IRONWOOD RESIDENTIAL PROJECT

Initial Study/Mitigated Negative Declaration

Prepared for
City of Moreno Valley

November 2016

ESA PCR

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Prepared for
City of Moreno Valley
14177 Frederick Street
Moreno Valley, California 92553
Claudia Manrique, Associate Planner
(951) 413-3225

November 2016

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ENVIRONMENTAL CHECKLIST FORM

1. **Project title:** Ironwood Residential Project

2. **Lead agency name and address:** City of Moreno Valley
14177 Frederick Street
Moreno Valley, CA 92553

3. **Contact person and phone number:** Claudia Manrique, Associate Planner: (951) 413-3225

4. **Project location:** The approximately 75-acre project site does not have a physical address but is located within the City of Moreno Valley and is bound by Ironwood Avenue on the south, Nason Street on the west, Oliver Street on the east, and vacant land within the San Timoteo Badlands to the north. The rectangular-shaped site consists of a single parcel (APN 473-160-004-5). The site is currently undeveloped and supports a mix of native, non-native and ruderal (i.e., weedy) vegetation, and the site also contains a number of unimproved roads/trails that traverse the property. Elevations on-site range from approximately 1,840 feet above mean sea level (MSL) to 1,980 feet above MSL.

5. **Project sponsor's name and address:** Global Investments and Development, LLC
3470 Wilshire Boulevard, Suite 1020
Los Angeles, California 90010
Contact: Joseph Rivani, Principal
(p) (213) 365-0005
e-mail: jrivani@gidllco.com

6. **General plan designation:** R2 (Residential – 2 units per acre max) and HR (Hillside Residential)

7. **Zoning:** RA2 (Residential Agriculture – 2 units per acre max) and HR (Hillside Residential)

8. **Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)**

The proposed project consists of the development of a 181-unit single-family residential subdivision with lot sizes ranging from 7,200 square feet to over 17,200 square feet on the approximately 75-acre property. The project would also provide public and private open space, private recreational facilities (on-site park), public and private trails, public and private streets, on- and off-site utility improvements (including off-site water distribution pipelines), and stormwater detention basins and water quality features.

9. Surrounding land uses and setting: Briefly describe the project's surroundings:

Surrounding land uses include low density single-family residential development to the west and south of the site, which are zoned R1 and R2, respectively. To the east of the project site is vacant land to the east of Oliver Street, which is zoned RA2 similar to the project site, and to the north of the project site is vacant land zoned HR and RA2 within the foothills of the San Timoteo Badlands.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)

The discretionary actions for the project may include, but are not limited to, the following: General Construction Permit and Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB); Section 404 Permit (U.S. Army Corps of Engineers); Section 1602 Streambed Alteration Agreement (CDFW); grading, excavation, foundation, and/or associated building permits, as required; and other permits and approvals by other agencies as deemed necessary.

PURPOSE OF THE INITIAL STUDY

The Ironwood Residential Project is analyzed in this Initial Study/Mitigated Negative Declaration (IS/MND) in accordance with the California Environmental Quality Act (CEQA) to determine if approval of the proposed project would have a significant impact on the environment. This IS/MND has been prepared pursuant to the requirements of CEQA, under Public Resources Code 21000-21177, of the State CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387) and under the guidance of the City of Moreno Valley. The City of Moreno Valley is the Lead Agency under CEQA and is responsible for preparing the IS/MND for the proposed project.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Greenhouse Gas Emissions	☐ Hazards/Hazardous Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities and Service Systems	☐ Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature	Date 11/10/16
Claudia Manrique Printed Name	City of Moreno Valley For

EVALUATION OF ENVIRONMENTAL IMPACTS:

The impact columns heading definitions in the table below are as follows:

- "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
- "Less Than Significant Impact with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The mitigation measures must be described, along with a brief explanation of how they reduce the effect to a less than significant level.

- "Less Than Significant Impact" applies where the project creates no significant impacts, only Less Than Significant impacts.
- "No Impact" applies where a project does not create an impact in that category. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one proposed (e.g., the project falls outside of a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS – Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
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?	☐	☐	☒	☐
II. AGRICULTURE AND FORESTRY 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 Department 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 of and the Forest Legacy Assessment Project; and forest carbon measurements 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 1220(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?	☐	☐	☐	☒

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
III. 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?	☐	☒	☐	☐
IV. 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 US 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 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?	☐	☒	☐	☐

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
V. 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?	☐	☒	☐	☐
VI. 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 (1994), 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?	☐	☐	☐	☒

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GREENHOUSE GAS EMISSIONS – Would the Project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance?	☐	☐	☒	☐
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐
VIII. 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?	☐	☒	☐	☐

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. 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 level (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 which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alternation of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater 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?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒
X. 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?	☐	☐	☒	☐

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☒	☐	☐
XI. 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?	☐	☐	☐	☒
XII. NOISE – Would the project result in:				
a) Exposure of persons to or generation of noise level 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?	☐	☐	☐	☒
XIII. 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 roads 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?	☐	☐	☐	☒

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the need for new or physically altered governmental facilities, 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?	☐	☐	☒	☐
XV. RECREATION				
a) Would the project 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) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐
XVI. 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?	☐	☐	☒	☐

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities??	☐	☐	☒	☐
XVII. 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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
XVIII. 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, 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 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 projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Attachment A
Project Description

ATTACHMENT A - PROJECT DESCRIPTION

A. Introduction

Global Investment and Development, LLC (Project Applicant) is proposing a Tentative Tract Map (TTM No. 37001) to develop up to 181 single-family residential units on the approximately 75-acre undeveloped Project site within the City of Moreno Valley, herein referred to as the Ironwood Village Project (the "Project" or "proposed Project"). The following describes the Project site location, existing site conditions, the proposed residential development and related improvements, anticipated construction schedule, and necessary discretionary approvals for the Project.

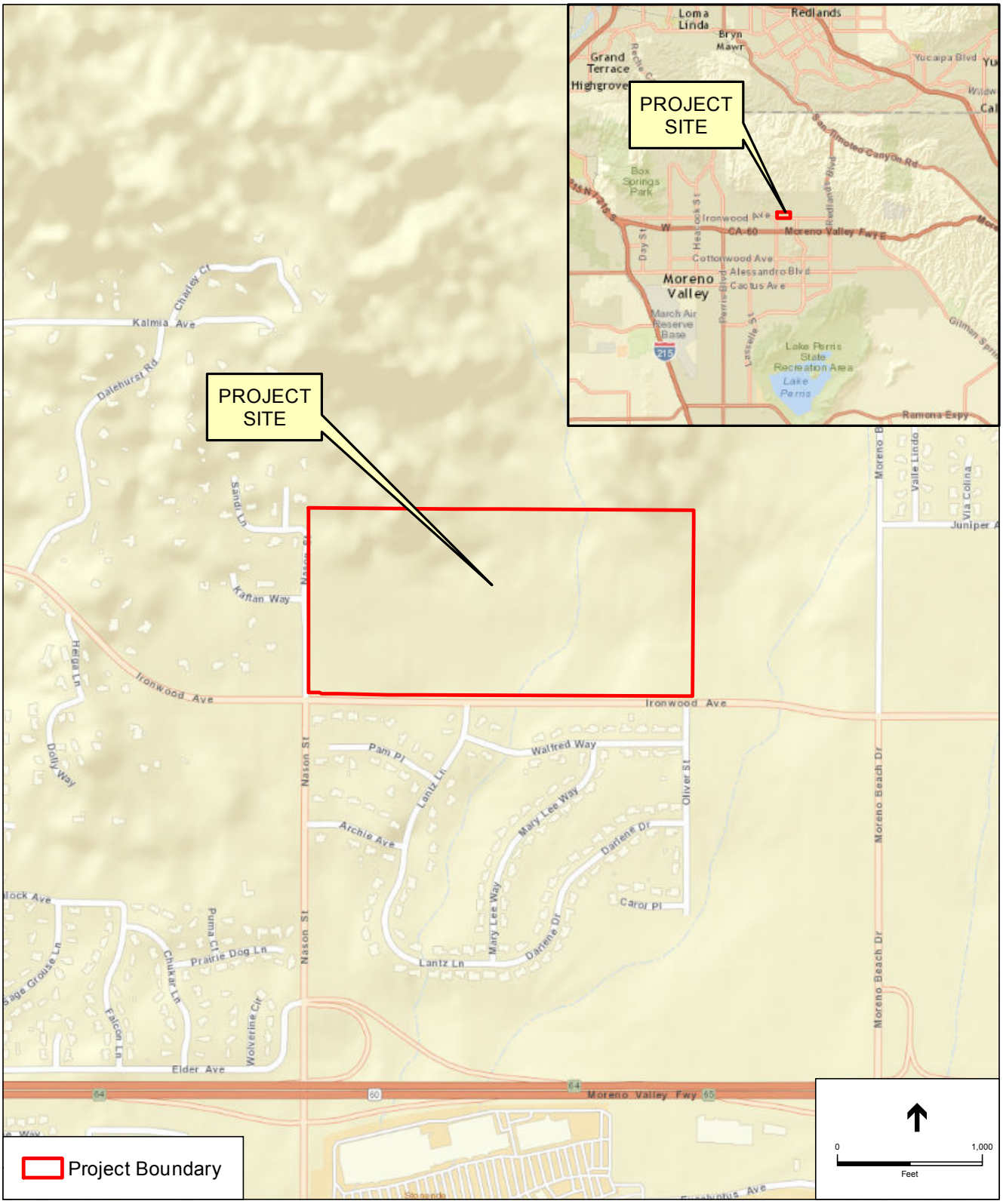
B. Project Location and Surrounding Uses

The approximately 75-acre Project site is located in the northeastern portion of City of Moreno Valley immediately northeast of the intersection of Ironwood Avenue and Nason Street, and bounded by Ironwood Avenue on the south, Nason Street on the west, Oliver Street on the east, and vacant land to the north. **Figure A-1,** *Regional Location and Vicinity Map*, illustrates the regional location and the local vicinity of the Project site, while **Figure A-2**, *Aerial Photograph*, provides an aerial view of the Project site with surrounding land uses indicated by land use type. The Project site is located immediately south of the foothills of the San Timoteo Badlands, and consists of one single-family residential designated parcel (APN 473-160-004-5). There is no street address associated with the property, which is currently vacant land, though several unimproved trails/dirt roads traverse the property which are oriented east-west and north-south.

The Project site is designated for low-density residential uses (R2 residential uses up to 2 units per acre) per the City's General Plan Land Use Map, and is zoned Residential Agriculture (RA2, up to 2 units per acre) and Hillside Residential (HR). As shown in Figure A-2, surrounding land uses near the site include single-family residential development to the west (R1 large-lot residential uses) and south (R2 residential uses up to 2 units per acre). To the east of the site is vacant land zoned for single-family residential uses (RA2 residential agriculture up to 2 units per acre), while vacant land zoned for single-family residential uses (RA2 and HR hillside residential uses).

C. Existing Conditions

Elevations on-site range from approximately 1,840 feet above mean sea level (MSL) in the south-central portion of the site to approximately 1,980 feet above MSL in the northwestern portion of the site. From east to west across the property is a series of north-south-oriented ridges and alternating drainage gullies in the lower, southern portion of the property.

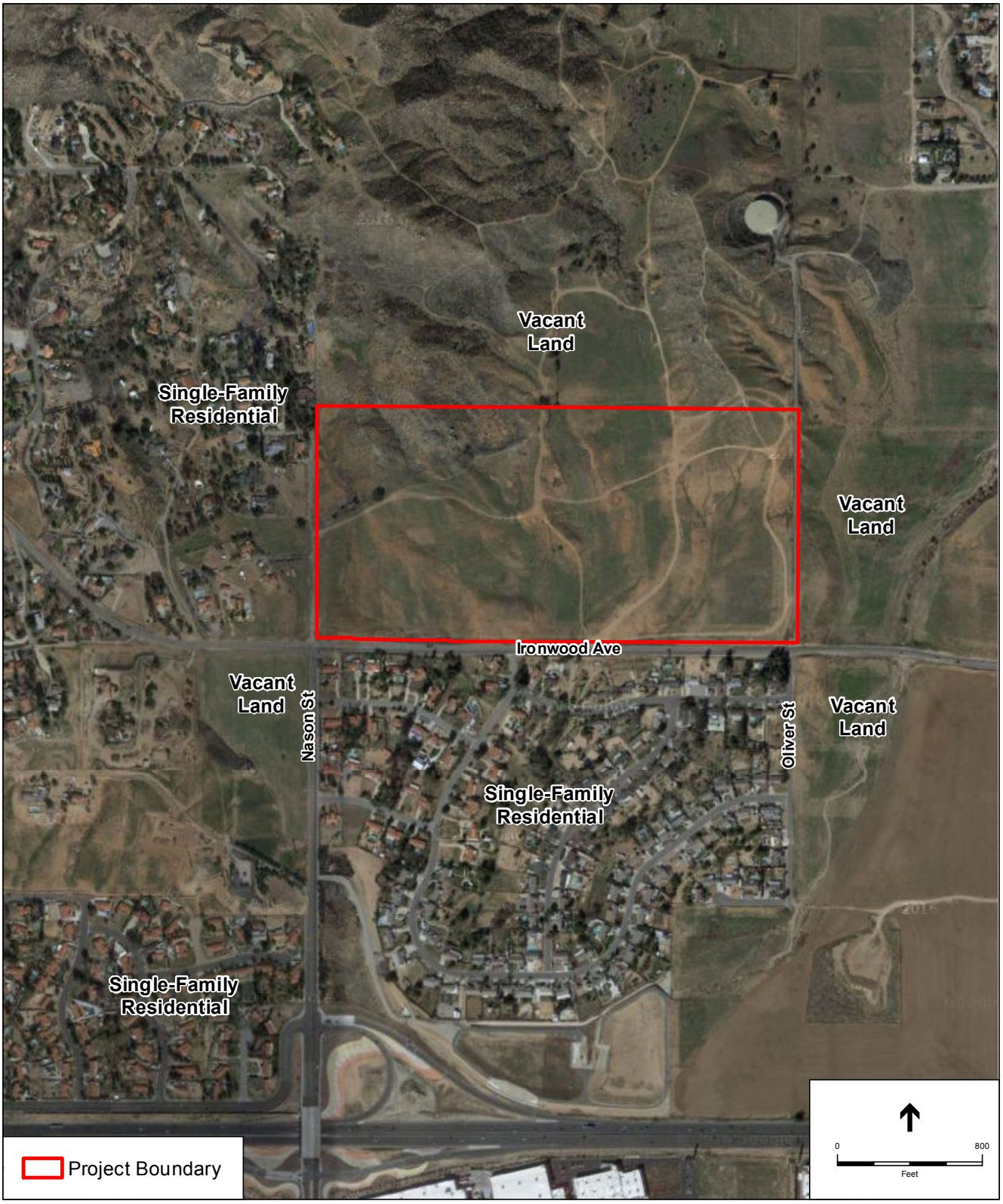


SOURCE: ESRI Street Map, 2009.

Ironwood Village Project

Figure A-1

Regional and Project Vicinity Map



SOURCE: Google Maps, 2015 (Aerial).

Ironwood Village Project

Figure A-2

Aerial Photograph and Surrounding Land Uses

ESA PCR

The intervening ridges are generally about 5 to 10 feet higher in elevation them the adjacent drainage gullies. Rounded granitic outcrops are exposed in the northwestern and northeastern sections of the property. The overall surface gradient across the property is gently to moderately south or south-southeast. The Project site is undeveloped and supports a limited mix of native, non-native, and ruderal (i.e., weedy) vegetation. Although the majority of the site consists of ruderal and non-native vegetation, the site also supports a few small, isolated patches of native scrub habitats (e.g., lemonade berry scrub, purple sage scrub/California sagebrush scrub, and California sagebrush scrub). No blueline streams or drainages exist on-site.

D. Description of the Proposed Project

1. Project Summary

The proposed Project would entail the construction of a new, 181-unit single-family residential development on the currently undeveloped approximately 75-acre Project site. Lot sizes for the proposed single-family homes would range from a minimum of 7,200 square feet to over 17,200 square feet, with an average lot size of approximately 9,260 square feet. In order to accommodate the proposed density on the Project site, which is currently zoned RA2 with a density of up to two units per acre, the applicant is requesting a change of zone to R3 (single-family residential up to 3 units per acre) on the western portion of the Project site, and R5 (single-family residential uses up to 5 units per acre) on the eastern portion of the site. Please see **Figure A-3**, *Conceptual Land Use Plan*, below, for an illustration of the proposed land use plan and associated residential densities on the Project site. As such, the residential density would be lower on the western side of the Project site, to the west of a proposed open space and recreation corridor that would bisect the property in a north-south orientation, while higher density development would be located east of the of this corridor. The shift in density is intended to serve a transition between existing lower density R1 residential uses immediately to the west of the Project site across Nason Street and existing R2 residential uses to the south and farther to the east across Moreno Beach Drive, as well as R2 or potentially higher density residential uses immediately to the east of the Project site. As illustrated below in **Figure A-4**, *Project site Plan*, the proposed Tentative Tract Map (TTM No. 37001) for the Project would subdivide the property into 181 for-sale residential lots as well as a number of lettered lots for open space, recreation, private recreational facilities, stormwater detention facilities, utility easements, trails, and a “buffer lot” at the southeast corner of the property.

The proposed Project is proposed to be implemented in accordance with the Ironwood Village Design Guidelines (Design Guidelines), which would serve as a guide for implementation of the residential development. The Design Guidelines include site development regulations in order to provide cohesive design throughout the Ironwood Village Project. Creating a diversity of housing choices not available with a typical tract map, the proposed Project is intended to encourage a range of housing alternatives with a variety of lot sizes intermixed with trails, a park, open space areas and water quality features.

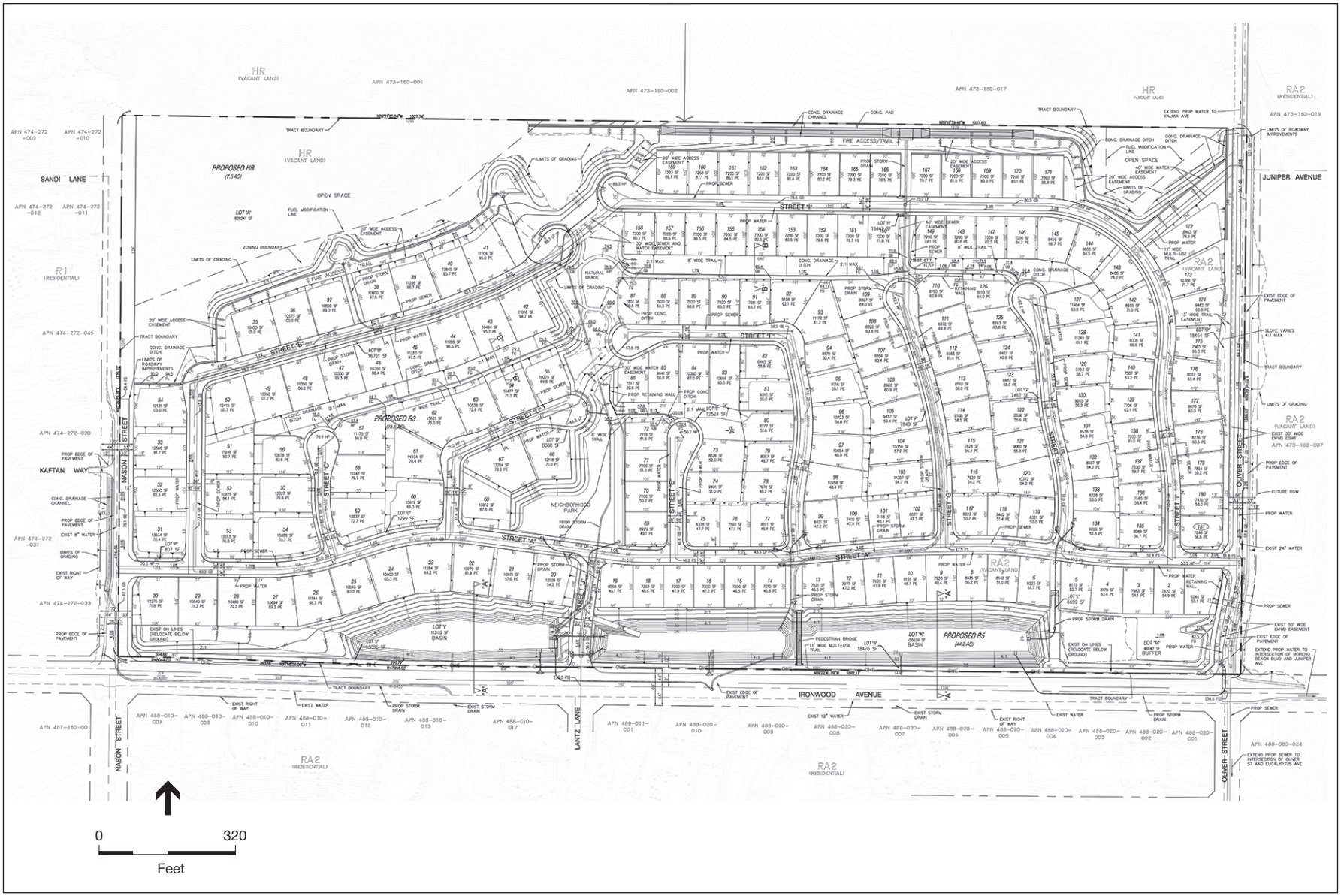
SOURCE: KTGY Group, Inc., 2016

Ironwood Village Project

Figure A-3

Conceptual Land Use Plan

ESA PCR



SOURCE: Anderson Consulting Engineers, Inc., 2016

Ironwood Village Project

Figure A-4

Project Site Plan

ESA PCR

The development standards included in the Design Guidelines require a quality mix of products, while creating walkable neighborhood with access to trails and other outdoor recreation and open space opportunities. The Ironwood Village Project would conserve the northwestern hillside areas of the Project site and would not build any physical improvements in that area. The proposed Project is designed to respect the existing topography, maintain rock outcroppings where feasible and provide a transition into the hillside areas.

