for expected abatement expenditures.
Financial & Management Services	6010	Purchased Power	6010-30-80-45510-710110		11,322,000	1,000,000	12,322,000	Budgeting for expected expenditures based on historical data.
Financial & Management Services	6010	Renewable Energy	6010-30-80-45510-710148		719,600	325,000	1,044,600	Budgeting for expected expenditures.
Parks & Community Services	3006	CIP Other	3006-50-57-80003-720199	803 0030-3006Q-99	50,000	(50,000)	0	Reallocating project budget. Net zero impact.
Parks & Community Services	3006	CIP Other	3006-50-57-80007-720199	807 0045-3006Q-99	5,000	(5,000)	0	Reallocating project budget. Net zero impact.
Parks & Community Services	3006	CIP Other	3006-50-57-80007-720199	807 0005 50 57-3006Q-99	100,000	(100,000)	0	Reallocating project budget. Net zero impact.
Parks & Community Services	3016	CIP Other	3016-50-57-80003-720199	803 0030	30,925	50,000	80,925	Reallocating project budget. Net zero impact.
Parks & Community Services	3016	CIP Other	3016-50-57-80007-720199	807 004	7,850	5,000	12,850	Reallocating project budget. Net zero impact.
Parks & Community Services	3016	CIP Other	3016-50-57-80007-720199	807 0005 50 57	186,120	100,000	286,120	Reallocating project budget. Net zero impact.
Parks & Community Services	5011	Salaries-Regular	5011-50-58-35318-611110		261,742	17,423	279,165	Budget reallocation due to employee distribution change.
Parks & Community Services	5011	Benefits - PERS & ERPD Def Comp	5011-50-58-35318-612110		85,684	3,736	89,420	Budget reallocation due to employee distribution change.
Parks & Community Services	5011	Benefits - Other	5011-50-58-35318-612199		0	4,215	4,215	Budget reallocation due to employee distribution change.
Parks & Community Services	5011	Salaries-Regular	5011-50-57-35210-611110		899,375	(15,680)	883,695	Budget reallocation due to employee distribution change.
Parks & Community Services	5011	Benefits - PERS & ERPD Def Comp	5011-50-57-35210-612110		293,978	(2,084)	291,894	Budget reallocation due to employee distribution change.
Parks & Community Services	5011	Benefits - Other	5011-50-57-35210-612199		17,720	(5,073)	12,647	Budget reallocation due to employee distribution change.
Parks & Community Services	5113	Salaries-Regular	5113-50-57-35216-611110		400,943	(1,743)	399,200	Budget reallocation due to employee distribution change.
Parks & Community Services	5113	Benefits - PERS & ERPD Def Comp	5113-50-57-35216-612110		130,982	(1,652)	129,330	Budget reallocation due to employee distribution change.
Parks & Community Services	5113	Benefits - Other	5113-50-57-35216-612199		26,880	858	27,738	Budget reallocation due to employee distribution change.
Parks & Community Services	5211	Mach-Equip-New - Furn & Equip	5211-50-57-35210-660310		0	33,000	33,000	Allocating carryover budget.
Parks & Community Services	7510	Transfers to ZONE "A" PARKS FUND	7510-99-97-88190-905011		165,000	20,985	185,985	Allocating budget for replacement of scoreboard equipment. Replacement funds available.
Parks & Community Services	5011	Mach-Equip-Repl - Furn & Equip	5011-50-58-35313-660320		0	20,985	20,985	Allocating budget for replacement of scoreboard equipment. Replacement funds available.
Parks & Community Services	5011	Oper Mtrls - Recreation	5011-50-58-35310-630312		9,500	4,200	13,700	Requesting Appropriations for expenditure of $25,000 offset by MVU Sponsorship funds for 2018/19.
Parks & Community Services	5011	Contractual Svcs - Other	5011-50-58-35312-625099		40,000	12,800	52,800	Requesting Appropriations for expenditure of $25,000 offset by MVU Sponsorship funds for 2018/19.
Parks & Community Services	5011	Oper Mtrls - Furn & Equip	5011-50-58-35313-630330		1,000	5,500	6,500	Requesting Appropriations for expenditure of $25,000 offset by MVU Sponsorship funds for 2018/19.
Parks & Community Services	5011	Training & Travel	5011-50-58-35315-620510		1,800	2,500	4,300	Requesting Appropriations for expenditure of $25,000 offset by MVU Sponsorship funds for 2018/19.
Financial & Management Services	7510	Transfers to GENERAL FUND	7510-99-97-88190-901010		0	350,000	350,000	ACP module subscription.