2. Site Design and Architectural Theme

a. Site Design

The Ironwood Village Project is intended to provide a buffer with the appropriate use of natural open space, landscaping, trails, right-of-ways and fire access creating a pleasing visual transition between the existing rural residential uses, while providing for a suburban life-style in a cohesively planned “private” non-gated community with amenities not commonly found in typical subdivisions. This Project is intended for the development of lots a bit larger than typical single family residences at a maximum allowable density of three (3) dwelling units per acre on the western portion of the site and five units per acre on the eastern portion.

The proposed Ironwood Village Project anticipates 181 units on approximately 38.5 acres, along with approximately twenty-nine point four (29.4) acres of open space, and an additional 10.3 acres of natural open space (i.e. hillsides and rock outcroppings) with a mix of lot sizes ranging from 10,000 square feet minimum (on the western portion of the site) down to 7,200 square feet minimum (on the eastern portion of the site) lot sizes. Architecture for the Ironwood Village Project reflects the diversity of architectural styles found throughout California.

b. Architectural Design

The Ironwood Village Architectural Design Guidelines are intended to allow ultimate flexibility to the builder and are purely illustrative in character for the final buildout. The Design Guidelines provide the builder with a palette of options of design features and elements to be mixed and matched to create a comprehensive Project that has continuity of design throughout, but is not monotonous or repetitive. The actual detailed architectural design elements and details that will be used within the Ironwood Village community will be decided at time of buildout by the developer with approval by the City of Moreno Valley. While these design guidelines suggest architectural styles, the styles utilized should be authentic and distinct. Traditional styles typically have defining features that should be consistently implemented throughout the Ironwood Village development. The Design Guidelines allow for updated styles as long as the defining features can be identified and applied to the floor plans. The Design Guidelines allow for five different styles of architecture, including Monterey, Spanish Colonial, Santa Barbara, Napa, and Tuscan.

3. Circulation and Access

a. Project site Access

Vehicular access to the Project site is currently and would continue to be provided via Ironwood Avenue, Nason Street, and Oliver Street. As shown in Figure A-4 above, the primary driveway for the Project site would be located on Ironwood Avenue about mid-block between Nason Street and Oliver Street, immediately opposite from and north of Lantz Lane. Secondary site access would be provided by driveways on both Nason Street and Oliver Street just north of Ironwood Avenue.

b. On-Site Circulation

The internal streets within the "private" non-gated Ironwood Village community propose using privately maintained streets within the Project interior. The private roadway section is based on the City-Standard Street width of 36 feet from curb face to curb face. However, in order to maintain a unique feel to the community, the typical parkway landscape would be replaced with a dedicated, HOA-maintained, eight-foot lettered landscape lot containing a four-foot-wide concrete sidewalk along a single side of the roadway (see **Figure A-5**, *Trails and Open Space Plan*, below for an illustration of the proposed sidewalk location). The other side of the private road would have homeowner maintain yards to the back of the curb. The roadway section, including curb face, would be dedicated to, and maintained by, the Ironwood Village HOA. Separate easements for utilities would also be dedicated, as necessary, to provide proper services to the "private" non-gated community.

4. Open Space and Recreation

a. Open Space

(1) Natural Open Space

As noted above, the hillside natural open space areas would be left undeveloped or minimally developed on the northwest and northeastern areas along the northern most Project boundaries as shown on the Tract Map 31007. Please refer to Figure A-5 for an illustration of areas to be preserved as open space. These areas would be conserved as natural open space to help preserve the scenic views of the hillsides from the City of Moreno Valley. These areas would not be landscaped and/or watered the area would be maintained as is, unless otherwise required by the City of Moreno Valley. The hillside natural open space areas create a "natural" transition between the developed and undeveloped areas, and may include the fuel modification vegetation clearance zone and/or fire access or trails. The hillside areas would also help to buffer and transition the Project from the surrounding land uses. Preserving the hillside areas for scenic and transitional reasons allows for some of the natural rock outcroppings as well as the existing off-site trails to remain intact.

SOURCE: KTGY Group, Inc., 2016

Ironwood Village Project

Figure A-5

Trails and Open Space Plan

ESA PCR

(2) Community Open Space

The Ironwood Village open space areas that are not to remain as natural vegetation would be planted as appropriate to the Project's climate. The landscaping shall be where appropriate drought tolerant or native plants and utilize water-conserving equipment including the installation of bubblers, drip systems, low volume sprays and/or smart irrigation controls when feasible. No detailed plant palettes have been proposed within this document due to the currently evolving nature of the water conservation measures in the State of California. All landscaping within Ironwood Village shall comply with the City of Moreno Valley's Landscape and Irrigation Standards Section 9.17.030 of the Municipal Code. Landscaping shall consist predominately of plant materials that include water efficient "drought tolerant" and native plants. Landscape areas shall be designed to promote water retention and allow runoff from impervious surfaces. Hardscape areas are recommended to be constructed with pervious surfaces where feasible to reduce run off and allow water percolation. Please also refer to Figure A-5.

b. Proposed Park

The Ironwood Village Park, which would be a private facility for exclusive use by Ironwood Village residents, would be located centrally within the projects site allowing residents to walk to the park safely using the Project-wide interconnected trails system. The park may include but is not limited to the following features and amenities: bench seating, an open play area, Bocce ball courts, picnic area and a tot lot "children's play equipment". The actual park amenities would be decided at time of buildout by the developer with approval from the City of Moreno Valley. Please refer to **Figure A-6**, *Conceptual Park Plan*, for a conceptual illustration of the proposed on-site park.

The park areas would be planted as appropriate to the Project's climate. The landscaping shall be where appropriate drought tolerant and utilize water-conserving equipment including the installation of bubblers, drip systems, low volume sprays and/or smart irrigation controls when feasible. Landscaping and water conservation features would be incorporated into the park as required by the City of Moreno Valley, as noted above.

c. Trails

The proposed Project would include multi-use trails that would interconnect the Ironwood Village Project neighborhoods to the interior open spaces and on-site park, as well as to the future City of Moreno Valley's off-site trails system, as illustrated below in **Figure A-7**, *Trail Connection Map*. There would be "nodes of interest" located along the central trail that leads from north to south to and from the proposed neighborhood park. There would also be trail connections onto the central trail from trails leading off the adjacent cul-de-sacs. The central trail would provide areas to rest and enjoy the outdoors within walking distance of on-site residents' homes. The combination of trails and fire access located to the rear of the houses on the northern portion of the development are to be a minimum of 20 to 24 feet wide per City of Moreno Valley standards.

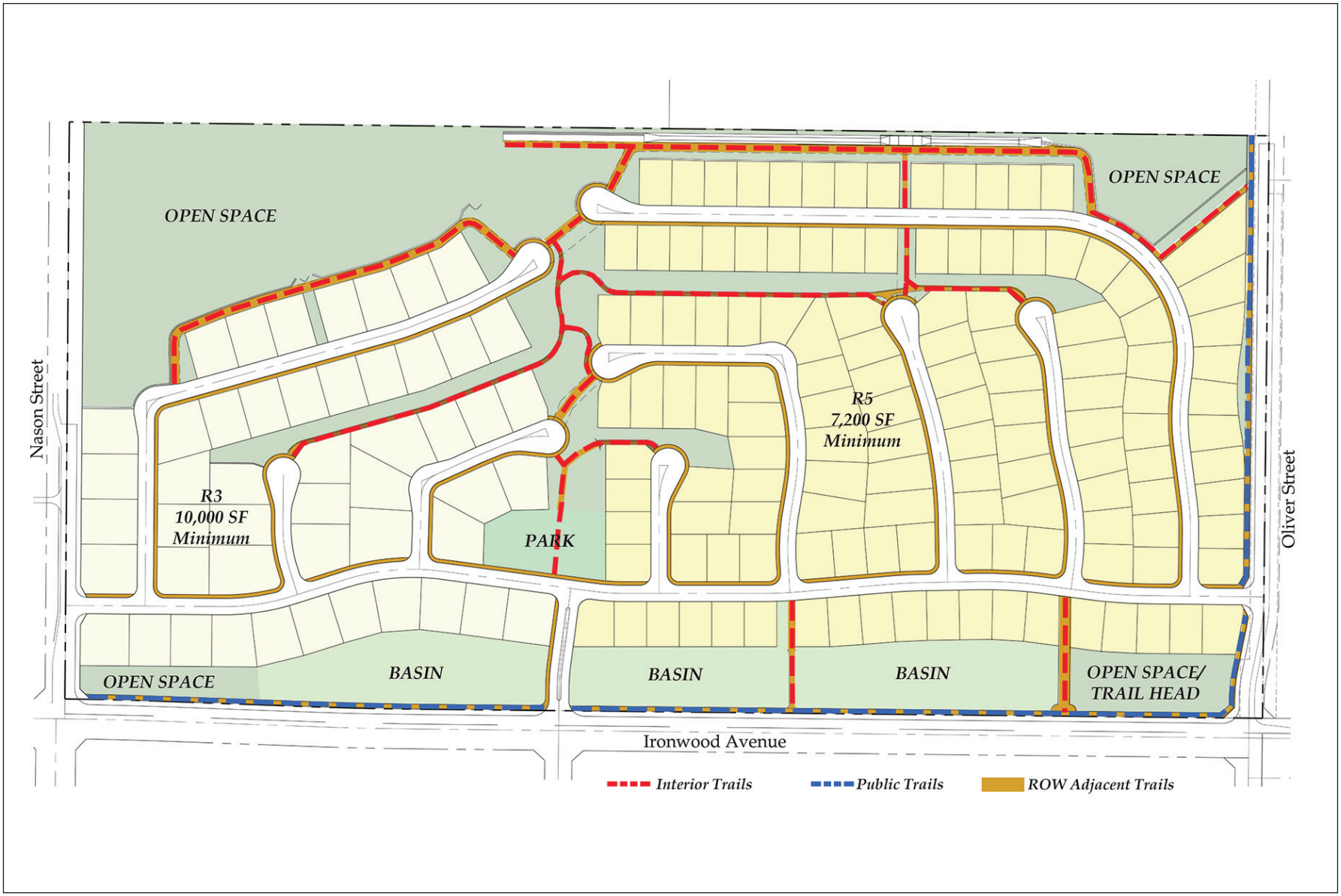
SOURCE: KTGY Group, Inc., 2016

Ironwood Village Project

Figure A-6

Conceptual Park Plan

ESA PCR



SOURCE: KTGY Group, Inc., 2016

Ironwood Village Project

Figure A-7

Trail Connection Map

ESA PCR

Trails would provide connections through the central open space area and would branch off east and west along the north-south-oriented open space area, with additional trails connecting to neighborhood streets, as well as other off-site trails. All the trails would loop throughout the Ironwood Village Project, which would allow pedestrian connections to the park and the proposed City Trails to the north, east and west of the Project site. The trails would be built per City of Moreno Valley Standards. Please refer **Figure A-8**, *Conceptual Trail Section*, below for an illustration of proposed trail design.

5. Landscaping

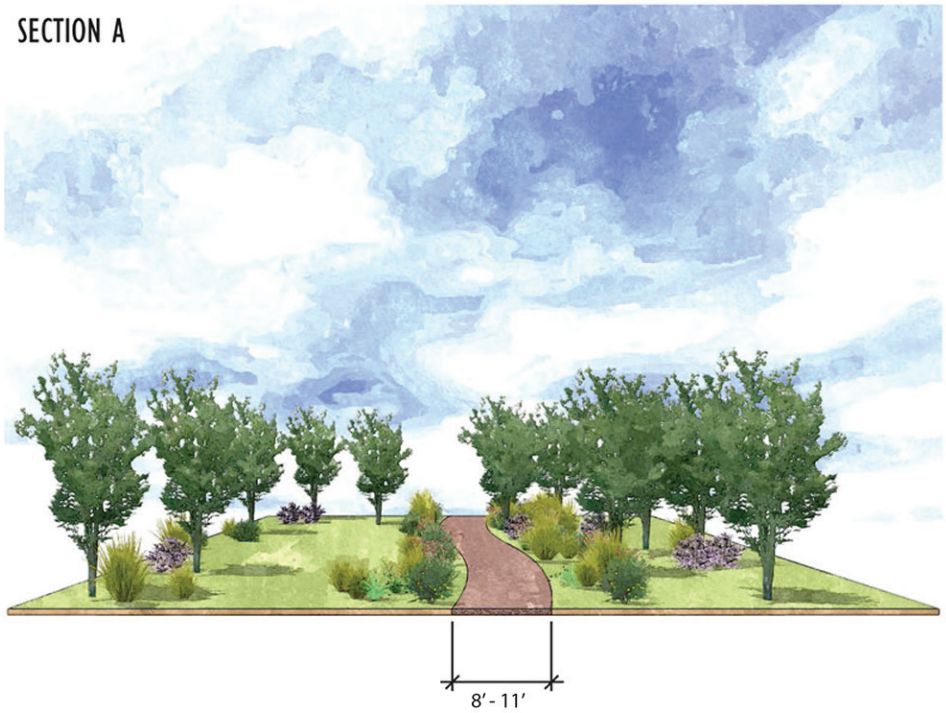
a. Landscape Concept

The conceptual landscape and planting design provides the identity to the Ironwood Village community that at time of buildout the developer shall comply with the City of Moreno Valley's Landscape and Irrigation Standards Section 9.17.030 of the Municipal Code. The plant palette for Ironwood Village would be appropriate to the Project's climate. The landscaping shall be where appropriate drought tolerant/native vegetation and utilize water-conserving equipment including the installation of bubblers, drip systems, low volume sprays and/or smart irrigation controls when feasible. The landscape areas shall also be designed to promote water retention and allow runoff from impervious surfaces to permeable areas. Hardscape areas are recommended to be constructed with pervious surfaces where feasible to reduce run off and allow water percolation.

The landscape plan incorporates the water retention/detention/ water quality basins as well as the hillside areas that are to be conserved and the fuel modification areas as shown on TTM 37001. Project open space, fuel modification area, interior streets, interior trails and park would be maintained by the Ironwood Village Home Owners Association (HOA), this is a "private" non-gated Community. In addition, there are exterior multi-use trails along the roadways adjacent to the Project, connecting to future City of Moreno Valley Proposed off-site trails; these would be maintained by the City of Moreno Valley. The drainages would be maintained by the City of Moreno Valley, however the water basins would be jointly maintained by the Ironwood Village HOA (landscaping) and the City of Moreno Valley (structures/water quality). Please refer to **Figure A-9**, *Maintenance Responsibility*, below. The actual detailed landscape design and placement that would be used within the Ironwood Village community would be decided at time of buildout by the developer with approval by the City of Moreno Valley. As noted previously, all landscaping within Ironwood Village shall comply with the City of Moreno Valley's Landscape and Irrigation Standards Section 9.17.030 of the Municipal Code.

b. Fuel Modification

On the north side of the Ironwood Village community are fuel modification zone areas. The removal and or preservation of plants/trees would be subject to review and approval by the City's fuel management officer. Maintenance of the fuel modification zone would be the responsibility of the Ironwood Village HOA. The 20 to 24-foot-wide fire access road and the multi-use trail that travels along the northern edge of the developed portion of the Project, has been incorporated into the fuel modification zone for the Project. As noted above, all landscaping within Ironwood Village shall comply with the City of Moreno Valley's Landscape and Irrigation Standards Section 9.17.030 of the Municipal Code.



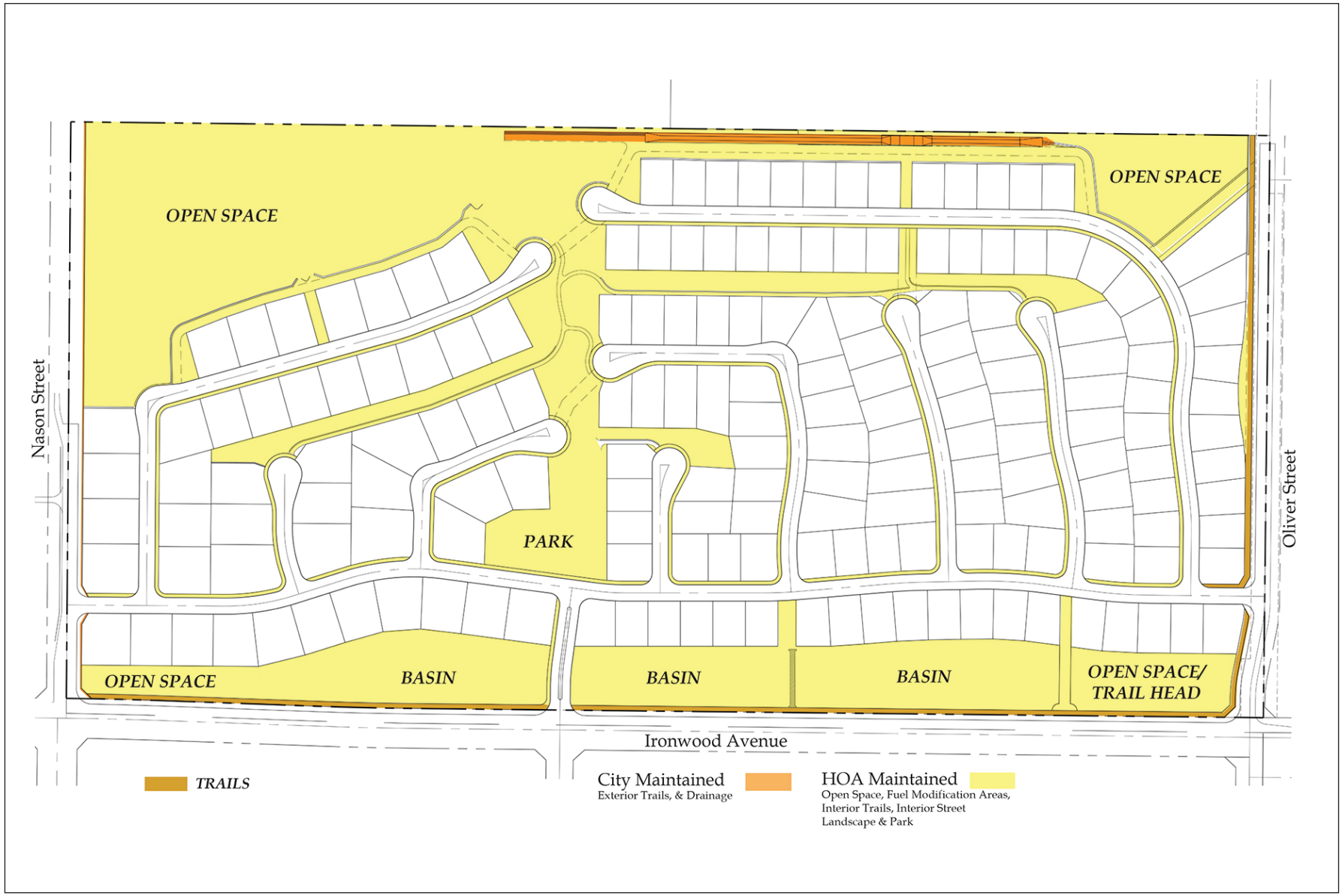
SOURCE: KTGY Group, Inc., 2016

Ironwood Village Project

Figure A-8

Conceptual Trail Section

ESA PCR



SOURCE: KTGY Group, Inc., 2016

Ironwood Village Project

Figure A-9

Maintenance Responsibility

ESA PCR

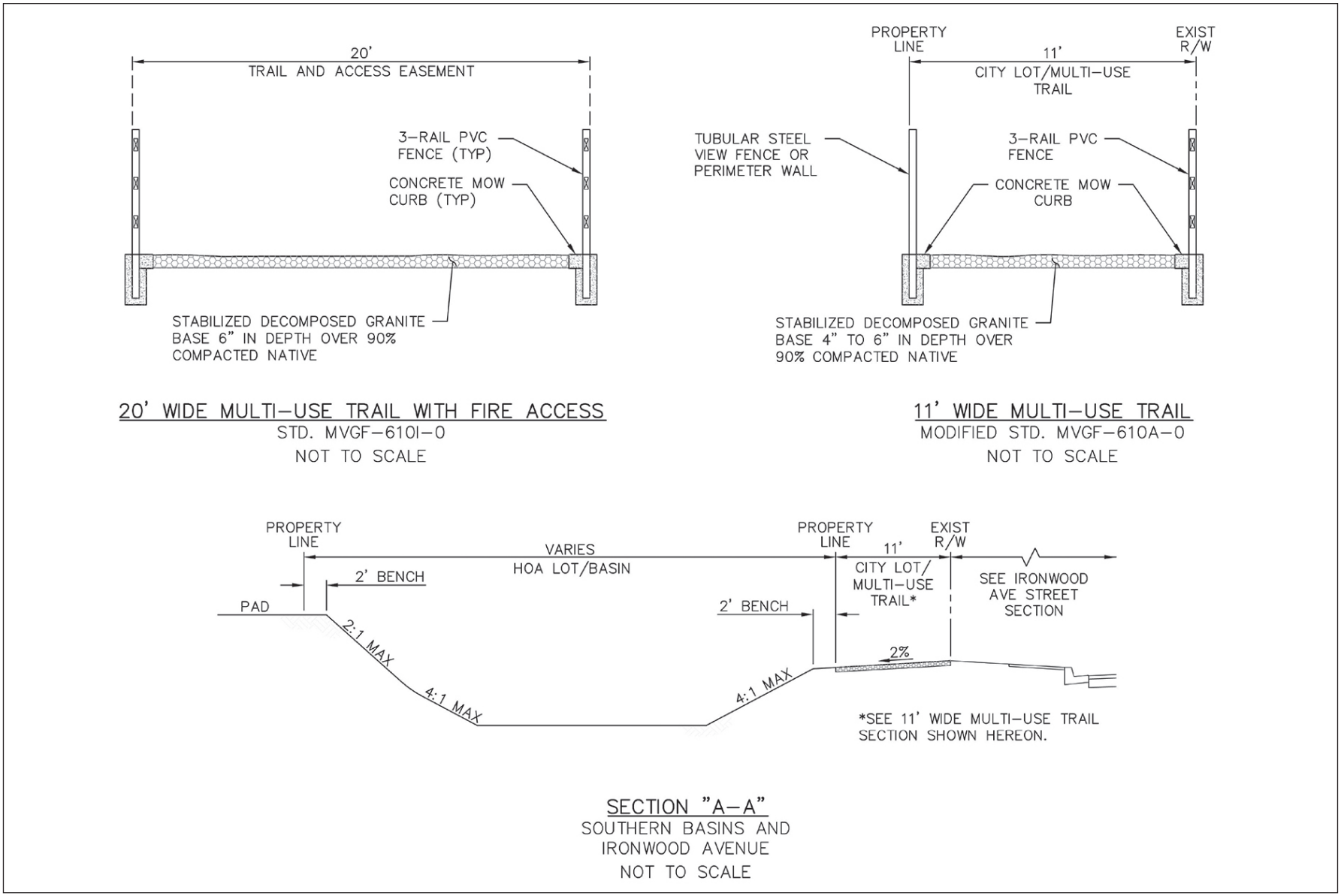
6. Stormwater Management

The proposed Project would include a number of stormwater detention basins, as well as other stormwater management features and facilities, as required by City of Moreno Valley and County of Riverside. The proposed stormwater basins within the Ironwood Village community would be located along the southern edge of the Project site as shown above in Figure A-5. The basins would not only provide a necessary function of retaining stormwater on-site to prevent run-off, but would also provide a transition and visual buffer to the existing residences south of Ironwood Avenue. The basins help make the transition softer and more visually appealing by having landscaping and open space, instead of walls and roof tops. The basins would be planted as appropriate to the Project site's climate and would incorporate drought-tolerant materials and irrigation systems, as noted previously for other aspects of the Project. Hardscape areas are recommended to be constructed with pervious surfaces where feasible to reduce run off and allow water percolation and minimize stormwater runoff volumes requiring on-site retention. Please refer to **Figure A-10**, *Conceptual Trail and Basin Sections*, for a depiction of proposed stormwater basin design.

7. Infrastructure and Utilities

The proposed Ironwood Village Project would be served by various public utilities, including water, sewer, and storm drains, as well as connections to electricity and natural gas services. Water service would be provided by an on-site distribution system with supply provided via two connections to existing Eastern Municipal Water District (EMWD) pipelines, one from the southeast near the intersection of Oliver Street and Ironwood Avenue, and the other from the north via a new pipeline connection along Oliver Street at the western terminus of Kalmia Avenue. The on-site sewer system, which would be owned and maintained by EMWD once constructed, would collect wastewater generated by the proposed residential units, which would be conveyed via a new sewer line extending from the Project site southward along Oliver Street to an existing sewer also owned and operated by EMWD located south of the SR-60 freeway near Eucalyptus Avenue. Stormwater, as noted above, would be collected by the proposed on-site storm drain system, which would be conveyed to the on-site detention basins (shown as Lots I and K in Figure A-4), and then to an existing storm drain located in Ironwood Avenue. Electrical and natural gas services would be provided by Southern California Edison (SCE) and Southern California Gas Company (SoCalGas), respectively, via existing distribution facilities in the Project area.

In addition, a number of off-site water and sewer improvements and limited off-site grading would be necessary to serve the proposed development, which would require earthmoving and/or construction of new pipelines or other facilities in one or more off-site locations. Although the specific location of future facilities has yet to be determined, the areas potentially affected by off-site improvements or off-site grading activities are illustrated below in **Figure A-11**, *Off-Site Improvements*.



SOURCE: Anderson Consulting Engineers, Inc., 2016

Ironwood Village Project

Figure A-10

Conceptual Trail and Basin Sections

ESA PCR

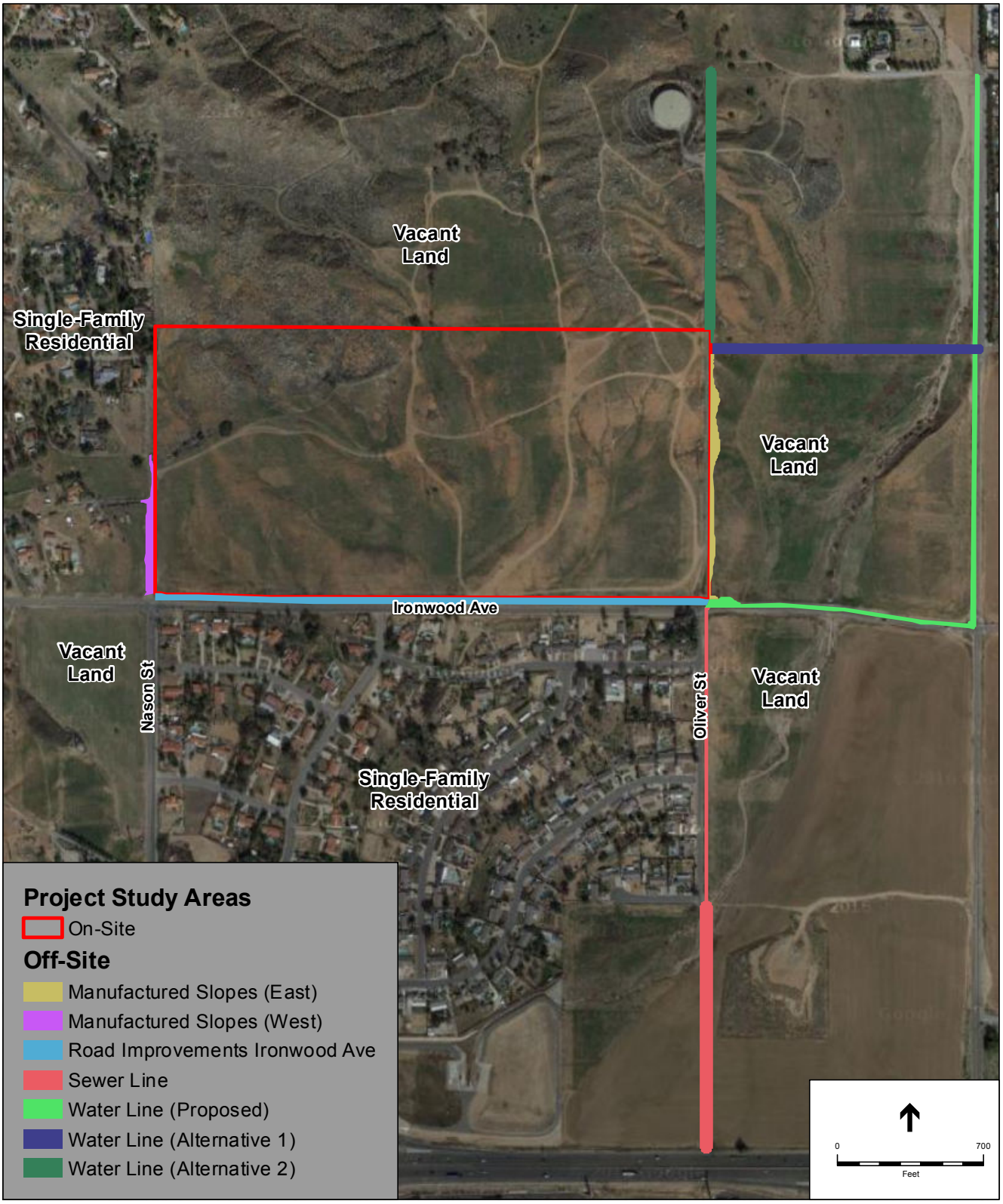
E. Construction Schedule

Construction activities associated with the Project are anticipated to occur for approximately 40 months, beginning in early 2017 with Project occupancy and operation expected by August 2020. The construction schedule includes grading and excavation activities (3.5 months), paving (2.5 months), building construction and application of architectural coatings (34 months). Haul trucks would be required to follow a prescribed haul route, which is expected to be from the Project site southbound down Nason Street to the SR-60 Freeway when leaving the site and the reverse when arriving at the site. The highest number of daily truck trips would occur during grading and soil excavation activities, which would occur for approximately 3.5 months of the overall 40-month construction effort.

F. Necessary Approvals

The discretionary actions for the Project may include, but are not limited to, the following:

- United States Army Corps of Engineers – Section 404 Permit
- California Department of Fish and Wildlife – Section 1602 Streambed Alteration Agreement
- Santa Ana Regional Water Quality Control Board – Section 401 Water Quality Certification
- City of Moreno Valley – Adoption of Mitigated Negative Declaration (MND)
- City of Moreno Valley – General Plan Amendment (change from R2 to R3/R5)
- City of Moreno Valley – Zone Change (change from RA2 to R3/R5)
- City of Moreno Valley – Approval of Ironwood Village Design Guidelines
- City of Moreno Valley – Grading, excavation, foundation, and/or associated building permits, as required, from the City of Moreno Valley; and
- Other permits and approvals by other agencies as deemed necessary.



SOURCE: Google Maps, 2015 (Aerial).

Ironwood Village Project
Figure A-11
Off-Site Improvements

ESA PCR

Attachment B

Explanation of Checklist Determinations

ATTACHMENT B - EXPLANATION OF CHECKLIST DETERMINATIONS

I. Aesthetics

Would the Project:

a. Have a substantial adverse effect on a scenic vista?

Less Than Significant Impact. A scenic vista generally provides focal views of objects, settings, or features of visual interest; or panoramic views of large geographic areas of scenic quality, primarily from a given vantage point. Scenic vistas are generally associated with public vantages. A significant impact may occur if the Project introduced incompatible visual elements within a field of view containing a scenic vista or substantially altered a view of a scenic vista.

Moreno Valley Scenic Resources[1]

The City of Moreno Valley lies on a relatively flat valley floor surrounded by rugged hills and mountains. The topography of the study area is defined by the Box Springs Mountains and Reche Canyon area to the north, the "Badlands" to the east, and the Mount Russell area to the south. These features provide the City with outstanding vistas. The major aesthetic resources within the study area include views of the mountains and southerly views of the valley. The major scenic resources within the Moreno Valley study area are visible from State Route 60, the major transportation route in the area. Upon entering the Moreno Valley from the west, the dominant view is of the Box Springs Mountains to the immediate north and the Mount Russell foothills to the south. Moreno Peak is part of a prominent landform located south of State Route 60 along Moreno Beach Drive. This landform only rises a few hundred feet above the valley floor but has a unique location near the center of the valley. Moreno Beach Drive, the main route to Lake Perris from State Route 60, offers views of Moreno Peak and a panoramic view of Moreno Valley. Panoramic views of the valley can be seen from elevated segments of some local roads and from hillside residences. The views are particularly attractive on clear days and at night when the glow of city lights can be seen. As State Route 60 traverses east through Moreno Valley, it passes through the Badlands area. Characterized by steep and eroded hillsides, the Badlands form the eastern boundary of the study area and provide a sweeping range of hills that act as a visual backdrop to the valley. Expanses of open land are found throughout the eastern portion of the study area. These tracts of land allow for uninterrupted scenic vistas from State Route 60, Gilman Springs Road and other roadways and provide views of the San Jacinto Valley and the ephemeral Mystic Lake. Views of the San Bernardino and San Gabriel mountains are evident at times from the valley floor.

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1 Background information provided in Section 7.7, Scenic Resources, in Chapter 7 – Conservation, of the City's General Plan (2006). Page 7-12.

Project Site Conditions

Figure I-1, *Photo Location Map*, illustrates the viewpoint locations of photos of the existing Project site that are provided in **Figure I-2** through **Figure I-5**, *Existing Site Photos*. As shown in Figures I-1 through I-5, the Project site is part of an existing natural undulating slope that traverses in an east-west direction framed by Ironwood Avenue to the south and the vacant hillside areas to the north. Slopes descend southward across the site from the hills to the north, and also generally descend from the west to the east on the western portion of the site and then gently ascend moving eastward from the center of the property. Thus, the surrounding residential land uses to the west of the Project site are at higher elevations, while residential uses to the south are at lower elevations. Given the topography of the site and surroundings, as well as the presence of intervening urban development and landscaping, long-range views of the site from surrounding areas are limited to locations to the east of the Project site where land is predominantly vacant, though short- and mid-distance views of the Project site are currently available from adjacent residential areas at higher elevations and from vacant land to the north of the Project site. In addition, the Project site is visible from a number of public roadways in the area including Ironwood Avenue, Nason Street, Oliver Street, and Moreno Beach Drive. According to Figure 7-2, Major Scenic Resources, in Chapter 7 – Conservation, of the City's General Plan and as noted above, Moreno Beach Drive is a designated Scenic Route. Furthermore, as also shown in Figure 7-2 of the General Plan, the Project site is located within two designated View Corridors. The first designated View Corridor, as viewed from areas to the west of the Project site (i.e., west of approximately Lasselle Street), provides mid-distance views eastward toward noted scenic resources including the Reche Mountains to the north of the Project site, Moreno Peak to the south, and the San Timoteo Badlands to the northeast, as well as long-distance views of the San Jacinto Mountains and San Bernardino Mountains. The second, as viewed from areas east of the Project site (i.e., east of approximately Redlands Boulevard), provides mid-distance views westward of the Reche Mountains, Box Spring Mountains, and Moreno Peak, and long-distance views of the San Gabriel Mountains.

The proposed Project would be developed in accordance with all applicable development standards set forth in Section 9.03.040 of the Moreno Valley Municipal Code (MVMC) and in accordance with the Project's Design Guidelines document, which would be subject to review and approval by the City of Moreno Valley. Per the requirements of the MVMC the proposed residential structures would be limited to a maximum height of 35 feet, and would be designed, constructed, and landscaped in accordance with the approved Design Guidelines. As part of the Project, the Project site would be graded to establish developable building pads, roadways, detention basins, and other improvements, which would result in a sloping topography within the Project boundaries, with stepped terraces along proposed streets in the northern portion of the site where existing slopes are steeper and a relatively flatter slope in the southern portion of the site (refer to Figure A-4 in Attachment A of this Initial Study). As such, elevations on-site would decrease from the north to the south across the Project site, and the proposed improvements would generally conform to the current topography of the site but with a more consistent grade compared to existing conditions.

SOURCE: Google Maps, 2015 (Aerial).

Ironwood Village Project

Figure I-1

Photo Location Map

ESA PCR

PHOTOGRAPH 1. View east northeast from Ironwood Ave west of Nason Street

PHOTOGRAPH 2. View northeast from Ironwood Avenue at Nason Street.

PHOTOGRAPH 3. View east northeast from Ironwood Avenue at Nason Street.

PHOTOGRAPH 4. View southeast from Nason north of Kaftan Way.

SOURCE: ESA PCR, 2016

Ironwood Village Project

Figure I-2

Existing Site Photographs

ESA PCR

PHOTOGRAPH 5. View southeast from Nason Street at Sandi Lane.

PHOTOGRAPH 6. View east across site from southeast portion of the property.

PHOTOGRAPH 7. View northeast from Ironwood Avenue east of Nason Street.

PHOTOGRAPH 8. View west northwest from Ironwood Avenue at Lantz Lane.

SOURCE: ESA PCR, 2016

Ironwood Village Project

Figure I-3

Existing Site Photographs

ESA PCR

PHOTOGRAPH 9. View west northwest from Ironwood Avenue east of Lantz Lane

PHOTOGRAPH 10. View northeast from Ironwood Avenue east of Lantz Lane.

PHOTOGRAPH 11. View northwest from Ironwood Avenue at Oliver Street.

PHOTOGRAPH 12. View north from Ironwood Avenue at Oliver Street.

SOURCE: ESA PCR, 2016

Ironwood Village Project

Figure I-4

Existing Site Photographs

ESA PCR

PHOTOGRAPH 13. View west from Oliver Street north of Ironwood Avenue.

PHOTOGRAPH 14. View west northwest from Ironwood Avenue at Moreno Beach Drive.

PHOTOGRAPH 15. View west from Moreno Beach Drive north of Ironwood Avenue.

PHOTOGRAPH 16. View west from Moreno Beach Drive at Juniper Avenue.

SOURCE: ESA PCR, 2016

Ironwood Village Project

Figure I-5

Existing Site Photographs

ESA PCR

Based on the limited height of the proposed structures and the location of the Project site relative to designated scenic resources including views of surrounding mountains as seen from Moreno Beach Drive (designated Scenic Route) and the designated View Corridors to the west and east of the Project site, it is anticipated that views of these resources would not be substantially affected by implementation of the proposed Project. Specifically, given the location of the Project site at a lower elevation than the foothills of the Reche Mountains to the north and the presence of existing single-family residential development to the west and south, views of and across the Project site from west of the Project site (i.e., within the designated View Corridors that provide views across the site) would not be notably affected by implementation of proposed two-story single-family residential uses.

As shown in Figure I-2, views to the east toward the San Timoteo Badlands (mid-distance views) and San Jacinto Mountains (long-distance views) and views to the north and northeast toward the Reche Mountains (mid-distance views) and San Bernardino Mountains (long-distance views) would not be substantially adversely affected based on the presence of intervening development and associated landscaping, as well as the relative topography of the area which currently obstructs direct views of the Project site from areas west of the Project site along Ironwood Avenue (i.e., west of the eastern terminus of Helga Lane). Similarly, as shown in Figure I-5, views to the west of the Reche Mountains and Box Spring Mountains (mid-distance views) and San Gabriel Mountains (long-distance views) would also not be substantially adversely affected by Project implementation. Thus, impacts to views from designated View Corridors would be less than significant.

With regard to views of and across the Project site from Moreno Beach Drive, as shown in Figure I-5, while the Project site would be visible from various locations along Moreno Beach Drive, the site does not represent a substantial portion of the view field given the distance of the site from the roadway, the presence of intervening topography and urban development, the elevation of the site relative to the backdrop of the hills immediately north of the site, and the limited height of proposed structures at a maximum of 35 feet above grade. As such, the construction of single-family residential uses up to two stories in height and associated landscaping on the graded Project site would not have the potential to substantially obstruct views of designated scenic resources identified above, most notably the Reche Mountains and San Bernardino Mountains. As such, impacts to scenic resources resulting from implementation of the proposed Project would be less than significant. It should be noted that although State Route 60 (Moreno Valley Freeway), which is located approximately ½-mile to the south of the Project site, is also designated as a Scenic Route in the City's General Plan; however, given the location of the freeway at a lower elevation than the Project site and the presence of existing development and vegetation, the development portions of the Project site are not visible from any location along the alignment. As such, the Project would have no potential to substantially adversely affect views of scenic resources as viewed from this designated Scenic Route.

b. Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?

Less Than Significant Impact. No State-designated scenic highways are located in the Project area, and thus the proposed Project would have no potential to affect scenic resources at viewed

from such facilities. However, as noted in Response I.a, above, two City-designated Scenic Routes are located in the vicinity of the Project site, though impacts to scenic resources as viewed from these locations were determined to be less than significant. The Project site does not contain any notable tree specimens and is devoid of any structures (including historic buildings), but does contain rock outcroppings within the northern portion of the property, views of which could be affected by Project implementation. However, the Project has been designed to avoid substantial physical changes (i.e, grading) to these rock outcroppings, as illustrated in Figure A-4, and based on the proposed grading plan and maximum 35-foot structural heights, views of surrounding rock outcroppings would not be substantially obstructed by construction of the proposed single-family residential neighborhood. While views of the lower elevations of the rock outcroppings would be obscured by the proposed development and associated landscaping, the rock outcroppings would still be a prominent visual feature within the visual field, particularly mid-distance westward views of the Project site from Moreno Beach Drive. Given the scale and elevation of the rock outcroppings relative to the proposed structures, the lack of notable physical changes to the rock outcroppings, the lack of available mid- and long distance views of the Project site from areas to the north, south, and west of the property due to topography and existing development, and the limited potential for the proposed development to obstruct views of these features from surrounding locations, implementation of the proposed Project is not expected to substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway. As such, impacts would be less than significant in this regard.

c. Substantially degrade the existing visual character or quality of the site and its surroundings?

Less Than Significant Impact. The Project site is currently undeveloped, vacant land. The Project site, which is considered moderately disturbed in some areas, consists mostly of ruderal/non-native grasslands and very limited areas of non-native trees and native vegetation in the lower elevations on the site (i.e., south of existing rock outcroppings). On-site vegetation also includes Riversidean sage scrub and brittlebush scrub, which is generally in the northwestern portion of the site, interspersed with the rock outcroppings at the higher elevations. Although the rock outcroppings in the northwest portion of the Project site are prominent visual features of the property, the portions of the site the Project site proposed for future development lack significant native vegetation or other visually distinct features that would improve the visual character and quality of the site. Thus, the visual quality of the site under existing conditions is considered low.

The Project would alter the existing visual character of the Project site by developing a single-family residential subdivision on the property. The native and non-native species of trees, shrubs, and grass located on the site would be removed and replaced with 181 single-family residences and associated infrastructure (i.e., streets, utilities), landscaping and other improvements. The Project would be designed and implemented in accordance with City-approved Design Guidelines, as noted previously, which would prescribe among other features, landscape design, architectural design, and architectural style, in order to provide a consistent and visually cohesive Project. The architectural theme for proposed residential neighborhood is typical traditional California styles of architecture (i.e., Monterey, Spanish Colonial, Santa Barbara, Napa, and Tuscan). While the Design Guidelines and the MVMC allow for two-story (or 35-foot)

maximum building heights, the proposed Project would include single-story designs as well, in order to provide visual interest and variation in the rooflines of the development. In addition, the Design Guidelines require that the Project incorporate extensive landscaping throughout the development, as well as apply consistent design for all walls and fences in the subdivision. The proposed Project would also preserve a substantial portion of the site as open space, particularly the rock outcroppings in the northwest corner of the site, and would also provide an on-site community park with turf and landscaping, as well as stormwater detention basins along the southern Project site boundary, all of which would provide a visual buffer by creating view corridors across the site and providing additional vegetation and landscaping to soften the appearance of surrounding new structures on-site. Given the current low visual quality of the development portions of the Project site, adherence to and implementation of the City-approved Design Guidelines for the Project, which would provide for a consistent and visually cohesive development, and avoidance of the rock outcroppings on the property thereby preserving existing views of these visual features, the proposed Project would improve the visual quality of the Project site relative to existing conditions.