CITY OF MORENO VALLEY
NON - GENERAL FUND
FY 2018/19 Proposed Amendments

Department	Fund	Account Description	General Ledger Account		Fiscal Year 2018/19 Amended Budget	Proposed Amendment	Revised Budget	Description - Proposed Adjustment
Financial & Management Services	6010	Transfers to TECHNOLOGY SERVICES ASSET FUND	6010-99-99-96010-907220		0	5,354	5,354	Budgeting for camera equipment for the City network.
Financial & Management Services	7220	Computer-New - Hardware	7220-16-39-25412-660410		0	5,354	5,354	Budgeting for camera equipment for the City network.
Parks & Community Services	2906	Transfers to - QUIMBY PARK FEES	2906-99-95-92906-902019		0	387,650	387,650	Reallocating budget with a net affect of zero.
Parks & Community Services	2906	Transfers to DIF - PARKLAND FACILITIES	2906-99-95-92906-902905		0	1,093,091	1,093,091	Reallocating budget with a net affect of zero.
EXPENSES TOTAL					**$ 40,700,280**	**$ 875,230**	**$ 41,575,510**	

City of Moreno Valley
FY 2017/18 - 2018/19
City Position Summary

Position Title	FY 2012/13 No.	FY 2013/14 No.	FY 2014/15 No.	FY 2015/16 No.	FY 2016/17 No.	FY 2017/18 Adj.	FY 2017/18 No.	FY 2018/19 Adj.	FY 2018/19 No.
Accountant I	2	2	2	1	1	-	1	-	1
Accountant II	-	-	1	1	1	-	1	-	1
Accounting Asst	3	3	3	3	3	-	3	-	3
Accounting Technician	4	3	3	2	2	-	2	-	2
Accounts Payable Supervisor	1	1	1	1	1	-	1	-	1
Administrative Asst	5	8	7	7	8	-	8	-	8
Administrative Services Dir	1	1	1	1	1	(1)	-	-	-
After School Prog Coordinator	-	-	-	-	-	-	-	-	-
After School Prog Specialist	-	-	-	-	-	-	-	-	-
After School Prog Supervisor	-	-	-	-	-	-	-	-	-
Animal Care Technician	4	4	4	5	5	-	5	-	5
Animal Care Technician Supervisor	-	-	-	-	-	1	1	-	1
Animal Control Officer	7	7	7	7	7	-	7	-	7
Animal Rescue Coordinator	-	-	-	1	1	-	1	-	1
Animal Services Asst	2	2	2	4	4	-	4	-	4
Animal Svcs Dispatcher	1	2	2	1	1	-	1	-	1
Animal Svcs Division Manager	1	1	1	1	1	-	1	-	1
Animal Svcs Field Supervisor	1	1	1	1	1	-	1	-	1
Animal Svcs License Inspector	1	1	1	1	1	-	1	-	1
Animal Svcs Office Supervisor	1	1	1	1	1	-	1	-	1
Applications & DB Admin	2	2	2	2	1	-	1	-	1
Applications Analyst	2	2	2	2	1	-	1	-	1
Assistant City Attorney	-	-	-	1	1	-	1	-	1
Assistant City Clerk	-	-	-	-	-	-	-	-	-
Assoc Environmental Engineer	1	1	1	1	1	(1)	-	-	-
Associate Engineer	5	5	5	4	4	-	4	-	4
Associate Planner	4	4	4	4	4	-	4	-	4
Asst Buyer	2	2	2	2	2	-	2	-	2
Asst City Manager	1	1	1	1	1	-	1	-	1
Asst Crossing Guard Spvr	1	1	1	1	1	-	1	-	1
Asst Network Administrator	2	2	2	2	1	-	1	-	1
Asst to the City Manager	1	1	1	-	-	-	-	-	-
Asst. Applications Analyst	-	-	-	-	-	-	-	-	-
Banquet Facility Rep	1	1	1	1	1	-	1	-	1
Budget Officer	1	-	-	-	-	-	-	-	-
Building & Neighborhood Services Div Mgr	-	1	1	-	-	-	-	-	-
Building Safety Supervisor	-	-	-	1	1	-	1	-	1
Building Div Mgr / Official	1	-	-	-	-	-	-	-	-
Building Inspector I I	4	4	4	4	4	-	4	-	4
Business License Liaison	-	-	-	1	1	-	1	-	1
Bus. Support & Neigh Prog Admin	1	-	-	-	-	-	-	-	-
Cable TV Producer	2	2	2	4	2	-	2	-	2
Capital Projects Division Manager	-	-	-	-	1	-	1	-	1
Chief Financial Officer/City Treasurer	1	1	1	1	1	-	1	-	1
Child Care Asst	5	4	4	4	4	-	4	-	4
Child Care Instructor I I	5	4	4	4	4	-	4	-	4
Child Care Program Manager	1	1	1	1	1	-	1	-	1
Child Care Site Supervisor	5	4	4	4	4	-	4	-	4
City Attorney	1	1	1	1	1	-	1	-	1
City Clerk	1	1	1	1	1	-	1	-	1
City Manager	1	1	1	1	1	-	1	-	1
Code & Neigh Svcs Division Manager	-	-	-	-	-	1	1	-	1
Code & Neigh Svcs Official	1	-	-	-	-	-	-	-	-
Code Compliance Field Sup.	-	1	1	1	1	(1)	-	-	-
Code Compliance Officer I/I I	5	6	6	6	6	-	6	-	6
Code Supervisor	-	-	-	-	-	-	-	-	-
Comm & Economic Dev Director	1	1	-	-	-	-	-	-	-
Community Dev Director	-	-	1	1	1	-	1	-	1
Community Services Coordinator	-	-	-	-	3	-	3	1	4
Community Svcs Supervisor	1	1	1	1	1	-	1	-	1
Construction Inspector	5	5	5	5	5	-	5	(3)	2
Construction Inspector Supervisor	-	-	-	-	-	-	-	1	1