Furthermore, it should be noted that the overall architectural style of the homes and building materials, while more modern and cohesive in design, would not substantially contrast with the existing single-family residences that are in proximity to the Project site. While the proposed architectural styles would vary slightly from the surrounding developments, the proposed residences would not be in direct conflict with the overall character of the area.

Based on the above, the proposed Project would not substantially degrade the existing visual character or quality of the Project site and its surroundings and a less than significant impact would occur in this regard.

d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant Impact. The Project site is currently unlit, as it is vacant undeveloped land, as noted previously. The proposed Project would provide illumination due to the addition of security lighting, street lighting, lighting within the residences, as well as transient vehicular lighting from cars traveling on adjacent roadways. Lighting proposed on the site would be similar to that which currently exists in the surrounding area, but would be more concentrated on the Project site relative to surrounding uses given the relative increase in residential density. However, despite the additional potential sources of artificial light, all outdoor lighting would be required to comply with current City lighting requirements accordance with Section 9.08.100, Lighting, of the MVMC, which would include light shielding and wattage limitations to minimize light spill effects on adjacent properties. Additionally, it can be reasonably expected that most Project residents would use blinds or curtains for privacy, which would reduce the amount of light emanating from the residences. Further, the lighting would only be partially visible to the surrounding residential uses due to the topography of the site and the landscaping proposed to encompass the site. Also, the proposed residences would be set back from existing surrounding residential uses and proposed light sources would be shielded and directed on-site to preclude the nighttime illumination from spilling over onto the adjacent residential uses.

Transient sources of light associated with the proposed Project (i.e., automobile lights) would be similar to that which occurs on the adjacent streets. With regard to glare, the proposed Project is not expected to create unusual or isolated glare impacts since the buildings would be constructed of materials that provide for minimal glare potential. The use of neon or glare-generating materials is not proposed. Therefore, the proposed Project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. Impacts would be less than significant in this regard.

II. Agriculture and Forestry 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 Department 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 measurements 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?

No Impact. The Project site is currently undeveloped though several unimproved trails/dirt roads traverse the property. There are no active agricultural uses or related operations on or near the Project site. According to the City of Moreno Valley General Plan Final Environmental Impact Report (2006) (GP FEIR), Figure 5.8-1, Important Farmlands, the eastern portion of the Project site contains farmland of local importance while the majority of the western portion of the Project site contains grazing land with urban and build-up land in the northwestern corner. Accordingly, the Project site is not located on designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program.[2] Therefore, the Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural uses. Thus, no impact would occur in this regard.

b. Conflict with the existing zoning for agricultural use, or a Williamson Act Contract?

No Impact. The Project site is currently zoned Residential Agriculture 2 (RA2) and Hillside Residential (HR). No portion of the Project or surrounding land uses are zoned primarily for agricultural uses and no nearby lands are enrolled under the Williamson Act. As such, the Project

[2] State of California Department of Conservation, California Important Farmland Finder, http://maps.conservation.ca.gov/ciff/ciff.html, accessed May 2016.

would not conflict with existing zoning for agricultural use or a Williamson Act contract and no impact would occur in this regard.

c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 1220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

No Impact. As discussed under Response II.b, the Project site is currently zoned Residential Agriculture 2 (RA2) and Hillside Residential (HR). No forest land or timberland zoning is present on the Project site or in the surrounding area. As such, the Project would not conflict with existing zoning for forest land or timberland and no impact would occur in this regard.

d. Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. No forest land exists on the Project site or in the surrounding area. As such, the Project would not result in the loss of forest land or conversion of forest land to non-forest use and no impact would occur in this regard.

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?

No Impact. The Project site is currently undeveloped though several unimproved trails/dirt roads traverse the property. Since there are no active agricultural uses or related operations on or near the Project site, the Project would not involve the conversion of farmland to other uses, either directly or indirectly. No impacts to agricultural land or uses would occur.

III. Air Quality

The following impact analysis pertaining to air quality impacts is based on information contained in the Ironwood Residential (TTM No. 37001), Air Quality Impact Analysis, City of Moreno Valley *(herein referred to as the "Air Quality Impact Analysis"), prepared by Urban Crossroads, dated August 31, 2015. The Air Quality Impact Analysis is provided in Appendix A.*

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?

Less Than Significant Impact. The Project site is located within the 6,745-square-mile South Coast Air Basin (SCAB). Air quality planning for the SCAB is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The Project would be subject to the SCAQMD's Air Quality Management Plan (AQMP), which contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving ambient air quality

standards. These strategies are developed, in part, based on regional population, housing, and employment projections prepared by the Southern California Association of Governments (SCAG). The 2012 AQMP was adopted by the AQMD Governing Board on December 7, 2012. The 2012 AQMP incorporates the latest scientific and technological information and planning assumptions including the 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and updated emission inventory methodologies for various source categories. Similar to the 2007 AQMP, the 2012 AQMP was based on assumptions provided by both the California Air Resources Board (CARB) and SCAG in the latest available EMFAC model for the most recent motor vehicle and demographics information, respectively. The air quality levels projected in the 2012 AQMP are based on several assumptions. For example, the 2012 AQMP has assumed that development associated with general plans, specific plans, residential projects, and wastewater facilities would be constructed in accordance with population growth projections identified by SCAG in its 2012 RTP. The 2012 AQMP has also assumed that such development projects would implement strategies to reduce emissions generated during the construction and operational phases of development. 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). 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.

Consistency Criterion No. 1 refers to violations of the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). CAAQS and NAAQS violations would occur if Localized Significance Thresholds (LSTs) were exceeded. As evaluated as part of the Project LST analysis under Response III.b., below, the Project's localized construction-source emissions would not exceed applicable LSTs.

The Project regional analysis demonstrates that Project operational-source emissions would not exceed applicable thresholds, and would therefore not result in or cause violations of the CAAQS and NAAQS. On the basis of the preceding discussion, the Project is determined to be consistent with the first criterion.

Consistency Criterion No. 2: The proposed project will not exceed the assumptions in the AQMP based on the years of project build-out phase.

The 2012 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 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 the City of Moreno Valley General Plan (2006) (General Plan) is considered to be consistent with the AQMP.

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.

The Project site is designated for low-density residential uses (R2 residential uses up to 2 units per acre) per the City's General Plan Land Use Map, and is zoned Residential Agriculture (RA2, up to 2 units per acre) and Hillside Residential (HR). In order to accommodate the proposed density on the Project site, which is currently zoned RA2 with a density of up to two units per acre, the Project applicant is requesting a change of zone to R3 (single-family residential up to 3 units per acre) on the western portion of the Project site, and R5 (single-family residential uses up to 5 units per acre) on the eastern portion of the site. Although the Project is proposing zone changes, it should be noted that the Project would not exceed regional thresholds for operational emissions. As such, a less than significant impact would occur in this regard. Therefore, the Project is generally consistent with the growth projections in the City's General Plan and is considered to be consistent with the 2012 AQMP. On the basis of the preceding discussion, the Project is determined to be consistent with the second criterion.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less Than Significant Impact. As indicated above, the Project site is located within the SCAB, which is characterized by relatively poor air quality. State and federal air quality standards are often exceeded in many parts of the SCAB, including those monitoring stations nearest to the Project site. The Project would contribute to local and regional air pollutant emissions during construction (short-term or temporary) and Project occupancy (long-term). However, based on the following analysis, construction and operation of the Project would result in less than significant impacts relative to the daily significance thresholds for criteria air pollutant emissions established by the SCAQMD for construction and operational phases.

On October 2, 2013, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2013.2.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (oxides of nitrogen [NOx], volatile organic compounds [VOC], particulate matter 10 microns in diameter or less [PM_{10}], particulate matter 2.5 microns in diameter or less [$PM_{2.5}$], sulfur oxides [SO_x], and carbon monoxide [CO]) and greenhouse gas (GHG) emissions from direct and indirect sources and quantify applicable air quality and GHG reductions achieved from mitigation measures. Accordingly, the latest version of CalEEMod™ has been used for the Project to determine construction and operational air quality emissions.

Construction Emissions

Construction activities associated with the Project would result in emissions of CO, VOCs, NO_x, SO_x, PM_{10}, and $PM_{2.5}$. Construction related emissions are expected from the grading, paving, building construction, architectural coatings, and construction worker commutes. Construction is expected to commence in March 2017 and would last through July 2020. Construction duration by phase is provided on **Table III-1**, *Construction Duration.* The construction schedule utilized

in the Air Quality Impact Analysis represents a "worst-case" scenario should construction occur any time after the respective dates since emission factors for construction decrease as the analysis year increases. The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per CEQA guidelines. Site specific construction fleet may vary due to specific Project needs at the time of construction. The duration of construction activity and associated construction equipment was estimated based on consultation with the Project applicant. A detailed summary of construction equipment assumptions by phase is provided in **Table III-2**, *Construction Equipment Assumptions*.

TABLE III-1
CONSTRUCTION DURATION

Activity	Start Date	End Date	Duration
Grading	3/1/2017	6/13/2017	75
Paving	6/14/2017	8/29/2017	55
Building Construction	8/30/2017	3/31/2020	675
Architectural Coatings	12/1/2017	7/2/2020	675

SOURCE: Ironwood Residential (TTM No. 37001), Air Quality Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

TABLE III-2
CONSTRUCTION EQUIPMENT ASSUMPTIONS

Activity	Equipment	Number	Hours Per Day
Grading	Excavators	2	8
	Graders	1	8
	Water Trucks	1	8
	Rubber Tired Dozers	1	8
	Scrapers	2	8
	Tractors/Loaders/Backhoes	2	8
Paving	Pavers	2	8
	Paving Equipment	2	8
	Rollers	2	8
Building Construction	Cranes	1	8
	Forklifts	3	8
	Generator Sets	1	8
	Tractors/Loaders/Backhoes	3	8
	Welders	1	8
Architectural Coatings	Air Compressors	1	8

SOURCE: Ironwood Residential (TTM No. 37001), Air Quality Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

Dust is typically a major concern during rough grading activities. As such emissions are not amenable to collection and discharge through a controlled source, they are referred to as "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.). The CalEEMod model 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 information from CalEEMod model defaults.

The estimated maximum daily construction emissions are summarized on **Table III-3**, *Emissions Summary of Overall Construction*. Under the assumed scenarios, emissions resulting from the Project construction would not exceed any criteria pollutant thresholds established by the SCAQMD. As such, a less than significant impact would occur in this regard.

TABLE III-3
EMISSIONS SUMMARY OF OVERALL CONSTRUCTION

Year	Emissions (pounds per day)					
	VOC	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
2017	6.87	76.97	50.90	0.07	7.27	4.81
2018	5.87	19.94	18.26	0.03	1.45	1.15
2019	5.64	17.48	18.00	0.03	1.30	1.00
2020	5.50	16.12	17.89	0.03	1.20	0.91
Maximum Daily Emissions	**6.87**	**76.97**	**50.9**	**0.07**	**7.27**	**4.81**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

SOURCE: Ironwood Residential (TTM No. 37001), Air Quality Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

Operational Emissions

Operational activities associated with the Project would result in emissions of reactive organic gases (ROG), NO_x, CO, So_x, PM_{10}, and $PM_{2.5}$. Operational emissions would be expected from area source emissions, energy source emissions, and mobile source emissions.

Area Source Emissions

Architectural Coatings: Over a period of time the proposed residential uses would 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.

Hearths/Fireplaces: 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.

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.

Area 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, as 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 off-site 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.

Mobile Source Emissions

Vehicles: Project operational (vehicular) 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 derive primarily from vehicle trips generated by the Project. Trip characteristics available from the Project's Traffic Impact Analysis, were utilized in this analysis. A vehicle fleet mix consistent with the Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol was used (i.e., light duty autos 69 percent, light duty trucks 19.4 percent, medium duty trucks 6.4 percent, heavy duty trucks 4.7 percent, and motorcycles 0.5 percent). This fleet mix was utilized as it is more appropriate than the CalEEMod default fleet mix for residential land uses.

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.

Overall, Project operational-source emissions would not exceed applicable SCAQMD regional thresholds of significance. Operational-source emissions are summarized in **Table III-4**, *Summary of Peak Operational Emissions*. As such, a less than significant impact would occur in this regard.

TABLE III-4
SUMMARY OF PEAK OPERATIONAL EMISSIONS

Operational Activities – Summer Scenario	**Emissions (pounds per day)**					
	VOC	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
Area Source	7.96	0.17	15.00	7.90E-04	0.33	0.33
Energy Source	0.17	1.46	0.62	0.01	0.12	0.12
Mobile	4.73	15.86	58.67	0.18	13.45	3.84
Total Maximum Daily Emissions	12.86	17.49	74.29	0.19	13.90	4.29
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	NO	NO	NO	NO	NO	NO
Operational Activities – Winter Scenario	**Emissions (pounds per day)**					
	VOC	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
Area Source	7.96	0.17	15	7.90E-04	0.33	0.33
Energy Source	0.17	1.46	0.62	9.32E-03	0.12	0.12
Mobile	4.63	16.37	50.7	0.17	13.45	3.85
Total Maximum Daily Emissions	12.76	18.00	66.32	0.18	13.90	4.30
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	NO	NO	NO	NO	NO	NO

SOURCE: Ironwood Residential (TTM No. 37001), Air Quality Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

Localized Significance – Construction Activity

Background on Localized Significance Threshold (LST) Development

The Air Quality Impact Analysis makes use of methodology included in the SCAQMD Final Localized Significance Threshold Methodology (Methodology). 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 Air Quality Impact Analysis makes use of methodology included in the SCAQMD Final Localized Significance Threshold Methodology (LST Methodology).

Applicability of LSTs for the Project

For the Project, the appropriate Source Receptor Area (SRA) for the LST is the Perris monitoring station (SRA 24). LSTs apply to CO, NO_2, PM_{10}, and $PM_{2.5}$. The SCAQMD produced look-up tables for projects less than or equal to five 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:

The CalEEMod model is utilized to determine the maximum daily on-site emissions that would occur during construction activity;

The SCAQMD's Fact Sheet for Applying CalEEMod to Localized Significance Thresholds 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 SCAQMD recommends that Projects exceeding the screening look-up tables undergo dispersion modeling to determine actual impacts). The look-up tables establish a maximum daily emissions threshold in pounds per day that can be compared to CalEEMod outputs; and

If the total acreage disturbed is greater than five acres per day, then the SCAQMD recommends dispersion modeling to be conducted to determine the actual pollutant concentrations for applicable LSTs in the air. In other words, the maximum daily on-site emissions as calculated in CalEEMod are modeled via air dispersion modeling to calculate the actual concentration in the air (e.g., parts per million or micrograms per cubic meter) in order to determine if any applicable thresholds are exceeded.

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." 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 III-5, *Maximum Daily Disturbed-Acreage* 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 III-5, the Project could actively disturb approximately four acres per day and thus would not exceed the five acre per day limit established by the SCAQMD's LST look-up tables. Site specific construction fleet may vary due to specific project needs at the time of construction. The SCAQMD produced look-up tables for projects less than or equal to five acres in size; since the Project does not exceed a disturbance area of five acres in size, SCAQMD LST look-up tables would be used to determine localized impacts consistent with SCAQMD protocol.

TABLE III-5
MAXIMUM DAILY DISTURBED-ACREAGE

Construction Phase	Equipment Type	Equipment Quantity	Acres grader 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	1.0	8	2
Total acres graded per day					4.0
Applicable LST Mass Rate Look-up Table					4.0

SOURCE: Ironwood Residential (TTM No. 37001), Air Quality Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

Receptors

The nearest sensitive receptor is the residential uses located immediately west of the Project site. Notwithstanding, 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." Accordingly, LSTs for receptors at 25 meters are utilized in this analysis and provide for a conservative i.e. "health protective" standard of care.

Overall, emissions during construction activity would not exceed any of the SCAQMD's localized significance thresholds. **Table III-6**, *Localized Significance Summary Construction*, identifies the localized impacts at the nearest receptor location in the vicinity of the Project site. As such, a less than significant impact would occur in this regard.

TABLE III-6
LOCALIZED SIGNIFICANT SUMMARY CONSTRUCTION

On-Site Grading Emissions	Emissions (pounds per day)			
	NOx	CO	PM10	PM2.5
Maximum Daily Emissions	76.87	49.73	7.01	4.74
SCAQMD Localized Threshold	236	1,345.67	11	6.67
Threshold Exceeded?	NO	NO	NO	NO

SOURCE: Ironwood Residential (TTM No. 37001), Air Quality Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

Localized Significance – Long-Term Operational Activity

The Project involves the construction and operation of 181 single-family residential units. 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., warehouse or transfer facilities). The Project does not include such uses, and thus, due to the lack of stationary source emissions, no long-term localized significance threshold analysis is needed.

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.

It has long been recognized that adverse localized CO concentrations ("hot spots") 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 concentrations in the Project vicinity have steadily declined, as indicated by historical emissions data.

A CO "hot spot" would occur if an exceedance of the State one-hour standard of 20 parts per million (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. As identified within 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 congestion at a particular intersection. 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 the City of Los Angeles at the peak morning and afternoon time periods. The hot spot analysis did not predict violations of CO standards, as indicated on **Table III-7**, *CO Model*

Results. Traffic volumes generating the CO concentrations for the analysis are indicated on **Table III-8**, *Traffic Volumes*. It can therefore be reasonably concluded that projects, including the proposed Project, that are not subject to the extremes in vehicle volumes and vehicle congestion that was evidenced in the 2003 Los Angeles hot spot analysis would similarly not create or result in CO hot spots. 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. The Project would not produce the volume of traffic required to generate a CO hotspot either in the context of the 2003 Los Angeles hot spot study, or based on representative BAAQMD CO threshold considerations; refer to **Table III-9**, *Project Peak Hour Traffic Volumes*. Therefore, CO hotspots are not an environmental impact of concern for the Project. As such, localized air quality impacts related to mobile-source emissions would be less than significant.

TABLE III-7
CO MODEL RESULTS

Intersection Location	Morning 1-hour	Afternoon 1-hour	8-hour
Wilshire-Veteran	4.6	3.5	4.2
Sunset-Highland	4	4.5	3.9
La Cienega-Century	3.7	3.1	5.8
Long Beach-Imperial	3	3.1	9.3

Notes: ppm: parts per million. Federal 1-hour standard is 35 ppm and the deferral 8-hour standard is 9.0 ppm.
SOURCE: 2003 AQMP; Ironwood Residential (TTM No. 37001), Air Quality Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

TABLE III-8
TRAFFIC VOLUMES

Intersection Location	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	8,062/7,71
Sunset-Highland	1,417/1,764	1,342/1,540	2,304/1,832	1,551/2,238	6,614/5,37
La Cienega-Century	2,540/2,243	1,890/2,728	1,384/2,029	821/1,674	6,634/8,67 4
Long Beach-Imperial	1,217/2,020	1,760/1,400	479/944	756/1,150	4,212/5,51 4

Notes: ppm: parts per million. Federal 1-hour standard is 35 ppm and the deferral 8-hour standard is 9.0 ppm.
SOURCE: 2003 AQMP; Ironwood Residential (TTM No. 37001), Air Quality Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31,
2015.

TABLE III-9
PROJECT PEAK HOUR TRAFFIC VOLUMES

Intersection Location	Northbound (AM/PM)	Southbound (AM/PM)	Eastbound (AM/PM)	Westbound (AM/PM)	Total (AM/PM)
Nason St & Ironwood Av	13/35	535/438	396/427	608/674	1,552/1,574
Nason St & SR-60 WB Ramps / Elder Av	419/578	773/693	710/676	113/197	2,015/2,144
Nason St & SR-60 EB Ramps	1,035/1,218	1,160/1,308	311/227	--/--	2,506/2,753
Lantz Ln & Ironwood Av	10/37	11/24	387/389	383/398	791/848

SOURCE: Ironwood Residential (TTM No. 37001), Air Quality Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

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 that exceed quantitative thresholds for ozone precursors)?

Less Than Significant Impact. The SCAB is currently in extreme nonattainment for ozone and non-attainment PM_{10}, and $PM_{2.5}$. The SCAQMD's approach for assessing cumulative impacts related to operations is based on attainment of ambient air quality standards in accordance with the requirements of the federal and State Clean Air Acts. As discussed above, the SCAQMD has developed a comprehensive plan, the 2012 AQMP, which addresses the region's cumulative air quality condition.

A significant impact may occur if a project were to add a cumulatively considerable contribution of a federal or State non-attainment pollutant. Because the SCAB is currently in nonattainment for ozone, PM_{10} and $PM_{2.5}$, related projects could cause ambient concentrations to exceed an air quality standard or contribute to an existing or projected air quality exceedance. Cumulative impacts to air quality are evaluated under two sets of thresholds for CEQA and the SCAQMD. In particular, CEQA Guidelines Sections 15064(h)(3) provides guidance in determining the significance of cumulative impacts. Specifically, Section 15064(h)(3) states in part that:

"A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g., water quality control plan, air quality plan, integrated waste management plan) within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency…"

For purposes of the cumulative air quality analysis with respect to CEQA Guidelines Section 15064(h)(3), the Project's incremental contribution to cumulative air quality impacts is

determined based on compliance with the SCAQMD adopted 2012 AQMP. The 2012 AQMP includes demographic growth forecasts for various socioeconomic categories (e.g. population, housing, employment), developed by SCAG for their 2012 Regional Transportation Plan (RTP). As discussed under Response III.a, above, the Project would be consistent with the 2012 AQMP.