City of Moreno Valley
FY 2017/18 - 2018/19
City Position Summary

Position Title	FY 2012/13 No.	FY 2013/14 No.	FY 2014/15 No.	FY 2015/16 No.	FY 2016/17 No.	FY 2017/18 Adj.	FY 2017/18 No.	FY 2018/19 Adj.	FY 2018/19 No.
Crossing Guard	35	35	35	35	35	-	35	-	35
Crossing Guard Supervisor	1	1	1	1	1	-	1	-	1
Customer Service Asst	1	-	-	-	-	-	-	-	-
Dep PW Dir /Asst City Engineer	1	1	1	1	-	-	-	-	-
Deputy City Attorney I	-	-	-	-	1	-	1	-	1
Deputy City Attorney I I I	2	-	1	-	-	-	-	-	-
Deputy City Clerk	1	1	1	1	1	-	1	-	1
Deputy City Manager	-	-	-	-	-	-	-	-	-
Dep. Comm & Economic Dev Director	-	-	-	-	-	-	-	-	-
Development Svcs Coordinator	-	-	-	-	-	-	-	-	-
Economic Dev Director	-	-	1	1	1	-	1	-	1
Economic Dev Division Mgr	-	-	-	1	1	-	1	1	2
Electric Utility Chief Engineer	-	-	-	-	-	-	-	1	1
Electric Utility Division Mgr	1	1	1	1	1	-	1	-	1
Electric Utility Program Coord	1	1	1	1	1	-	1	-	1
Emerg Mgmt & Vol Svc Prog Spec	1	1	1	1	1	-	1	-	1
Emerg Mgmt & Vol Svcs Prog Mgr	1	1	1	1	1	-	1	-	1
Engineering Division Manager/Assistant City Engineer	-	1	1	1	1	-	1	-	1
Engineering Technician I I	1	1	1	1	1	-	1	-	1
Enterprise Systems Admin	2	2	2	2	1	-	1	-	1
Environmental Analyst	1	1	1	1	1	(1)	-	-	-
Equipment Operator	4	4	4	4	4	-	4	-	4
Exec Asst to Mayor / City Council	1	1	1	1	1	-	1	-	1
Exec. Assistant to the City Manager	-	-	-	-	-	-	-	-	-
Executive Asst I	9	9	9	9	9	-	9	-	9
Executive Asst I I	1	1	1	1	1	-	1	-	1
Facilities Maint Mechanic	1	1	1	1	1	-	1	-	1
Facilities Maint Worker	3	3	2	3	3	-	3	-	3
Facilities Maintenance Spvr	-	-	-	-	1	-	1	(1)	-
Financial Analyst	-	-	-	1	1	(1)	-	-	-
Financial Operations Div Mgr	1	1	1	1	1	-	1	-	1
Financial Resources Div Mgr	-	1	1	1	1	-	1	-	1
Fire Inspector I	-	2	2	-	-	-	-	-	-
Fire Inspector I I	2	2	1	-	-	-	-	-	-
Fire Marshall	1	1	-	-	-	-	-	-	-
Fire Safety Specialist	1	2	1	-	-	-	-	-	-
Fleet Supervisor	-	-	-	1	1	-	1	(1)	-
Fleet & Facilities Maintenance Supervisor						-	-	1	1
GIS Administrator	2	2	-	-	-	-	-	-	-
GIS Specialist	2	2	2	2	1	-	1	-	1
GIS Technician	-	-	2	2	1	-	1	-	1
Housing Program Coordinator	1	1	1	-	-	-	-	-	-
Housing Program Specialist	3	-	-	-	-	-	-	-	-
Human Resources Analyst	1	1	1	1	1	-	1	(1)	-
Human Resources Director	-	-	-	-	-	1	1	-	1
Human Resources Technician	-	-	-	-	-	-	-	-	-
Info Technology Technician	4	4	4	4	2	-	2	-	2
Landscape Development Coord	-	-	-	-	-	-	-	-	-
Landscape Irrigation Tech	1	1	1	1	1	(1)	-	-	-
Landscape Svcs Inspector	3	2	2	2	2	-	2	-	2
Landscape Svcs Supervisor	-	-	1	1	1	-	1	-	1
Lead Animal Care Technician	1	1	1	1	1	(1)	-	-	-
Lead Facilities Maint Worker	-	-	1	1	1	-	1	-	1
Lead Maintenance Worker	3	3	3	4	4	-	4	-	4
Lead Parks Maint Worker	5	5	5	6	6	-	6	-	6
Lead Traffic Sign/Marking Tech	2	2	2	2	2	-	2	-	2
Lead Vehicle / Equip Tech	1	1	1	-	-	-	-	-	-
Legal Secretary	1	1	1	-	-	-	-	-	-
Lib Serv Div Mgr	1	-	-	-	-	-	-	-	-
Librarian	4	-	-	-	-	-	-	-	-
Library Asst	13	-	-	-	-	-	-	-	-
Library Circulation Supervisor	1	-	-	-	-	-	-	-	-

City of Moreno Valley
FY 2017/18 - 2018/19
City Position Summary

Position Title	FY 2012/13 No.	FY 2013/14 No.	FY 2014/15 No.	FY 2015/16 No.	FY 2016/17 No.	FY 2017/18 Adj.	FY 2017/18 No.	FY 2018/19 Adj.	FY 2018/19 No.
Maint & Operations Div Mgr	1	1	1	1	1	-	1	-	1
Maintenance Worker I	-	7	-	-	-	-	-	-	-
Maintenance Worker II	1	1	-	-	-	-	-	-	-
Maintenance Worker I/II	12	12	18	18	18	-	18	-	18
Management Aide	-	-	1	2	2	(1)	1	1	2
Management Analyst	14	12	11	10	9	4	13	1	14
Management Asst	3	4	5	4	4	1	5	1	6
Media Division Manager	-	-	-	-	-	1	1	-	1
Media & Production Supervisor	1	1	1	2	1	(1)	-	-	-
Network Administrator	2	2	2	2	1	-	1	-	1
Office Asst	1	1	-	-	-	-	-	-	-
Paralegal	-	-	-	1	1	-	1	-	1
Park Ranger	3	3	3	3	3	-	3	-	3
Parking Control Officer	2	2	2	2	2	-	2	-	2
Parks & Community Services Deputy Director	-	-	-	-	-	1	1	-	1
Parks & Community Services Director	1	1	1	1	1	-	1	-	1
Parks & Community Services Division Manager	1	1	1	1	1	(1)	-	-	-
Parks Maintenance Division Manager	-	-	-	-	-	-	-	-	-
Parks Maint Supervisor	2	2	2	2	2	-	2	-	2
Parks Maint Worker	13	13	13	12	12	-	12	-	12
Parks Projects Coordinator	1	1	1	1	1	-	1	-	1
Payroll Supervisor	1	1	1	1	1	-	1	-	1
Permit Technician	6	5	5	5	5	-	5	-	5
Planning Commissioner	7	7	7	7	7	-	7	-	7
Planning Div Mgr / Official	1	1	1	1	1	-	1	-	1
Principal Accountant	1	1	1	1	1	-	1	-	1
Public Information/Intergovernmental Relations Officer	-	-	-	1	1	-	1	-	1
Public Safety Contract Administrator	-	-	-	-	-	1	1	-	1
Purch & Facilities Div Mgr	1	1	1	1	1	-	1	-	1
PW Director / City Engineer	1	1	1	1	1	-	1	-	1
Recreation Program Coord	1	1	1	2	-	-	-	-	-
Recreation Program Leader	7	7	7	7	7	-	7	-	7
Recreation Supervisor	1	1	1	-	-	-	-	-	-
Recycling Specialist	-	1	1	2	1	-	1	-	1
Resource Analyst	-	-	-	-	-	-	-	-	-
Risk Division Manager	-	-	-	-	-	-	-	-	-
Security Guard	2	2	2	2	2	-	2	-	2
Spec Dist Budg & Accting Spvr	-	-	-	-	-	-	-	-	-
Spec Districts Div Mgr	1	1	1	1	1	-	1	-	1
Special Districts Prog Mgr	1	1	1	-	-	-	-	-	-
Sr Accountant	1	1	1	2	2	1	3	-	3
Sr Administrative Asst	16	14	17	17	17	-	17	-	17
Sr Applications Analyst	-	-	2	2	1	-	1	-	1
Sr Citizens Center Coord	1	1	1	1	-	-	-	-	-
Sr Code Compliance Officer	-	-	-	-	-	2	2	-	2
Sr Construction Inspector	-	-	-	-	-	-	-	2	2
Sr Customer Service Asst	3	3	3	3	3	-	3	-	3
Sr Deputy City Clerk	-	-	-	-	-	-	-	1	1
Sr Electrical Engineer	1	1	1	1	1	-	1	-	1
Sr Engineer, P.E.	9	9	9	7	6	(1)	5	-	5
Sr Engineering Technician	1	1	1	1	1	-	1	-	1
Sr Equipment Operator	1	1	1	1	1	-	1	-	1
Sr Financial Analyst	2	2	1	-	-	-	-	-	-
Sr GIS Analyst	2	2	2	2	1	-	1	-	1
Sr Graphics Designer	1	1	1	2	1	-	1	-	1
Sr Human Resources Analyst	1	1	1	1	1	-	1	-	1
Sr IT Technician	-	-	-	-	-	-	-	-	-
Sr Landscape Svcs Inspector	1	1	-	-	-	-	-	-	-
Sr Management Analyst	2	2	3	4	5	(1)	4	(1)	3
Sr Office Asst	5	4	3	3	3	(1)	2	-	2
Sr Park Ranger	-	-	-	-	-	-	-	-	-
Sr Parking Control Officer	1	1	1	1	1	-	1	-	1