As the Project is not part of an ongoing regulatory program, the SCAQMD also recommends that project-specific air quality impacts be used to determine the potential cumulative impacts to regional air quality. As discussed above, peak daily emissions of operation-related pollutants would not exceed SCAQMD regional significance thresholds. By applying SCAQMD's cumulative air quality impact methodology, implementation of the Project would not result in an addition of criteria pollutants such that cumulative impacts would occur, in conjunction with related projects in the region. In addition, as discussed in Response III.b, above, construction of the Project is not expected to result in a cumulatively considerable net increase of any criteria pollutant for which the SCAQMD has established a localized impact threshold. Therefore, the emissions of non-attainment pollutants and precursors generated by the Project in excess of the SCAQMD Project-level thresholds would be less than significant.

d) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Certain population groups are especially sensitive to air pollution and should be given special consideration when evaluating potential air quality impacts. These population groups include children, the elderly, persons with pre-existing respiratory or cardiovascular illness, and athletes and others would engage in frequent exercise. As defined in the SCAQMD CEQA Air Quality Handbook, a sensitive receptor to air quality is defined as any of the following land use categories: (1) long-term health care facilities; (2) rehabilitation centers; (3) convalescent centers; (4) retirement homes; (5) residences; (6) schools; (7) parks and playgrounds; (8) child care centers; and (9) athletic fields.

As discussed in Response III.b, above, results of the LST analysis indicate the Project would not exceed the SCAQMD localized significance thresholds during construction. Therefore, sensitive receptors would not be subject to a significant air quality impact during Project construction. As such, a less than significant impact would occur in this regard.

Results of the LST analysis indicate the Project would not exceed the SCAQMD localized significant thresholds during operational activity. The Project would not result in a CO "hotspot" or result in a significant adverse health impact as a result of Project related traffic during ongoing operations. As such, a less than significant impact would occur in this regard.

e) Create objectionable odors affecting a substantial number of people?

Less Than Significant Impact With Mitigation Incorporated. Potential sources that may emit odors during construction activities include construction equipment exhaust, the application of asphalt, and the use of architectural coatings and solvents. According to the SCAQMD CEQA Air Quality Handbook, construction equipment is not a typical source of odors. SCAQMD Rule 1113 limits the amount of VOCs from architectural coatings and solvents. Further, construction odor emissions would be temporary, short-term, and intermittent in nature and would cease upon completion of the completion of construction. Through adherence with mandatory compliance

with SCAQMD Rules, no construction activities or materials are proposed which would create objectionable odors. The nearest existing sensitive receptors are residences located immediately west of the Project site. However, the Project's proposed uses would not typically generate nuisance odors at nearby sensitive receptors.

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting operations, refineries, landfills, dairies, and fiberglass molding facilities. The Project would not involve elements related to these types of uses. It is expected the Project-generated refuse would be temporarily stored in covered containers and would be removed at regular intervals in compliance with the City's solid waste regulations. While there is a potential for odors to occur, compliance with industry standard odor control practices, SCAQMD Rule 402 (Nuisance), SCAQMD Best Available Control Technology Guidelines, and implementation of recommended mitigation measures ("MM") MM AQ-1 through MM AQ-3, would limit potential objectionable odor impacts to a less than significant level.

Mitigation Measures

MM AQ-1 The Project shall comply with the provisions of South Coast Air Quality Management District Rule 403, "Fugitive Dust." Rule 403 requires implementation of best available dust control measures during construction activities that generate fugitive dust, such as earth moving, grading, and equipment travel on unpaved roads. Prior to grading permit issuance, the City of Moreno Valley shall verify that the following notes are specified on the grading plan. Project construction contractors shall be required to ensure compliance with the notes and permit periodic inspection of the construction site by City of Moreno Valley staff or its designee to confirm compliance. These notes shall also be specified in bid documents issued to prospective construction contractors.

a) All clearing, grading, earth-moving, and excavation activities shall cease when winds exceed 25 miles per hour;

b) During grading and ground-disturbing construction activities, the construction contractor shall ensure that all unpaved roads, active soil stockpiles, and areas undergoing active ground disturbance within the Project site are watered at least three (3) times daily during dry weather. Watering, with complete coverage of disturbed areas by water truck, sprinkler system, or other comparable means, shall occur in the mid-morning, afternoon, and after work is done for the day;

c) Temporary signs shall be installed on the construction site along all unpaved roads indicating a maximum speed limit of 15 miles per hour (MPH). The signs shall be installed before construction activities commence and remain in place for the duration of construction activities that include vehicle activities on unpaved roads; and

d) The cargo area of all vehicles hauling soil, sand, or other loose earth materials shall be covered.

MM AQ-2 The Project shall comply with the provisions of South Coast Air Quality Management District Rule 1186 "PM10 Emissions from Paved and Unpaved Roads and Livestock Operations" and Rule 1186.1, "Less-Polluting Street Sweepers" by complying with the following requirements. To ensure and enforce compliance with these requirements and reduce the release of criteria pollutant emissions into the atmosphere during construction, prior to grading and building permit issuance, the City of Moreno Valley shall verify that the following notes are included on the grading and building plans. Project construction contractors shall be required to ensure compliance with the notes and permit periodic inspection of the construction site by City of Moreno Valley staff or its designee to confirm compliance. The notes also shall be specified in bid documents issued to prospective construction contractors.

a) If visible dirt or accumulated dust is carried onto paved roads during construction, the contractor shall remove such dirt and dust at the end of each work day by street cleaning and

b) Street sweepers shall be certified by the South Coast Air Quality Management District as meeting the Rule 1186 sweeper certification procedures and requirements for PM10-efficient sweepers. All street sweepers having a gross vehicle weight of 14,000 pounds or more shall be powered with alternative (non-diesel) fuel or otherwise comply with South Coast Air Quality Management District Rule 1186.1.

MM AQ-3 The Project is required to comply with the provisions of South Coast Air Quality Management District Rule 402 "Nuisance." To ensure and enforce compliance with this requirement, which applies to the release of odorous emissions into the atmosphere, prior to the issuance of grading and building permits, the City of Moreno Valley shall verify that the following note is included on grading and building plans. During Project construction, contractors shall be required to ensure compliance with Rule 402 and permit periodic inspection of the construction site by the City of Moreno Valley staff or its designee to confirm compliance.

IV. Biological Resources

The following impact analysis pertaining to biological resources is based on information contained in the *Ironwood Village Biological Resources Assessment* (herein referred to as the "Biological Resources Assessment" or "BRA"), prepared by ESA PCR, dated September 2016, as well as the *Determination of Biologically Equivalent or Superior Preservation* (referred to as the "DBESP" Report), also prepared by ESA PCR, dated September 2016. The scope of the BRA includes descriptions of Project-related improvements, methods of study, existing site conditions including vegetation communities and the potential for special-status biological resources, followed by an evaluation of impacts to special-status biological resources pursuant to CEQA thresholds and compliance with the Western Riverside County MSHCP. The BRA summarizes existing on- and off-site biological resources conditions within and around the Project site based on information compiled through field reconnaissance and appropriate reference materials. Surveys included a general biological survey and vegetation mapping; an investigation of jurisdictional waters; focused plant surveys; and focused burrowing owl surveys.

Avoidance, minimization, and/or mitigation measures are proposed to reduce any potential adverse effects to biological resources to less than significant under CEQA where appropriate.

The Biological Resources Assessment and DBESP Report are both provided in Appendix B of this Initial Study.

Existing Biological Resources Conditions

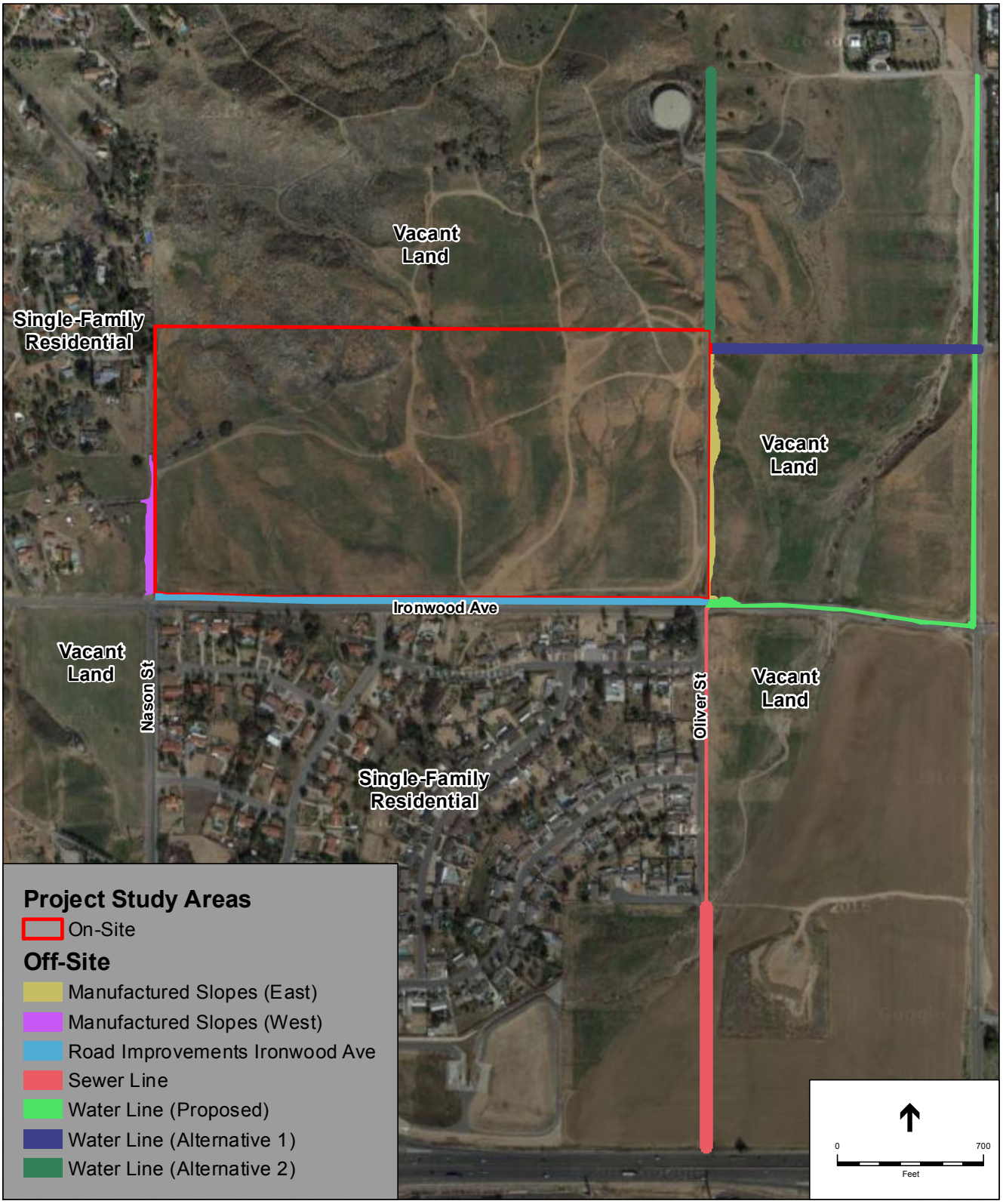
The study area for the BRA included the approximately 78.48-acre on-site study area (Project site) as well as approximately 10.57 acres of off-site study areas that could potentially be affected by off-site infrastructure improvements to serve future development on-site. The specific location of the study area is depicted below in **Figure IV-1**, *BRA Study Area*. Off-site study areas associated with four types of proposed Project improvements include manufactured slopes, road improvements, a sewer line extension, and water line extensions, as illustrated and indicated in Figure IV-1.

The Project study areas consist primarily of non-native vegetation characterized by ruderal vegetation and disturbed areas that consist of little to no vegetation. There are some areas that support native plant communities, such as Riversidean sage scrub and brittlebush scrub, which predominantly reside in the northwestern corner of the on-site study area. The Project proposes avoidance of the northwestern and northeastern corners of the on-site study area, which are located on hillsides that transition into the foothills of the Badlands mountain range located to the north of the Project site. These avoided areas will be maintained as natural open space, in part, to preserve the scenic views of the hillsides from the City of Moreno Valley. The Project on- and off-site study areas also support two drainage systems, which include Drainage A and Drainage Complex B (see discussion and exhibits below), approximately 40% of which will be avoided.

Characteristics of the Study Area and Surrounding Area

On-Site Characteristics

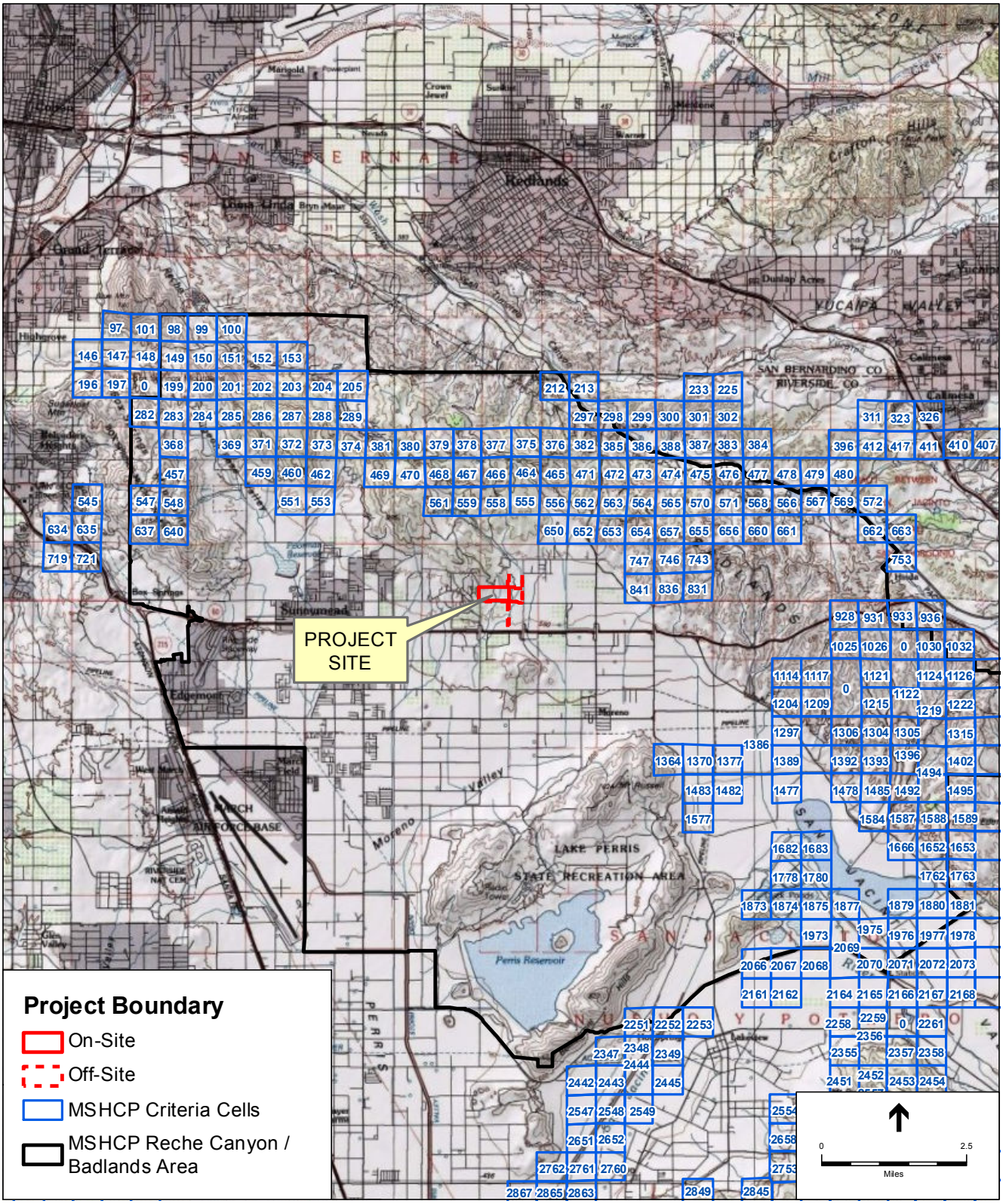
The approximately 79-acre Project site and the 10.57-acre off-site areas are located in the City of Moreno Valley in Riverside County. The Project site consists primarily of non-native vegetation characterized by ruderal vegetation and disturbed areas that consist of little to no vegetation. There are some areas that support native plant communities, such as Riversidean sage scrub and brittlebush scrub, which predominantly reside in the northwestern corner of the Project site. The study area supports two drainage systems observed to support field indicators associated with USACE, RWQCB, and CDFW (collectively “the resource agencies”) jurisdictional waters, referred to in this analysis as Drainage A and Drainage Complex B, although only Drainage A occurs on-site. The topography on-site is generally flat with gently rolling hills throughout the Project site and steeper rock outcrops on the northwest corner. On-site elevations range from the lowest of approximately 1,830 feet above mean sea level (MSL) along the southern boundary of the Project site to a high of approximately 1,975 feet above MSL along the northwest boundary of the site. The entire Project site is within the Reche Canyon/Badlands Area Plan of the MSHCP (see **Figure IV-2**, *Relationship to the MSHCP*, below).



SOURCE: Google Maps, 2015 (Aerial).

Ironwood Village Project
Figure IV-1
BRA Study Area

ESA PCR



SOURCE: USGS Topographic Series; MSHCP.

Ironwood Village Project

Figure IV-2

Relationship to the MSHCP

ESA PCR

Off-Site Characteristics

The 10.57-acre off-site areas include the proposed manufactured slopes, road improvements, sewer line, and water line areas. The off-site areas are dominated by ruderal vegetation and disturbed areas with only a small acreage of native brittlebush scrub and Riversidean sage scrub. The off-site areas also support some areas of sparsely vegetated river wash areas. A portion of Drainage A and the entirety of Drainage Complex B occurs within the off-site area. The topography of the off-site areas is generally flat with the exception of the proposed northern water line area near an existing water tank, which consists of a fairly steep east-facing slope supporting some native vegetation and rocky outcrops. Elevations within the off-site areas range from the lowest of approximately 1,793 feet above MSL at the southern end of the proposed sewer line to a high of approximately 1,948 feet above MSL at the steepest portion of the proposed water line area.

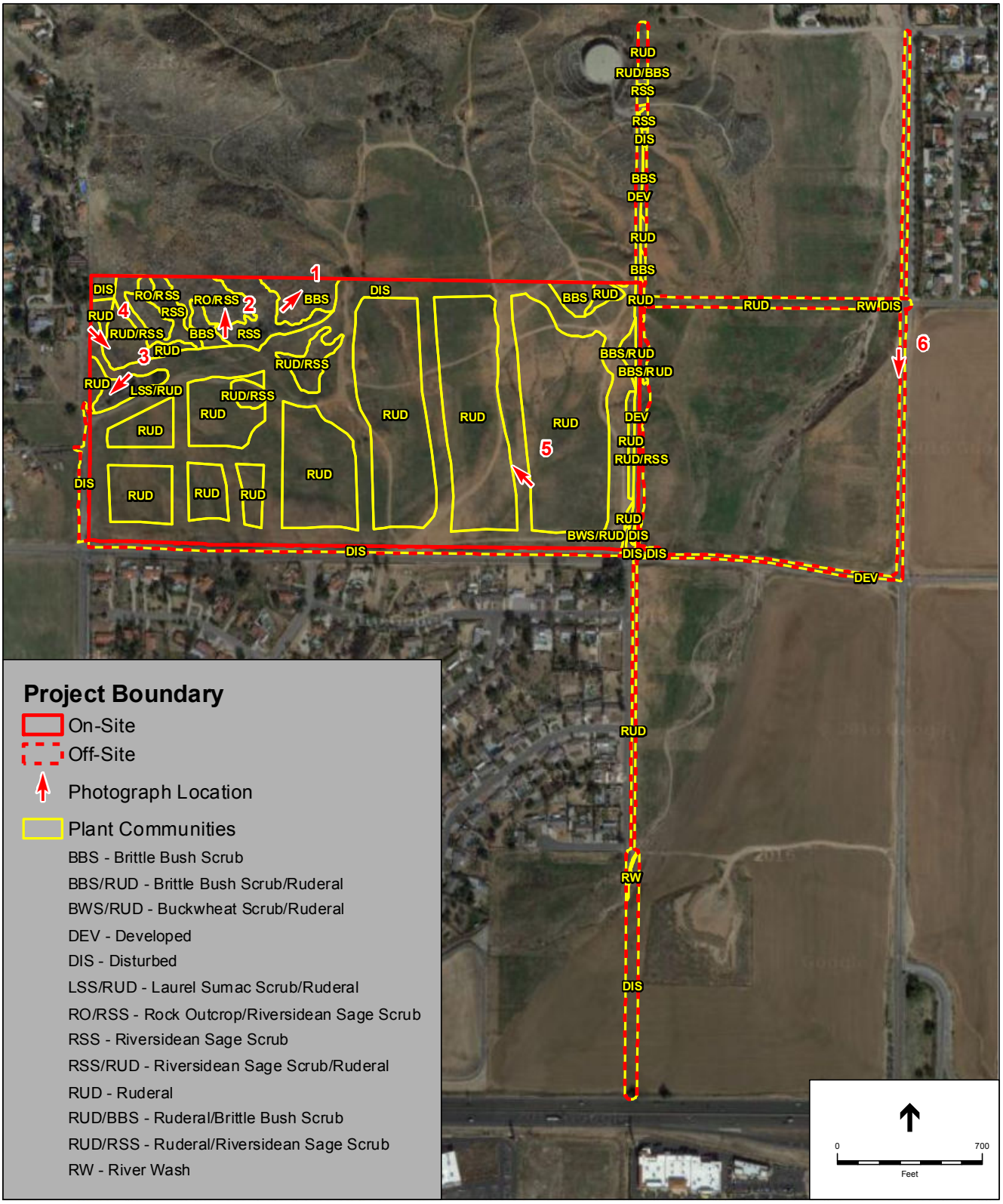
Plant Communities

Descriptions of each of the plant communities found within the study area are provided in Section 4.2 of the Project BRA. The locations of each of the plant communities are shown below in **Figure IV-3**, *Plant Communities*, while **Table IV-1**, *Plant Communities*, below, lists each of the plant communities observed, as well as the acreage within the study area.

TABLE IV-1
PLANT COMMUNITIES

Plant Communities	On-site (acres)	Off-site (acres)
Brittlebush Scrub	2.34	0.27
Brittlebush Scrub/Ruderal	0.31	0.21
Buckwheat Scrub/Ruderal	0.09	0.04
Laurel Sumac Scrub/Ruderal	0.78	-
Riversidean Sage Scrub	3.10	0.12
Riversidean Sage Scrub/Ruderal	-	0.07
Rock Outcrop/Riversidean Sage Scrub	2.15	-
River Wash	-	0.05
Ruderal	38.04	2.50
Ruderal/Brittlebush Scrub	-	0.04
Ruderal/Riversidean Sage Scrub	2.29	0.43
Disturbed	28.68	4.18
Developed	0.70	2.66
Total	**78.48**	**10.57**

SOURCE: ESA PCR, 2016



SOURCE: Google Maps, 2015 (Aerial).

Ironwood Village Project
Figure IV-3
Plant Communities

ESA PCR

General Plant Inventory

The plant communities discussed above are comprised of numerous plant species. Observations regarding the plant species present were made during the field visits to the study area, and a list of all plant species observed is provided in Appendix A, Floral and Faunal Compendium, of the BRA. Special-status plant species occurring or potentially occurring within the study area are discussed in Section 4.7.5, *Special-status Plant Species*, of the BRA.

General Wildlife Inventory

The plant communities discussed above provide habitat for common wildlife species. Observations regarding the wildlife species present were made during the field visits to the study area, and a list of all species observed is provided in Appendix A of the BRA. Special-status wildlife species occurring or potentially occurring are discussed in Section 4.7.6, *Special-status Wildlife Species*, of the BRA.

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, will not likely persist over time in fragmented or isolated habitat areas because they prohibit the infusion of new individuals and genetic material.

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 "metapopulation." The long-term health of each deme within the metapopulation is dependent upon its size and the frequency of interchange of individuals (immigration vs. 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 and long-term viability.

Corridors mitigate the effects of habitat fragmentation by: (1) allowing animals to move between remaining habitats, which allows depleted populations to be replenished and promotes genetic diversity; (2) 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; and (3) serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and other needs.

Wildlife movement activities usually fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas, individuals extending range distributions); (2) seasonal migration; and, (3) movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover). Although the nature of each

of these types of movement is species specific, large open spaces will generally support a diverse wildlife community representing all types of movement. Each type 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 home ranges encompassing many square-miles for large mammals moving on a "regional" level. A number of terms have been used in various wildlife movement studies, such as "wildlife corridor," "travel route," and "wildlife crossing" to refer to areas in which wildlife move from one area to another. To clarify the meaning of these terms and facilitate the discussion on wildlife movement in this analysis, these terms are defined as follows:

Travel Route: A landscape feature (such as a ridgeline, 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 areas). 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 typically are 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.

Wildlife Movement Within the Study Area

As previously described, wildlife movement activities occur at a variety of scales from a "local" level to a "regional" level. Regional movement through the study area is restricted due to the urbanization of the region and the proximity to a major freeway (SR-60) (refer to Figures A-1 and A-2 in Attachment A of this Initial Study). The study area is immediately surrounded by residential development to the south and west. Although there is vacant land directly to the north and east of the study area, the land to the east is highly disturbed and mostly cleared of natural vegetation and there are a number of residential communities adjacent to the eastern boundary of the vacant land. Additionally, the study area is located about 0.5 mile to north of the SR-60. Although regional movement through this area is likely limited, there is some potential for local movement through the study area via the open area directly to the north which comprises the foothills of the Badlands. Although the study area connects to the open area to the north, the study area is dominated by ruderal and disturbed areas with limited native vegetation.

The Project site only supports one ephemeral drainage that conveys minor road runoff from Ironwood Avenue with no associated vegetation (Drainage A), which is unlikely to facilitate wildlife movement. Additionally, Drainage A initiates on-site and meanders for approximately

396 linear feet before exiting the Project site via a culvert beneath Ironwood Avenue. Drainage Complex B occurs within the off-site areas and comprises the mainstem Drainage B, which is a USGS mapped blueline stream, and five small tributaries (Drainages B1 through B5). The mainstem Drainage B does support some ruderal and non-native vegetation (e.g. giant reed). Drainage B appears to initiate in the foothills of the Badlands to the north of the off-site areas and becomes channelized just west of the off-site sewer line area.

Due to the limited vegetation within Drainage B and lack of connection to suitable habitat downstream due to development, Drainage B is not expected to function as a wildlife movement corridor. The smaller tributaries (Drainages B1 through B5) are also ephemeral drainages with limited upland vegetation, which initiate at the peak of a small ridge upstream from the off-site water line area and appear to support little to no surface connection to the mainstem Drainage B likely due to decades of disturbance from agriculture and/or weed abatement activities. Drainage B5 does not appear to support any natural watershed and appears to be relict in nature. Vegetation within the drainage appears to be supported by artificial discharges from the water tank blow-off pipe observed at the headwaters of Drainage B5. Due to the limited vegetation and watershed, as well as the disturbed nature of the downstream areas off-site, the tributaries do not facilitate wildlife movement through the study area.

The study area is not within any Core or Linkage areas as identified by the MSHCP. There is one proposed linkage (Proposed Linkage 4) approximately 2.1 miles to the north of the study area and one existing core (Core H) roughly 4.0 miles to the south of the study area. Proposed Linkage 4 would include upland habitat within Reche Canyon and provide connection to Box Springs Reserve, the Badlands, and San Bernardino County. The open area directly to the north of the study area does directly connect to Proposed Linkage 4. Existing Core H includes Lake Perris State Recreation Area and San Jacinto Wildlife Area. There is no direct connection from the study area to Core H, which are separated by urban development. The study area is not within any linkages identified by the South Coast Missing Linkages report; the nearest linkage design identified is for the San Bernardino–San Jacinto Connection located approximately 3.5 miles to the east. Since the study area is not identified as a linkage by the MSHCP or South Coast Wildlands, and it does not support habitat that connects two or more habitat patches that would otherwise be fragmented or isolated from one another, the study area is not considered a wildlife corridor. The study area may provide limited opportunities for wildlife movement, more likely for local wildlife movement as described below.

Movement on a smaller or “local” scale could occur within the study area for species that are less restricted in movement pathway requirements or are adapted to urban areas (e.g., raccoon [*Procyon lotor*], stripped skunk [*Mephitis mephitis*], coyote [*Canis latrans*], and bird species in general). Habitat within the study area is dominated by ruderal and disturbed areas with some portions supporting native vegetation, including brittlebush scrub, buckwheat scrub, and Riversidean sage scrub. As such, it likely supports some wildlife movement within the study area and/or nearby areas for foraging and shelter. Data gathered from the biological survey indicates that the study area contains habitat that supports common species of invertebrates, reptiles, birds, and small mammals. The home range and average dispersal distance of many of these species may be entirely contained within the study area and immediate vicinity.

Populations of animals such as insects, reptiles, small mammals, and a few bird species may find all their resource requirements without moving far or outside of the study area at all. Occasionally, individuals expanding their home range or dispersing from their parental range could attempt to move outside of the study area, if feasible, based on the surrounding restrictions to movement from development (see above). Bird species may fly over the development and freeways to utilize the study area for foraging, although this is expected to be limited due to the high level of human activity in the region and higher quality foraging habitats in nearby open areas with less human disturbance, particularly the Badlands to the north.

In summary, the study area may support live-in and movement habitat for species on a local scale (i.e., some live-in and at least marginal movement habitat for invertebrates, reptiles, birds, and small mammal species). However, due to surrounding development, the proximity to the I-60 freeway, and the ephemeral nature and limited watershed of the drainages, the study area likely provides little to no function to facilitate movement for wildlife species on a regional scale and it is not identified as a regionally important dispersal or seasonal migration corridor by the MSHCP or by South Coast Wildlands.

Jurisdictional Waters

An investigation of on- and off-site jurisdictional waters was performed by ESA PCR Regulatory Services staff on September 19, 2014. An additional site visit was conducted on December 10, 2014 following a series of storm events that occurred on December 2, 3, and 4, 2014 totaling nearly two inches of rain in that period.[3] Based on the results of the investigation, Drainage A and Drainage Complex B (Drainages B & B1through B5) were determined to support a total of approximately 0.057 acre of USACE/RWQCB "waters of the U.S." and 0.165 acre of CDFW jurisdictional streambed (see **Figure IV-4**, *Jurisdictional Features*, below). A summary of jurisdictional features assessed within the study area is provided in **Table IV-2**, *Jurisdictional Features*, below.

The study area is located within rolling valley topography located southeast of Reche Canyon and south/southwest of The Badlands mountain range. The study area is located within the San Jacinto Watershed and generally drains toward the south, eventually reaching the Perris Valley Storm Drain which ultimately reaches the San Jacinto River and then Canyon Lake. The USGS Sunnymead topographic Quadrangle depicts a blueline stream originating in the foothills to the north with headwaters located approximately 2,000 linear feet from the on-site study area. The mapped blueline drainage feature enters the Project site near the center of the northern Project boundary and bisects the property. The property has been subjected to seasonal dry-farming and/or weed abatement activities for several decades. Based on the jurisdictional assessments performed by ESA PCR, no discernible streambed or indicators of flow were observed within the area historically mapped as a blueline drainage feature during the September 19, 2014 jurisdictional delineation.

[3] Based on WeatherCurrents.com precipitation data accessed at http://weathercurrents.com/morenovalley/ArchiveDec2014.do obtained on July 26, 2016.

TABLE IV-2
JURISDICTIONAL FEATURES

Drainage (Study Area)	Length (ft)	USACE/ RWQCB (acres)	CDFW (acres)	Flow Classification
A (On-Site)	285	0.023	0.046	Ephemeral
A (Off-Site)	111	0.007	0.013	Ephemeral
Drainage A Subtotal	***396***	***0.030***	***0.059***	
B (Off-Site)	306	0.026	0.069	Ephemeral
B1 (Off-Site)[b]	0[a]	N/A	0.001	Ephemeral
B2 (Off-Site)[b]	32	N/A	0.001	Ephemeral
B3 (Off-Site)[b]	25	N/A	0.001	Ephemeral
B4 (Off-Site)[b]	34	N/A	0.001	Ephemeral
B5 (Off-Site)	35	0.002	0.033	Ephemeral
Drainage Complex B Subtotal	***432***	***0.028***	***0.106***	
Total	**828**	**0.058**	**0.165**	

[a] Less than one linear foot of jurisdiction occurs within Drainage B1 as the majority of the drainage within the off-site study area is associated with an existing corrugated metal pipe that was not quantified.

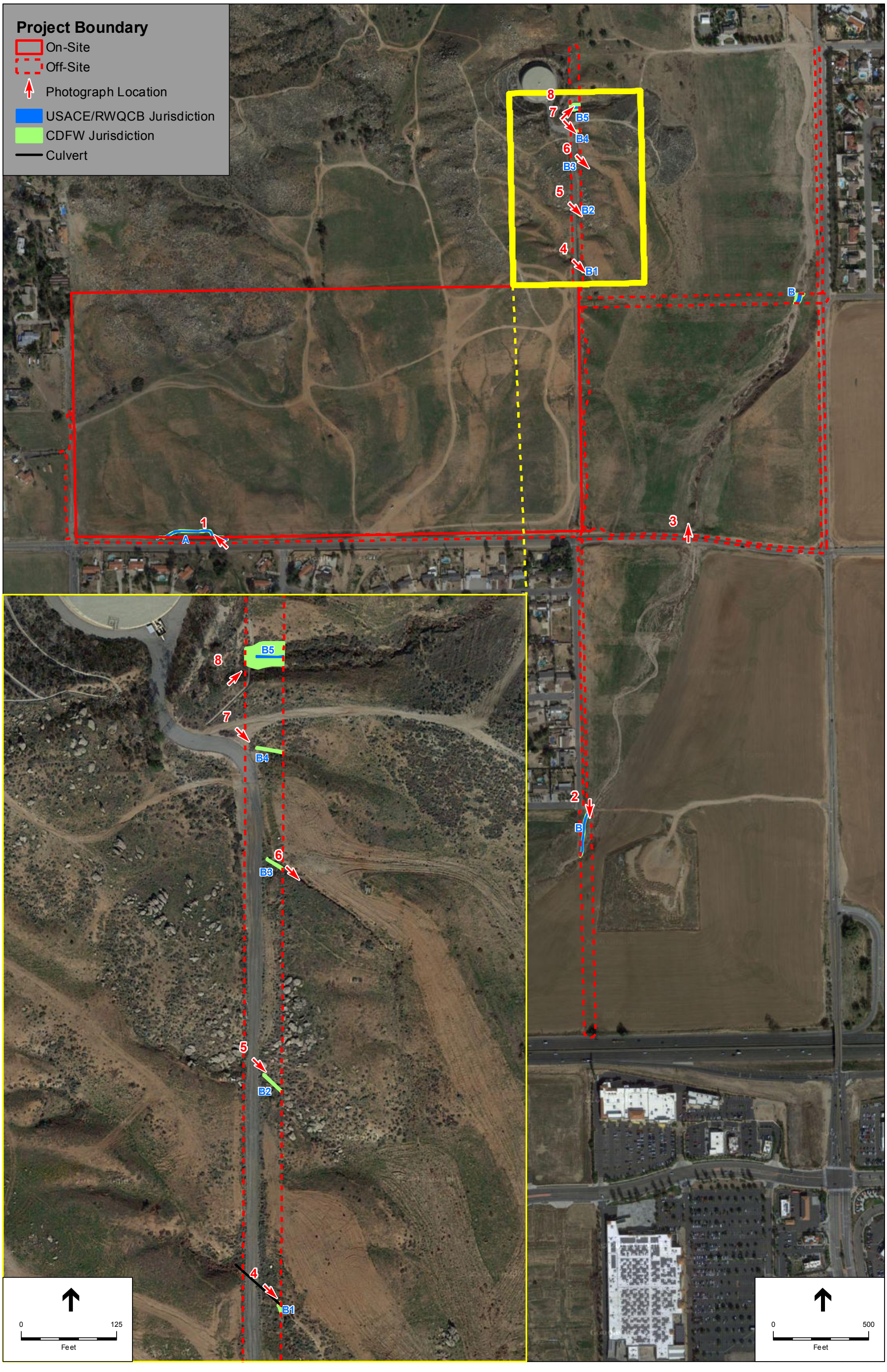
[b] Drainage did not support jurisdictional field indicators associated with "waters of the U.S" regulated by the USACE and RWQCB pursuant to the Clean Water Act.

SOURCE: ESA PCR, 2014

In order to determine if jurisdictional field indicators reestablish following moderate rain events, ESA PCR staff returned to investigate the site following a series of early December 2014 storm events yielding nearly 2-inches of rain over three consecutive days. In our experience, this amount of rain would have reestablished some evidence of flow capable of eroding a streambed and/or supporting some jurisdictional field indicators based on the USACE's arid delineation guidelines.

However, no ordinary water mark, sediment deposition/sorting, debris wracks, bed/bank, streambed associated vegetation, or other jurisdictional field indicators were observed immediately following the consecutive rain events. As a result, it was determined that no jurisdiction occurs within the area mapped as a blueline drainage feature within the study area.

It was noted that the USGS Sunnymead Quadrangle depicts a small water feature at the off-site headwaters, located approximately 2,000 linear feet north of the site where the blueline feature initiates. As such, it is feasible that the mapped water feature is associated with a historic stock pond, which may have supported a small drainage that ultimately extended to the Project study area when water was historically discharged from the feature and/or significant storm events caused it to overflow. However, based on review of current aerial imagery in Google Earth, no water feature appears to persist within the off-site headwaters in the current condition capable of supporting a discernible streambed. Consequently, the only jurisdictional feature identified within the on-site study area during the December 2014 site visit is a minor roadside ditch identified as Drainage A.



SOURCE: Google Maps, 2015.

Ironwood Village Project
Figure IV-4
Jurisdictional Features

ESA PCR

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Jurisdiction within the off-site study areas is limited to a mainstem drainage identified as Drainage B, and Drainage Complex B which is comprised of tributary Drainages B1through B5. No riparian and/or hydrophytic vegetation communities were observed on the study area that would warrant the need for a formal wetland analysis. Therefore, no jurisdictional wetlands or special aquatic sites were determined to occur within the Project study areas. The following provides a summary of jurisdictional drainage features identified within the Project study areas:

Drainage A

Drainage A is an unvegetated roadside ditch that establishes only when rain events generate sufficient runoff from Ironwood Avenue to erode a small channel through sandy disturbed soils. The ephemeral ditch enters the Ironwood Avenue Right-of-Way within the off-site study area then enters the on-site study area along the southern Project boundary, extending for approximately 285 linear feet. The ditch then enters a corrugated metal pipe ("CMP") beneath Ironwood Avenue which is ultimately conveyed through the rural residential development to the south and into a water quality basin adjacent to SR-60. Drainage A ranged from 2 to 3 feet in jurisdictional channel width and contains sandy loam soils that are periodically disturbed by weed abatement activities. A photograph of Drainage A is provided in Figure 11a of the Project BRA.

Drainage A within the on-and off-site study area supports a total of approximately 396 linear feet of ephemeral unvegetated roadside ditch, containing 0.023 acre of on-site and 0.007 acre of off-site non-wetland USACE "waters of the U.S" totaling 0.030 acre, as well as 0.46 acre of on-site and 0.013 acre of off-site CDFW jurisdictional streambed totaling 0.059 acre.

Drainage Complex B

Drainage B

Drainage B is an ephemeral sandy wash that originates off-site approximately 2 miles to the northwest along Reche Canyon Road. The drainage meanders along the road until it reaches the valley floor extending across Trust Way, crossing Kalmia Avenue, and then conveys runoff along the west side of Moreno Beach Drive for approximately a quarter-mile prior to crossing the off-site Water Line Alternative 1. The drainage feature then extends south/southwest for another quarter-mile before entering a culvert beneath Ironwood Avenue and meandering for another quarter-mile prior to entering the off-site sewer line study area. Drainage B then continues for approximately 700 linear feet toward the southwest ultimately entering a detention basin located directly northeast of the Nason Street exit of SR-60. Drainage B within the off-site study areas ranges from approximately 4-10 feet in USACE/CDFW channel width and is entirely unvegetated. Soils within the wash are comprised of loamy sands of the Tujunga series consistent with the mapping by NRCS. Photographs of Drainage B are provided in Figure 11a of the Project BRA.

Drainage B within the off-site sewer line and Water Line Alternative 1 total approximately 306 linear feet of unvegetated ephemeral sandy wash totaling approximately 0.026 acre of non-wetland USACE/RWQCB "waters of the U.S." and 0.069 acre of CDFW jurisdictional streambed.

Drainages B1- B5

Drainages B1through B5 are minor ephemeral drainages that with the exception of Drainage B5 (which appears to accept flow from a water tank bypass pipe) function to drain a very limited watershed west of the existing water district road that runs parallel to the eastern boundary of the Project site. Drainage B5 appears to support flows from two small slope v-ditches as well as a pipe at its headwaters that appears to drain the existing water tank directly to the west, and was likely formed by controlled releases from the water tank structure. Otherwise, no natural watershed capable eroding such an incised drainage feature occurs upstream. Drainages B1 through B3 have small CMP culverts that convey limited runoff west of the water district road and support very weak indicators of flow and/or bed and bank. Drainage B4 does not support a pipe culvert rather a small pipe that drains surface flow from a small v-ditch directly west of the road. No discernible indicators associated with "waters of the U.S." such as an ordinary high water mark, sediment deposition/sorting, debris wracks, streambed associated vegetation, or other USACE jurisdictional field indicators indicative of the arid southwest region were observed within Drainages B1-B4 immediately following the consecutive rain events of early December 2014. However, Drainages B1 through B4 do support topographic low points with banks typical of headwater swales. Drainage B5 was presumed to support USACE/RWQCB jurisdiction due to the presence of an ordinary high water mark, which ultimately became indiscernible after approximately 1,000 linear feet. Given the reasonable proximity to Drainage B5 observed in the field in light of periodic disturbance to the sandy soils from weed abatement activities, Drainage B5 was presumed to be regulated as "waters of the U.S." Drainages B1through B5 were all presumed to support CDFW jurisdictional streambed.

Drainages B1 through B4 exhibit sparse upland scrub vegetation and ruderal grasses and are otherwise unvegetated. Drainage B5 supports a small patch of mule fat along approximately 15 linear feet of the headwaters directly downstream of the water tank pipe and mostly upland scrub vegetation beyond. Drainages B1through B5 contain CDFW jurisdictional channel widths ranging from 0.5 to 3 feet, while Drainage B5 exhibits USACE jurisdiction averaging approximately 2 feet in channel width and a CDFW channel width approximately averaging 10 feet. Drainage Complex B drainage features all were observed to support sandy loam soils. Photographs of Drainage Complex B are provided in Figures 11a and 11b of the Project BRA.