City of Moreno Valley
FY 2017/18 - 2018/19
City Position Summary

Position Title	FY 2012/13 No.	FY 2013/14 No.	FY 2014/15 No.	FY 2015/16 No.	FY 2016/17 No.	FY 2017/18 Adj.	FY 2017/18 No.	FY 2018/19 Adj.	FY 2018/19 No.
Sr Parks Maint Technician	2	2	2	2	2	-	2	-	2
Sr Payroll Technician	1	1	1	1	1	-	1	-	1
Sr Permit Technician	2	2	2	2	2	-	2	-	2
Sr Planner	2	2	2	2	2	-	2	-	2
Sr Recreation Program Leader	2	2	2	2	2	-	2	-	2
Sr Telecomm Technician	2	2	2	2	1	-	1	-	1
Sr Traffic Engineer	1	1	1	-	-	-	-	-	-
Sr Traffic Signal Technician	1	1	1	1	1	-	1	-	1
Storekeeper	1	1	1	1	1	-	1	-	1
Storm Water Prog Mgr	1	1	1	1	1	(1)	-	-	-
Strategic Initiatives Manager	-	-	-	-	-	1	1	-	1
Street Maintenance Supervisor	2	2	2	2	2	-	2	-	2
Sustainability & Intergovernmental Prog Mgr	-	1	1	-	-	-	-	-	-
Technology Services Div Mgr	2	2	2	2	1	(1)	-	-	-
Telecomm Engineer / Admin	2	2	2	2	1	-	1	-	1
Telecomm Technician	2	2	2	2	1	-	1	-	1
Traffic Operations Supervisor	1	1	1	1	1	-	1	-	1
Traffic Sign / Marking Tech I	1	1	1	1	1	-	1	-	1
Traffic Sign/Marking Tech I I	2	2	2	2	2	-	2	-	2
Traffic Signal Technician	2	2	2	2	2	-	2	-	2
Trans Div Mgr / City Traf Engr	1	1	1	1	1	-	1	-	1
Treasury Operations Div Mgr	1	1	1	1	1	-	1	-	1
Tree Trimmer	1	1	1	-	-	-	-	-	-
Vehicle / Equipment Technician	2	3	3	3	3	-	3	1	4
Total	**391**	**374**	**375**	**374**	**356**	**-**	**356**	**5**	**361**

City of Moreno Valley

Date Council Approved:
Date Effective:

CLASS SPECIFICATION

Fleet and Facilities Maintenance Supervisor

GENERAL PURPOSE

Under general supervision, plans, coordinates, directs and supervises activities of vehicle and equipment maintenance operations involved in the maintenance, diagnoses, repairs and overhauling a wide variety of diesel and gas-powered heavy and light vehicles and equipment; plans, schedules and supervises facilities maintenance crews engaged in maintaining the City's facilities in a safe and aesthetically pleasing manner for staff and the public's use and enjoyment; and performs related duties as assigned.