Drainage B5 within the Water Line Alternative 2 study area totals approximately 0.002-acre of non-wetland ephemeral "waters of the U.S." regulated by the USACE/RWQCB. Drainage Complex B (Drainages B1 through B5) total approximately 0.037 acre of CDFW jurisdictional streambed and associated vegetation.

Special-status Biological Resources and Regulations

The following discussion describes the plant and wildlife species present, or potentially present, within the study area that have been afforded special recognition by Federal, State, or local resource conservation agencies and organizations. These species have declining or limited population sizes, usually resulting from habitat loss. Also discussed are habitats that are unique, of relatively limited distribution, or of particular value to wildlife. Protected special-status species are classified by either Federal or State resource management agencies, or both, as

threatened or endangered, under provisions of the Federal and State Endangered Species Acts (FESA and CESA, respectively).

Federal Special-status Resource Protection and Classifications

Federal ESA

The FESA of 1973 defines an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the FESA, unless properly permitted, it is unlawful to "take" any listed species. "Take" is defined in Section 3(18) of FESA: "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the USFWS, through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification as forms of "take." These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a federal agency for an action which could affect a federally listed plant or animal species, the property owner and agency are required to consult with USFWS pursuant to Section 7 of the ESA if there is a federal nexus, or pursuant to Section 10 of the ESA. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants.

All references to Federally-protected species herein and in the Project BRA include the most current published status or candidate category to which each species has been assigned by USFWS. For purposes of this assessment the following acronyms are used for Federal status species, as applicable:

- FE Federally-listed as Endangered
- FT Federally-listed as Threatened
- FPE Federally proposed for listing as Endangered
- FPT Federally proposed for listing as Threatened
- FPD Federally proposed for delisting
- FC Federal candidate species (former C1 species)

Some of the USFWS offices maintain a database of listed species within their jurisdiction, for example the Sacramento[4] and Carlsbad[5] offices. The Carlsbad USFWS Office jurisdiction encompasses the counties of Los Angeles, Orange, Riverside, San Bernardino, Imperial, and San Diego.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) protects individuals as well as any part, nest, or eggs of any bird listed as migratory. In practice, Federal permits issued for activities that potentially impact migratory birds typically have conditions that require pre-disturbance surveys for nesting

4 http://www.fws.gov/sacramento/ES_Species/Lists/es_species_lists-overview.htm
5 http://www.fws.gov/carlsbad/SpeciesStatusList/CFWO_Species_Status_List.htm

birds. In the event nesting is observed, a buffer area with a specified radius must be established, within which no disturbance or intrusion is allowed until the young have fledged and left the nest, or it has been determined that the nest has failed. If not otherwise specified in the permit, the size of the buffer area varies with species and local circumstances (e.g., presence of busy roads, intervening topography, etc.), and is based on the professional judgment of a monitoring biologist. A list of migratory bird species protected under the MBTA is published by USFWS.

Federal Clean Water Act, Section 404

Section 404 of the Clean Water Act (CWA) regulates the discharge of dredged or fill material into waters of the U.S. and authorizes the Secretary of the Army, through the Chief of Engineers, to issue permits for such actions. Implementing regulations for the CWA define waters of the U.S. as "rivers, creeks, streams, and lakes extending to their headwaters and any associated wetlands." Wetlands are defined as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions." The permit review process entails an assessment of potentially adverse impacts to USACE jurisdictional waters of the U.S.

Over the years, the USACE has modified its regulations, typically due to evolving policy or judicial decisions, through the issuance of Regulatory Guidance Letters, memorandums, or more expansive instruction guidebooks. These guidance documents help to update and define how jurisdiction is claimed, and how these waters of the U.S. will be regulated. The most recent, significant modification occurred on June 5, 2007, subsequently updated in December 2008, when the USACE and the U.S. Environmental Protection Agency (USEPA) issued a series of guidance documents outlining the requirements and procedures, effective immediately, to establish jurisdiction under Section 404 of the CWA and the Section 10 of the Rivers and Harbors Act of 1899. These documents are intended to be used for all jurisdictional delineations and provide specific guidance for the jurisdictional determination of potentially jurisdictional features affected by the U.S. Supreme Court rulings in *Rapanos v. the United States* and *Carabell v. the United States* 547 U.S. 715 (2006) (jointly referred to as *Rapanos*).

The *Rapanos* case outlines the conditions and criteria used by the USACE to assess and claim jurisdiction over non-isolated, non-navigable, ephemeral tributaries. Under a plurality ruling, the Court noted that certain "not relatively permanent" (i.e., ephemeral), non-navigable tributaries must have a "significant nexus" to downstream traditional navigable waters to be jurisdictional. An ephemeral tributary has a significant nexus to downstream navigable "waters" when it has "more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a Traditional Navigable Water (TNW)." A significant nexus is established through the consideration of a variety of hydrologic, geologic and ecological factors specific to the particular drainage feature in question. For drainage features that do not meet the significant nexus criteria, a significant nexus determination is provided by the USACE to the USEPA for the final determination of federal jurisdiction. Drainage features that do not meet the significant nexus criteria based on completion of a jurisdictional delineation, and/or are determined to be isolated pursuant to the SWANCC ruling (see below), may still be regulated by California Department of Fish and Wildlife (CDFW) under Fish and Game Code Section 1600 or the Regional Water Quality Control Board (RWQCB) under the Porter-Cologne Water Quality Act.

On January 15, 2003, the USACE and USEPA issued a Joint Memorandum to provide clarifying guidance regarding the United States Supreme Court ruling in the *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*, No. 99-1178 (January 9, 2001) ("the SWANCC ruling"), (Federal Register: Vol. 68, No. 10.). This ruling held that the CWA does not give the federal government regulatory authority over non-navigable, isolated, intrastate waters. As a result of this decision, some previously regulated depressional areas such as mudflats, sandflats, wetlands, prairie potholes, wet meadows, playa lakes, natural ponds, and vernal pools, which are not hydrologically connected to other intra- or inter-state "waters of the U.S.," are no longer regulated by the USACE.

Federal Clean Water Act, Section 401

The mission of the RWQCB is to develop and enforce water quality objectives and implement plans that will best protect the beneficial uses of the state's waters, recognizing local differences in climate, topography, geology, and hydrology. The California RWQCB is responsible for implementing compliance not only with state codes such as the California Water Code, but also some federal acts such as Section 401 of the CWA. Section 401 of the CWA requires that any applicant for a federal permit for activities that involve a discharge to waters of the state shall provide the federal permitting agency with a certification from the state in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the federal CWA.[6] As such, before the USACE will issue a CWA Section 404 permit, applicants must apply for and receive a Section 401 water quality certification (WQC) from the RWQCB. The RWQCB regulates "discharging waste, or proposing to discharge waste, within any region that could affect "waters of the state" (Water Code § 13260 (a)), pursuant to provisions of the Porter-Cologne Water Quality Control Act which defines RWQCB jurisdictional "waters of the state" as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code § 13050 (e)).

With the exception of isolated waters and wetlands, most discharges of fill to waters of the state are also subject to a CWA Section 404 permit. If a CWA Section 404 permit is not required for the Project, the RWQCB may still require issuance of Waste Discharge Requirements (WDR) under the Porter-Cologne Water Quality Control Act. The RWQCB may regulate isolated waters that are not under jurisdiction of the USACE through issuance of WDR's. However, projects that obtain a Section 401 WQC are simultaneously enrolled in a statewide general WDR. Processing of Section 401 WQC's generally requires submittal of 1) a construction storm water pollution prevention plan (SWPPP), 2) a final water quality technical report that demonstrates that post-construction storm water Best Management Practices (BMPs) comply with the local design standards for municipal storm drain permits (MS4 permits) implemented by the State Water Resources Control Board effective January 1, 2011, and 3) a conceptual Habitat Mitigation and Monitoring Plan (HMMP) to compensate for permanent impacts to RWQCB waters, if any. In addition to submittal of a draft CEQA document, a WQC application typically requires a discussion of avoidance and minimization of impacts to RWQCB jurisdictional resources, and efforts to protect beneficial uses as defined by the local RWQCB basin plan for the Project. The

6 33 USC 1341 *(a) (1)*.

RWQCB cannot issue a Section 401 WQC until the Project CEQA document is certified by the lead agency.

State of California Special-status Resource Protection and Classifications

California ESA

California's Endangered Species Act (CESA) defines an endangered species as:

> *…a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.*

The State defines a threatened species as:

> *…a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a threatened species.*

Candidate species are defined as:

> *…a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list.*

Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Wildlife Commission. Unlike the FESA, CESA does not include listing provisions for invertebrate species.

Article 3, Sections 2080 through 2085, of the CESA addresses the taking of threatened or endangered species by stating:

> *…no person shall import into this State, export out of this State, or take, possess, purchase, or sell within this State, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided.*

Under the CESA, "take" is defined as, "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

Additionally, some special-status mammals and birds are protected by the State as Fully Protected Mammals or Fully Protected Birds, as described in the California Fish and Wildlife Code, Sections 4700 and 3511, respectively.

California Species of Special Concern are species designated as vulnerable to extinction due to declining population levels, limited ranges, and/or continuing threats. Informally listed species are not protected per se, but warrant consideration in the preparation of biological assessments. For some species, the CNDDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nest areas.

For the purposes of the BRA and this Initial Study, the following acronyms are used for State status species, as applicable:

- SE State-listed as Endangered
- ST State-listed as Threatened
- SR State-listed as Rare
- SCE State candidate for listing as Endangered
- SCT State candidate for listing as Threatened
- SFP State Fully Protected
- SSC California Species of Special Concern

Protection of Birds

Section 3503.5 of the California Fish and Game Code states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Activities that result in the abandonment of an active bird of prey nest may also be considered in violation of this code. In addition, California Fish and Game Code, Section 3511 prohibits the taking of any bird listed as fully protected, and California Fish and Game Code, Section 3515 states that is it unlawful to take any non-game migratory bird protected under the MBTA.

State of California Fish and Game Code, Section 1602

Section 1602 of the California Fish and Game Code requires any entity (e.g., person, state or local government agency, or public utility) who proposes a project that will substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake to notify the CDFW of the proposed project. In the course of this notification process, the CDFW will review the proposed project as it affects streambed habitats within the project area. The CDFW may then place conditions in the Section 1602 Streambed Alteration Agreement to avoid, minimize, and mitigate any potentially significant adverse impacts within CDFW jurisdictional limits.

California Native Plant Society

The CNPS is a private plant conservation organization dedicated to the monitoring and protection of special-status species in California. CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of Rare, Threatened, or Endangered vascular plant species of California. The list serves as the candidate list for listing as Threatened and Endangered by CDFW. CNPS has developed five categories of rarity, of which Ranks 1A, 1B, and 2 are particularly considered special-status:

- Rank 1A Presumed extinct in California.
- Rank 1B Plants Rare, Threatened, or Endangered in California and elsewhere.
- Rank 2 Plants Rare, Threatened, or Endangered in California, but more common elsewhere.
- Rank 3 Plants about which we need more information – a review list.
- Rank 4 Plants of limited distribution – a watch list.

The CNPS recently added "threat ranks" which parallel the ranks used by the CNDDB. These ranks are added as a decimal code after the CNPS List (e.g., Rank 1B.1). The threat codes are as follows:

- .1 – Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat);
- .2 – Fairly endangered in California (20-80% occurrences threatened);
- .3 – Not very endangered in California (<20% of occurrences threatened or no current threats known).

Special-status species that occur or potentially could occur within the study area is based on one or more of the following: (1) the direct observation of the species within the study area during any field surveys; (2) a record reported in the CNDDB; and (3) the study area is within known distribution of a species and contains appropriate habitat.

Sensitive Plant Communities

Sensitive plant communities include those habitat types considered rare by resource agencies, namely the CDFW, due to their scarcity and/or their ability to support State and Federally-listed Endangered, Threatened, and Rare vascular plants, as well as several special-status bird and reptile species. CDFW maintains a natural plant community list, the *List of California Terrestrial Natural Communities*.[7] Special-status natural communities (also referred to by CDFW as 'rare' or 'special concern') are identified on the list by an asterisk and are considered high priority vegetation types.

Local Special-status Resource Protection and Classifications

Western Riverside County MSHCP

The study area is within the Western Riverside County MSHCP which was adopted by the Riverside County Board of Supervisors (June 17, 2003). The MSHCP functions as an Habitat Conservation Plan (HCP) pursuant to Section 10(a)(1)(B) of the FESA and as a Natural Communities Conservation Plan (NCCP) under the NCCP Act of 2001. The USFWS and CDFW have authorized the take of a number special-status plant and wildlife species (Covered Species) within the MSHCP Plan Area in exchange for the assembly and management of a coordinated MSHCP Conservation Area.

7 Available online at: http://www.dfg.ca.gov/biogeodata/vegcamp/natural_comm_list.asp.

Stephens' Kangaroo Rat Habitat Conservation Plan

The Stephens' kangaroo rat (SKR) HCP provides Take Authorization for SKR within its boundaries as implemented by legal agreements executed among the Riverside County Habitat Conservation Agency (RCHCA), its member agencies, USFWS, CDFW, BLM , U.S. Department of Interior, State of California Resources Agency, and other agencies as appropriate.[8] The MSHCP provides Take Authorization for SKR outside the boundaries of the SKR HCP, but within the MSHCP Plan Area boundaries. The seven core reserves established by the SKR HCP will be managed as part of the MSHCP Conservation Area consistent with the SKR HCP.

The study area is within the boundaries of the SKR HCP but is not within any of the core reserves. As such, the Project would be required to pay a SKR mitigation fee for coverage under the SKR HCP.

Sensitive Plant Communities

The study area does not support any communities considered by CDFW as sensitive habitats.

Special-status Plant Species

Special-status plants include those listed, or candidates for listing, by the USFWS and CDFW; and species considered special-status by the CNPS (particularly Lists 1A, 1B, and 2). Several special-status plant species were reported in the vicinity based on CNDDB and CNPS, totaling 65 species within the 9-quadrangle search (as indicated in Appendix B, *Special-Status Plant Species*, of the BRA). A total of 12 species were identified as having a potential to occur within the study area based on the literature review and existing habitat on the study area, as listed in Appendix B of the BRA. Focused plant surveys were conducted in 2015 on the Project site and off-site road improvement and sewer line areas and in 2016 on the off-site water line areas; none of the species determined to have a potential to occur on the Project site and off-site water and sewer line areas were observed. A summer focused survey was conducted within the off-site eastern manufactured slope area in 2016; however, a spring survey has not yet been conducted within this area. The western manufactured slope areas do not support suitable habitat for special-status plant species.

Special-status Wildlife Species

Special-status wildlife includes those species listed as Endangered or Threatened under the FESA or CESA, candidates for listing by the USFWS or CDFW, and species of special concern to the CDFW. Several special-status wildlife species were reported in the vicinity based on CNDDB, totaling 43 species within the 9-quadrangle search. A total of 19 species were identified as having a potential to occur within or use the study area based on the literature review and habitat present on the study area, as listed in Appendix C, *Special-status Wildlife Species*, of the BRA.

In addition, focused surveys were conducted for the burrowing owl in accordance with recommended protocols and the potential for foraging and nesting migratory bird and raptor species were also analyzed due to known presence within the study area or within the vicinity (see Appendix C of the BRA). The species with a potential to occur on the study area are

[8] *http://www.skrplan.org/index.html*

discussed in detail in the BRA, including the results of the burrowing owl surveys and the migratory birds and raptors assessment.

Migratory Birds and Raptors

The study area supports some potential nesting and foraging habitat for nesting birds and raptors, primarily in the northwestern corner of the study area where there are shrubs and some trees. Several species of birds were observed on-site (see Appendix A of the BRA) and were identified by CNDDB as potentially occurring within the 9-quadrangle search area (see Appendix C of the BRA). Raptors observed on-site include Cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*). There is also a foraging potential for listed raptors within the 9-quadrangle search area according to CNDDB, such as golden eagle (State Fully Protected) and Swainson's hawk (Federally Threatened), though the potential of foraging is considered low and neither are expected to nest on-site (see Appendix C of the BRA).

Study Area's Relationship to the Western Riverside County MSHCP

This section provides a discussion of the study area's relationship to the MSHCP policies, including the location within the MSHCP Area Plan, Criteria Cells, and cores and linkages, and the presence of MSHCP protected biological resources.

Location of the Study Area within the MSHCP Area Plan and Criteria Cells

The entire study area is within the Reche Canyon/Badlands Area Plan (see Figure IV-2 above) of the MSHCP but is not within a Criteria Cell, a designated Cell Group, or a subunit within the Southwest Area Plan that requires conservation of land for inclusion in the MSHCP Conservation Area.

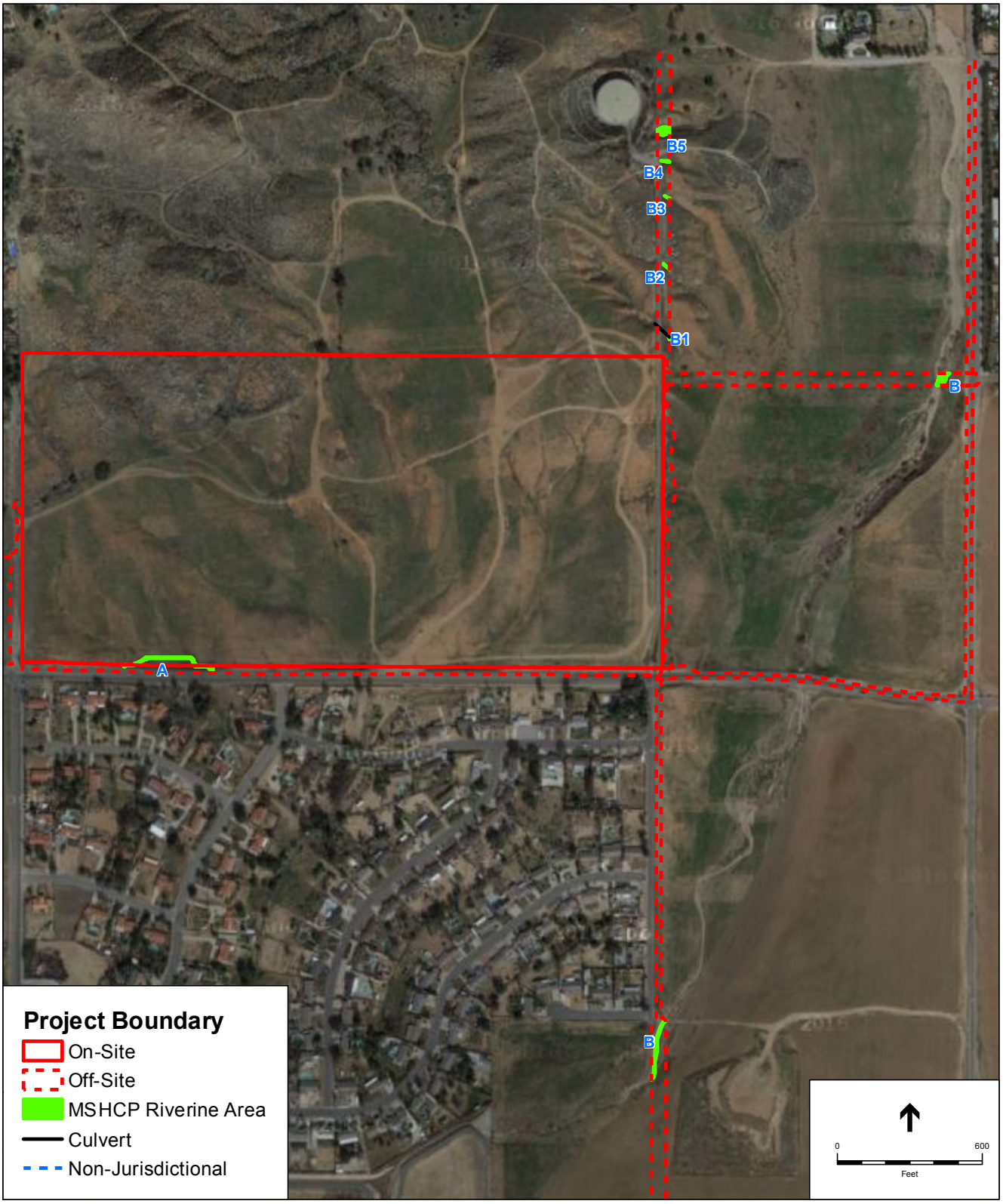
Location of the Study Area within MSHCP Cores and Linkages

As mentioned previously, the study area is not within any cores or linkages (i.e., Special Linkage Areas) as identified in the Reche Canyon/Badlands Area Plan.

Riparian/Riverine Areas and Vernal Pools

Section 6.1.2, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*, of the MSHCP provides for the protection of Riparian/Riverine Areas and Vernal Pools within the MSHCP Plan Area. Riparian/Riverine areas are defined in the MSHCP as "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." Vernal pools are defined in 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."

As shown below in **Figure IV-5**, *MSHCP Riverine Areas*, and summarized in **Table IV-3**, *MSHCP Riverine Areas*, the Project study areas support a total 0.165 acre of MSHCP Riverine Areas including 0.059 acre in Drainage A (0.046 acre on-site and 0.013 acre off-site), 0.070 acre in Drainage B, 0.001 acre in Drainage B1, 0.001 acre in Drainage B2, 0.001 acre in Drainage B3, 0.002 acre in Drainage B4, and 0.033 acre in Drainage B5.



SOURCE: Google Maps, 2015 (Aerial).

Ironwood Village Project

Figure IV-5

MSHCP Riverine Areas

ESA PCR

All drainages are considered MSHCP Riverine Areas (rather than MSHCP Riparian Areas) since they are supported by ephemeral[9] flows and do not support riparian vegetation communities. No vernal pools occur within the on- and off-site study areas. Due to the presence of MSHCP Riverine features, the Project will require a Determination of Biologically Equivalent or Superior Preservation (DBESP) analysis for any impacts proposed to these areas. The DBESP is required to provide details on any proposed impacts and compensatory mitigation for compliance with MSHCP requirements for submittal to the County of Riverside Environmental Programs Department (EPD), subject to approval by the County of Riverside Regional Conservation Authority (RCA) and the State and Federal Wildlife Agencies (CDFW and USFWS).