DISTINGUISHING CHARACTERISTICS

The Fleet and Facilities Maintenance Supervisor reports to the Maintenance and Operations Division Manager overseeing the operation of Fleet Services and Facilities Maintenance. Provides supervision, scheduling, technical assistance, evaluating and training to the Fleet Services staff and the Facilities Maintenance crews and contractors. Incumbents inspect and assess fleet and facility maintenance needs, plan and estimate requirements to address these needs. Duties and responsibilities are carried out with considerable independence within the framework of established policies, procedures and guidelines.

ESSENTIAL DUTIES AND RESPONSIBILITIES

The duties listed below are intended only as illustrations of the various types of work that may be performed. The omission of specific statements of duties does not exclude them from the position if the work is similar, related or a logical assignment to this class.

1. Plans, organizes, coordinates, inspects, supervises the work of assigned staff and contractors. Participates in the maintenance and repair of equipment, facilities, and vehicles when required; coordinates maintenance and repair activity with City departments.

2. Implements and monitors work plans to achieve assigned goals and objectives; contributes to the development and monitoring of performance against the annual facilities maintenance budget; participates in developing, implementing and evaluating work programs, plans, processes, systems and procedures to achieve City goals, objectives and performance measures consistent with the City's quality and service expectations.

3. Plans and evaluates the performance of assigned staff; establishes performance requirements and personal development targets; regularly monitors performance and provides coaching for performance improvement and development; subject to management concurrence, takes disciplinary action, up to and including termination, to address performance deficiencies, in accordance with the City's human resources polices and labor contract provisions.

4. Provides day-to-day leadership and participates in programs and activities that promote a positive employee relations environment; Supervises work methods and operations to ensure a high performance and customer service oriented work environment; monitors maintenance and operating

costs; procures materials; processes and follows up on payment of invoices; ensures fleet and facilities maintenance policies, procedures and services are effectively rendered; makes suggestions and recommends changes to increase effectiveness; participates in the development of the division budget.

5. Plans, schedules, inspects and evaluates the work of skilled and semi-skilled personnel engaged in the construction, maintenance and improvement of City equipment, facilities, and vehicles; provides technical assistance to staff, vendors and others regarding the maintenance and care of equipment, facilities and vehicles.

6. Supervises programs relative to the preventative maintenance and repair of equipment, facilities and vehicles; inspects equipment, facilities and vehicles to assess the extent and cost of needed repair; maintains related records, including inventory and stock, and prepares correspondence and reports regarding vehicle, facilities and equipment service.

7. Assess the maintenance needs of facilities and plans and schedules work as required; estimates labor, material and equipment requirements for assigned work and projects; requisitions parts, tools, equipment and material for assigned work and projects.

8. Assists in the evaluation for replacement and development of specifications and projection of cost for new City vehicles and equipment, and capital equipment related to equipment and vehicle maintenance.

9. Maintains computerized work order records system of staff activities and progress; assists in developing and assembling documents for public bid processes for construction or maintenance contracts.

10. Oversees and supervises the work of outside firms providing contract maintenance in facilities and fleet maintenance; act as Project Manager for Facilities Maintenance projects as needed.

OTHER DUTIES

1. Ensures cleanliness of shop and vehicle service areas and ensures supplies and equipment are maintained in orderly condition; orders parts and supplies as needed.

2. Participates in after-hours emergency and non-emergency responses to equipment failures, facility needs, alarms, or equipment/vehicle breakdowns; conducts emergency repairs in the field as needed.

3. Review plans and blueprints for accurate application of City needs and requirements.

4. Oversees the division tools, supply and surplus material storage and activities.

QUALIFICATIONS

Knowledge of:

1. Methods, techniques, parts, tools and materials used in the overhaul, maintenance and repair of diesel- and gasoline-powered vehicles, including automatic and manual transmissions, brakes, suspension and steering systems.

2. Principles, practices, techniques, methods, equipment and tools used in facilities maintenance, including maintenance of commercial buildings and grounds, building components including HVAC and other mechanical items, proper plumbing and electrical procedures and applications, interior and exterior lighting and alarm systems.
3. Principles and practices of employee supervision, including work scheduling.
4. Purchasing procedures.
5. Safe work methods and safety practices pertaining to the work, including OSHA standards; relevant codes and regulations; federal, state and local laws, regulations and court decisions applicable to assigned areas of responsibility including the application of ADA requirements, handling and disposal of hazardous waste, clean air requirements, air quality regulations.
6. Operation and maintenance of a wide variety of equipment, hand, shop and power tools common to the field.
7. Machine and welding shop methods and practices.
8. Fuel delivery systems.
9. Methods and techniques of commercial building operations, repair and maintenance.
10. Methods of building energy efficiency.
11. City safety policies and procedures and safe work practices.
12. Uses and operations of computers and standard business software.
13. Principles and practices of effective supervision.
14. City human resources policies and procedures and labor contract provisions.

Ability to:

1. Plan, organize, supervise, set goals, assign, inspect and evaluate the work of others; develop and implement work standards.
2. Organize, set priorities and schedules and exercise sound independent judgment within areas of responsibility; calculate staffing, equipment and materials requirements.
3. Interpret and work with blueprints, diagrams and sketches; read and interpret manuals, specifications and drawings.
4. Prepare clear, concise and comprehensive records of work completed, correspondence, reports and other written materials.
5. Operate and maintain equipment and tools used in the field.
6. Identify and implement effective courses of action to complete assigned work.
7. Coordinate work assignments with other divisions and departments.

8. Exercise independent judgment and initiative without close supervision.
9. Train others in the performance of skilled facilities maintenance duties and equipment operation.
10. Use mathematics to make calculations.
11. Safe work methods and safety regulations pertaining to the work.
12. Operate light and heavy equipment used in the scope of work projects and train others in its usage.
13. Establish and maintain effective working relationships with City management, staff, vendors and others encountered in the course of work.

Education, Training and Experience:

A typical way of obtaining the knowledge, skills and abilities outlined above is graduation from high school or G.E.D. equivalent; five years of related journey-level mechanical and/or facilities maintenance, construction or a closely related field experience, including four years of lead/supervisory experience, preferably in management of a commercial or government fleet or facilities maintenance.

Licenses; Certificates; Special Requirements:

A valid driver's license is required and the ability to maintain insurability under the City's vehicle insurance policy.

Desirable Certifications: ASE Certificate; Building Operator Certificate

Class B driver's license with Air Brake and Tank Endorsements is required prior to the conclusion of the probationary period.

Class A driver's license and/or Passenger Endorsements are highly desirable.

PHYSICAL AND MENTAL DEMANDS

The physical and mental demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this class. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Physical Demands

While performing the duties of this job, the employee is frequently required to use hands to finger, handle, feel or operate objects, tools or controls; and reach with hands and arms. The employee is occasionally required to climb or balance, stoop, kneel, crouch or crawl, walk, sit and talk or hear. The employee must regularly lift and/or move up to 50 pounds and frequently over 100 pounds. Specific vision abilities required by this job include close vision, color vision and the ability to adjust focus.

Mental Demands

While performing the duties of this class, employees are regularly required to use written and oral communication skills; read and interpret data, information and documents; analyze and solve basic problems; use simple math and mathematical reasoning; observe and interpret situations; learn and apply new information or new skills; work under deadlines with interruptions; and interact with City management, staff, vendors and others encountered in the course of work.

WORK ENVIRONMENT

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this class. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

The employee frequently works near moving mechanical parts or in outside weather conditions and is occasionally exposed to wet and/or humid conditions, fumes, toxic or caustic chemicals. The noise level is moderately noisy.