TABLE IV-3
MSHCP RIVERINE AREAS

Drainage (Study Area)	Length (ft)	Area (acres)	Riparian/Riverine Classification	Flow
A (On-Site)	285	0.046	Riverine	
A (Off-Site)	111	0.013	Riverine	
B (Off-Site)	306	0.069	Riverine	
B1 (Off-Site)	0*	0.001	Riverine	
B2 (Off-Site)	32	0.001	Riverine	
B3 (Off-Site)	25	0.001	Riverine	
B4 (Off-Site)	34	0.001	Riverine	
B5 (Off-Site)	35	0.033	Riverine	
Total	**828**	**0.165**		

** Less than one linear foot of jurisdiction occurs within Drainage B1 as the majority of the drainage within the off-site study area is associated with an existing corrugated metal pipe that was not quantified.*

Source: ESA PCR, 2014

The biological function and value of the on- and off-site Riverine Areas within Drainage A and Drainage Complex B include the transport of water, which is limited based on the ephemeral flows of the drainage and limited watershed. The function and value of the drainages are also limited since they are primarily unvegetated and support only some small patches of upland and/or ruderal vegetation. Other types of aquatic features that could provide suitable habitat for Riparian/Riverine species, such as fairy shrimp, are not present within the study area (i.e. vernal pools, swales, vernal pool-like ephemeral ponds, seasonal ponds, stock ponds, or other human-modified depressions such as tire ruts, etc.).

Riparian/Riverine Plant Species

A habitat assessment was conducted for species listed in Section 6.1.2, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*, of the MSHCP. The results are presented below in **Table IV-4**, *MSHCP Riparian/Riverine Plant Species*. Only one

[9] Riparian drainages are streambeds that generally convey runoff during, and immediately after, a storm event.

Riparian/Riverine plant species was determined to have a potential to occur on the study area, namely smooth tarplant (*Centromadia pungens* ssp. *laevis*). This species was considered to have a potential to occur only within the riverine habitat associated with the on- and off-site drainages; however, smooth tarplant was not observed during any of the focused plant surveys and therefore was concluded to be absent from the Project site. The remaining MSHCP Riparian/Riverine plant species are not expected to occur within the study area due to the lack of suitable habitat or the location of the study area.

TABLE IV-4
MSHCP RIPARIAN/RIVERINE PLANT SPECIES

Species	Potential to Occur within the Study Area
Brand's phacelia *Phacelia stellaris*	Not expected to occur. This species has not been recorded in the Moreno Valley area. There is only one occurrence record in CNDDB within Riverside County, which was observed in 2000 in the City of Riverside near the Santa Ana River.
California Orcutt grass *Orcuttia californica*	Not expected to occur due to the lack of vernal pools.
Coulter's matilija poppy *Romneya coulteri*	Not expected to occur. This perennial plant has conspicuous flowers that would have been detected during the focused plant surveys if present.
Engelmann oak *Quercus engelmannii*	Not expected to occur. This is a conspicuous tree species that would have been detected during the focused plant surveys if present.
Fish's milkwort *Polygala cornuta* var. *fishiae*	Not expected to occur. The majority of occurrence records of this species on CNDDB are confined to the Santa Ana Mountains.
graceful tarplant *Holocarpha virgata* ssp. *Elongate*	Not expected to occur due to disturbance on-site. The study area is outside of the species' range; there are no known records of this species within the flatter agricultural areas east of the Santa Ana Mountains.
lemon lily *Lilium parryi*	Not expected to occur due to the lack of suitable habitat. Also, the study area is outside the species' range; this species is restricted to the San Jacinto Mountains. The study area is outside of species' elevation range.
Mojave tarplant *Deinandra mohavensis*	Not expected to occur. The study area is outside the species range; this species is restricted to the San Jacinto Mountains. The study area is outside of species' elevation range.
mud nama *Nama stenocarpum*	Not expected to occur due to the lack of wetlands. None were incidentally observed during any surveys (this species can occasionally occur in non-wetlands).
ocellated Humboldt lily *Lilium humboldtii* ssp. *ocellatum*	Not expected to occur due to high disturbance within the drainages and lack of shade. This species is typically found at higher elevations.
Orcutt's brodiaea *Brodiaea orcuttii*	Not expected to occur due to the lack of vernal pools.
Parish's meadowfoam *Limnanthes alba* ssp. *parishii*	Not expected to occur due to the lack of suitable habitat. Also, the study area is outside the species' range; this species is restricted to the Santa Rosa Plateau within the MSHCP Plan Area. The study area is outside of this species' elevation range.
prostrate navarretia *Navarretia prostrata*	Not expected to occur due to the lack of suitable habitat. Also, the study area is outside the species' range; this species is restricted to the Santa Rosa Plateau within the MSHCP Plan Area. The study area does not support suitable vernal pool habitat.
San Diego button-celery *Eryngium aristulatum* var. *parishii*	Not expected to occur. The study area is outside the species' range; this species is restricted to the Santa Rosa Plateau within the MSHCP Plan Area. The study area does not support suitable vernal pool habitat.

Species	Potential to Occur within the Study Area
San Jacinto Valley crownscale *Atriplex coronata* var. *notatior*	Not expected to occur due to the lack of suitable alkaline habitat.
San Miguel savory *Satureja chandleri*	Not expected to occur due to the lack of suitable metavolcanic substrate habitat.
Santa Ana River woollystar *Eriastrum densifolium* ssp. *sanctorum*	Not expected to occur due to lack of suitable habitat. The study area is outside the species range; this species is restricted to the Santa Ana River and alluvial fan sage scrub habitat.
slender-horned spineflower *Dodecahema leptoceras*	Not expected to occur due to the lack of alluvial fan habitat.
smooth tarplant *Centromadia pungens* ssp. *laevis*	Potential, but not observed. This species was not observed during the focused plant surveys.
southern California black walnut *Juglans californica*	Not expected to occur. This is a conspicuous tree species that would have been detected if present.
spreading navarretia *Navarretia fossalis*	Not expected to occur due to the lack of vernal pools.
thread-leaved brodiaea *Brodiaea filifolia*	Not expected to occur due to the lack of vernal pools.
vernal barley *Hordeum intercedens*	Not expected to occur due to the lack of vernal pools.

SOURCE: ESA PCR, 2016

Riparian/Riverine Wildlife Species

Habitat assessments were conducted for wildlife species listed in Section 6.1.2, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*, of the MSHCP. The results are presented below in **Table IV-5**, *MSHCP Riparian/Riverine Wildlife Species*. No riparian/riverine wildlife species are expected to occur on the study area due to the lack of suitable habitat.

Narrow Endemic Plant Species Survey Area

The study area is not within the Narrow Endemic Plant Species Survey Area; therefore, no surveys were required for Narrow Endemic plant species.

Additional Survey Needs and Procedures

Section 6.3.2, *Additional Survey Needs and Procedures*, of the MSHCP provides for additional survey needs for the burrowing owl, as well as a number of special-status plant, amphibian, and mammal species.

TABLE IV-5
MSHCP RIPARIAN/RIVERINE WILDLIFE SPECIES

Species	Potential to Occur within the Study Area
arroyo toad *Anaxyrus californicus*	Not expected to occur due to the lack of suitable habitat (perennial streams).

Species	Potential to Occur within the Study Area
mountain yellow-legged frog *Rana muscosa*	Not expected to occur due to the lack of suitable habitat (perennial streams).
California red-legged frog *Rana aurora draytonii*	Not expected to occur due to the lack of suitable habitat (perennial streams).
bald eagle *Haliaeetus leucocephalus*	Not expected to occur due to the lack of suitable habitat for foraging and nesting.
least Bell's vireo *Vireo bellii pusillus*	Not expected to occur due to the lack of suitable habitat for foraging and nesting.
American peregrine falcon *Falco peregrinus anatum*	Not expected to occur due to the lack of suitable habitat for foraging and nesting (cliffs overlooking open areas or large bodies of water).
southwestern willow flycatcher *Empidonax traillii extimus*	Not expected to occur due to the lack of suitable habitat for foraging and nesting.
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	Not expected to occur due to the lack of suitable habitat for foraging and nesting; outside of the species range.
Santa Ana sucker *Catostomus santaanae*	Not expected to occur due to the lack of suitable habitat (perennial streams).
Riverside fairy shrimp *Streptocephalus woottoni*	Not expected to occur due to the lack of suitable habitat (vernal pools).
vernal pool fairy shrimp *Branchinecta lynchi*	Not expected to occur due to the lack of suitable habitat (vernal pools).
Santa Rosa Plateau fairy shrimp *Linderiella santarosae*	Not expected to occur due to the lack of suitable habitat (vernal pools).

SOURCE: ESA PCR, 2016

Burrowing Owl Survey Area

The study area is within the Burrowing Owl Survey Area; therefore, in compliance with the Western Riverside County MSHCP, surveys are required for this species. As discussed in Section 4.7.6, *Special-status Wildlife Species*, of the Project BRA, Step I and Step II surveys conducted for the Project following Western Riverside County MSHCP protocol were negative. Although the site does not currently support burrowing owls, pre-construction surveys are required within 30 days of ground disturbance based on the presence of suitable habitat.

Criteria Area Species Survey Area

The study area is not within the Criteria Area Species Survey Area; therefore, no surveys were required for Criteria Area plant species.

Amphibian Species Survey Area

The study area is not within the Amphibian Species Survey Area; therefore, no surveys are required.

Mammal Species Survey Area

The study area is not within the Mammal Species Survey Area; therefore, no surveys are required.

Urban/Wildlands Interface

Section 6.1.4, *Guidelines Pertaining to the Urban/Wildlands Interface*, of the MSHCP presents a number of guidelines that are intended to address indirect effects associated with locating developments in proximity to a Western Riverside County MSHCP Conservation Area. These guidelines address the quantity and quality of any runoff generated by the development (i.e., drainage and toxics), night lighting, noise, non-native invasive plant species, barriers to humans and animal predators, and grading/land development encroachment.

The study area is not within or in the vicinity of any Criteria Cells (see Figure IV-2 above) and, as such, development of the site is not expected to result in indirect effects to MSHCP Conservation Areas related to night lighting, noise, and grading/land development, and barriers would not be necessary. Drainage A and Drainage Complex B ultimately drain to the San Jacinto River, which is a Constrained Linkage (19) and where Criteria Cells are located. Runoff from the site therefore has the potential to affect the quantity and quality of water downstream, in addition to the transport of plant seeds. Since the Project will be required to comply with flood and water quality standards[10], no indirect effects from the quantity and quality of run-off will occur to downstream areas. At minimum, no invasive, non-native plant species listed in Table 6-2 of the MSHCP, *Plants That Should Be Avoided Adjacent To The MSHCP Conservation Area*, will be utilized in the landscape plans. This will avoid dispersal of invasive plant seeds in the watershed. Despite the study area not being within any Criteria Cells or adjacent to any MSHCP Conservation Areas, it does support one on-site drainage and one off-site drainage complex that are considered Riverine Areas. The above measures will avoid indirect impacts to these drainages from runoff and invasive species.

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 by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less Than Significant Impact With Mitigation Incorporated.

1. Special-Status Plant Species

Development of the study area would result in the direct removal of numerous common plant species; a list of plant species observed within the study area is included in Appendix A of the Project BRA. Common plant species present within the study area occur in large numbers throughout the region and their removal does not meet the significance thresholds defined by CEQA. Therefore, impacts to common plant species would not be considered a significant impact and no mitigation measures are required.

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10 The project will be required to prepare a Water Quality Management Plan and Storm Water Pollution Prevention Plan consistent with Regional Water Quality Control Board and County requirements that will outline measures such as Best Management Practices (BMPS) to address water quantity and quality, and to address any potential flooding.

A total of 53 special-status plant species of the 65 species identified as occurring in the Project vicinity in available databases (see discussion above and Section 4.7.5 of the BRA for further details) are not expected to occur within the study area due to the lack of suitable habitat or because the site is outside the known distribution or elevation range for the species. These species are listed in Appendix B of the Project BRA. As discussed above, the remaining 12 special-status plant species were determined to have a potential to occur on the study area; however, these 12 species are not expected to occur within the Project site or off-site water and sewer line areas since focused surveys conducted within these areas were negative. As such, no impacts to special-status plant species would occur as a result development on the Project site and within the proposed off-site water and sewer lines and no mitigation is required.

Although a summer focused survey was performed within the off-site manufactured slope area to the east of the Project site, a spring focused survey has not been conducted within this off-site area. Of the 12 species with a potential to occur, seven (7) species are not expected to occur within the off-site manufactured slope area since these species were not detected during the summer focused survey or the area does not support suitable habitat, including California screw most (*Tortula californica*), smooth tarplant, San Bernardino aster (*Symphyotrichum defoliatum*), chaparral sand-verbena (*Abronia villosa* var. *aurita*), long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*), salt spring checkerbloom (*Sidalcea neomexicana*), and mesa horkelia (*Horkelia cuneate* var. *puberula*). The blooming period of the remaining five (5) species with the potential to occur within the off-site manufactured slope area east of the Project boundary fall outside of the summer survey window, which include Nevin's barberry (*Berberis nevinii*), Jaeger's bush milk-vetch (*Astragalus pachypus* var. *jaegeri*), round-leaved filaree (*California macrophylla*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), and white-bracted spineflower (*Chorizanthe xanti* var. *leucotheca*). Of these five species, Nevin's barberry, Jaeger's bush milk-vetch, and round-leaved filaree are covered by the MSHCP. Parry's spineflower and white-bracted spineflower are not currently covered by the MSHCP and impacts to these individuals, if present, would be significant. As such, a MM BIO-1 is prescribed below, which requires a spring focused plant survey to be conducted within the off-site manufactured slope area located directly east of the site prior to ground disturbance in the appropriate blooming period (between April and June) to determine the presence/absence of Parry's spineflower and white-bracted spineflower. If either or both of these species are found within the off-site eastern manufactured slope area, MM BIO-1 outlines the necessary actions that are required to reduce impacts to the special-status plant species to less than significant.

2. Special-status Wildlife Species

Development of the study area would result in the disruption and removal of habitat and the loss and displacement of common wildlife species. A list of wildlife species observed within the study area is included in Appendix A of the Project BRA. Due to the limited amount of native habitat to be removed and the level of existing disturbance from human activity within the vicinity (e.g., nearby development), these impacts would not be expected to reduce the general wildlife populations below self-sustaining levels within the region and impacts to common wildlife species do not meet the significance thresholds defined in Section 5.0, *Thresholds of Significance*, of the BRA. Therefore, impacts to common wildlife species would not be considered a significant impact and no mitigation measures are required.

A total of 25 special-status wildlife species of the 43 species identified as occurring in the Project vicinity in available databases are not considered to have a potential to occur within the study area due to the lack of suitable habitat or because the site is outside the known distribution range for the species. These species are listed in Appendix C of the Project BRA. Since these species are not expected to be present on the study area, no impacts would occur as a result of Project development and no mitigation measures are required.

As discussed above, the remaining 19 special-status wildlife species were determined to have a potential to occur on the study area. Of these species, focused surveys were conducted for burrowing owl, which is conditionally covered by the MSHCP with additional surveys and mitigation required as discussed in further detail below. Of the remaining 17 potential special-status wildlife species, 12 species are covered by the MSHCP with no survey or conservation requirements for the study area, including coast horned lizard, orange-throated whiptail, red diamondback rattlesnake, golden eagle, Swainson's hawk, loggerhead shrike, coastal California gnatcatcher, northwestern San Diego pocket mouse, Stephens' kangaroo rat (covered by the SKR HCP), Los Angeles pocket mouse, San Diego black-tailed jackrabbit, and San Diego desert woodrat. Therefore, assuming payment of the applicable fees (the MSHCP Local Development Mitigation Fee and the SKR HCP fee for the Stephens' kangaroo rat) and compliance with required guidelines in the MSHCP, no additional mitigation is required for these species.

The remaining six (6) species, the southern grasshopper mouse, American badger, western mastiff bat, pocketed free-tailed bat, lesser long-nosed bat, and pallid bat are not covered by the MSHCP. These species are listed as species of special concern by the CDFW and do not carry a federal or state listing as threatened or endangered. These species are considered to have a low to very low potential to occur on the study area based on the limited habitat and/or quality of the habitat, and no significant impacts are anticipated to these species as described below. The study area also has the potential to support migratory birds and raptors that are discussed further in 6.2.4.2 of the Project BRA.

- No significant impact to southern grasshopper mouse since this species is only considered to have a low potential to occur as it has not been recorded on CNDDB within the vicinity of the study area since 1938.

- No significant impact to American badger since this species was considered to have low potential to occur. The majority of the site is surrounded by development and a large portion of suitable habitat is disturbed. Additionally, this species has not been recorded on CNDDB within the vicinity of the study area since 1908.

- No significant impact to western mastiff bat since this species was only considered to have a low potential to occur for foraging with no suitable roosting habitat on the study area. Although bats in this family are known to be strong fliers and can fly long distances to forage, there is only a low probability that these species will travel to the study area based on the disturbance present on the study area and presence of surrounding development. The nearest CNDDB occurrence record of this species was recorded in 1990 approximately 3.0 miles to the southwest of the study area.

- No significant impact to pocketed free-tailed bat since this species was only considered to have a very low potential to occur for roost with no suitable roosting habitat on the study area. The potential for roosting was considered very low since this species typically prefers steeper cliffs for roosting habitat. Although little is known regarding home range for this species, the potential for roosting is also unlikely since the study area does not support adjacent foraging habitat.[11] There are only two CNDDB occurrence records in the vicinity. The nearest record is from 1985 approximately 6.5 miles to the southwest of the study area near March Air Force Base.

- No significant impact to lesser long-nosed bat since this species was only considered to have a very low potential to roost and forage on the study area. The potential was considered low since this species is not typically found in California. Records in California are typically vagrant migrants. This species has only been recorded once on CNDDB within the vicinity of the study area, which was in 1993 approximately 9.5 miles to the northeast in a residential neighborhood of Yucaipa.

- No significant impact to pallid bat since this species was only considered to have a very low potential to roost and forage on the study area. The potential was considered very low because of evidence of disturbance on the study area and the presence of surrounding development to the south, northeast, and west; this species is highly sensitive to disturbance. Additionally, this species has not been recorded on CNDDB within the vicinity since 1929.

The above six species were not considered for coverage under the MSHCP, indicating that regionally significant populations of these species do not exist within the MSHCP boundaries. Based on the above discussion, the study area is not capable of supporting large populations of these species and a loss of a few individuals, if present, would not expect to reduce regional population numbers. Therefore, any impacts to these species would be less than significant and no mitigation measures are considered required.

Burrowing Owl

The study area supports potentially suitable burrowing owl (Species of Special Concern) habitat, but no active burrowing owl burrows, signs, or individuals were found on-site during the Step I and Step II surveys.

Although the study area does not currently support burrowing owls, a pre-construction survey is required in compliance with the MSHCP. Specifically, in accordance with the County of Riverside's *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area* (County of Riverside, 2006), a pre-construction survey for burrowing owl within the study area is required within 30 days prior to ground disturbance to avoid potential direct take of burrowing owls in the future. A Project Design Feature, Condition of Approval ("COA") BIO-1, requiring this survey is provided below, in addition to recommended MM BIO-2, should burrowing owls be present in the future. Mitigation is proposed consistent with the burrowing owl mitigation guidelines published by CDFW.

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[11] CDFW. 2000. California Wildlife Habitat Relationships System: Pocketed Free-tailed Bat. State of California, The Resources Agency. May 2000.

Project Design Features (Conditions of Approval)

COA BIO-1 Due to the presence of suitable habitat and in compliance with the MSHCP, a pre-construction survey for burrowing owl is required within 30 days prior to ground disturbance to determine the presence of burrowing owls and avoid potential direct take of burrowing owls if present.

Mitigation Measures

MM BIO-1 Due to the presence of suitable habitat within the proposed off-site manufactured slope area located directly east of the Project boundary, a spring focused plant survey to determine the presence/absence of Parry's spineflower and white-bracted spineflower is required to be conducted during the appropriate blooming periods of the two species (between April and June) prior to ground disturbance. If individuals are found, significant impacts would occur as a result of implementation of the Project and unless mitigation is implemented to reduce impacts to less than significant. Mitigation includes seed collection of individuals that would be significantly impacted by the Project at the end of the growing season and prior to ground disturbance. Collected seeds will be planted within an appropriate on-site or off-site mitigation area, which will be conserved as open space in perpetuity. Mitigation for significant impacts to Parry's spineflower and white-bracted spineflower will be implemented in consultation with the City of Moreno Valley and CDFW.

MM BIO-2 If burrowing owls are determined present during the 30-day pre-construction survey, occupied burrows shall be avoided to the greatest extent feasible, following the guidelines in the Staff Report on Burrowing Owl Mitigation published by Department of Fish and Wildlife including, but not limited to, conducting pre-construction surveys, avoiding occupied burrows during the nesting and non-breeding seasons, implementing a worker awareness program, biological monitoring, establishing avoidance buffers, and flagging burrows for avoidance with visible markers. If occupied burrows cannot be avoided, acceptable methods may be used to exclude burrowing owl either temporarily or permanently, pursuant to a Burrowing Owl Exclusion Plan that shall be prepared and approved by the County of Riverside Environmental Programs Department (EPD), in coordination with the CDFW. The Burrowing Owl Exclusion Plan shall be prepared in accordance with the guidelines in the Staff Report on Burrowing Owl Mitigation and the MSHCP.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in the local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less Than Significant Impact.

1. Sensitive Plant Communities

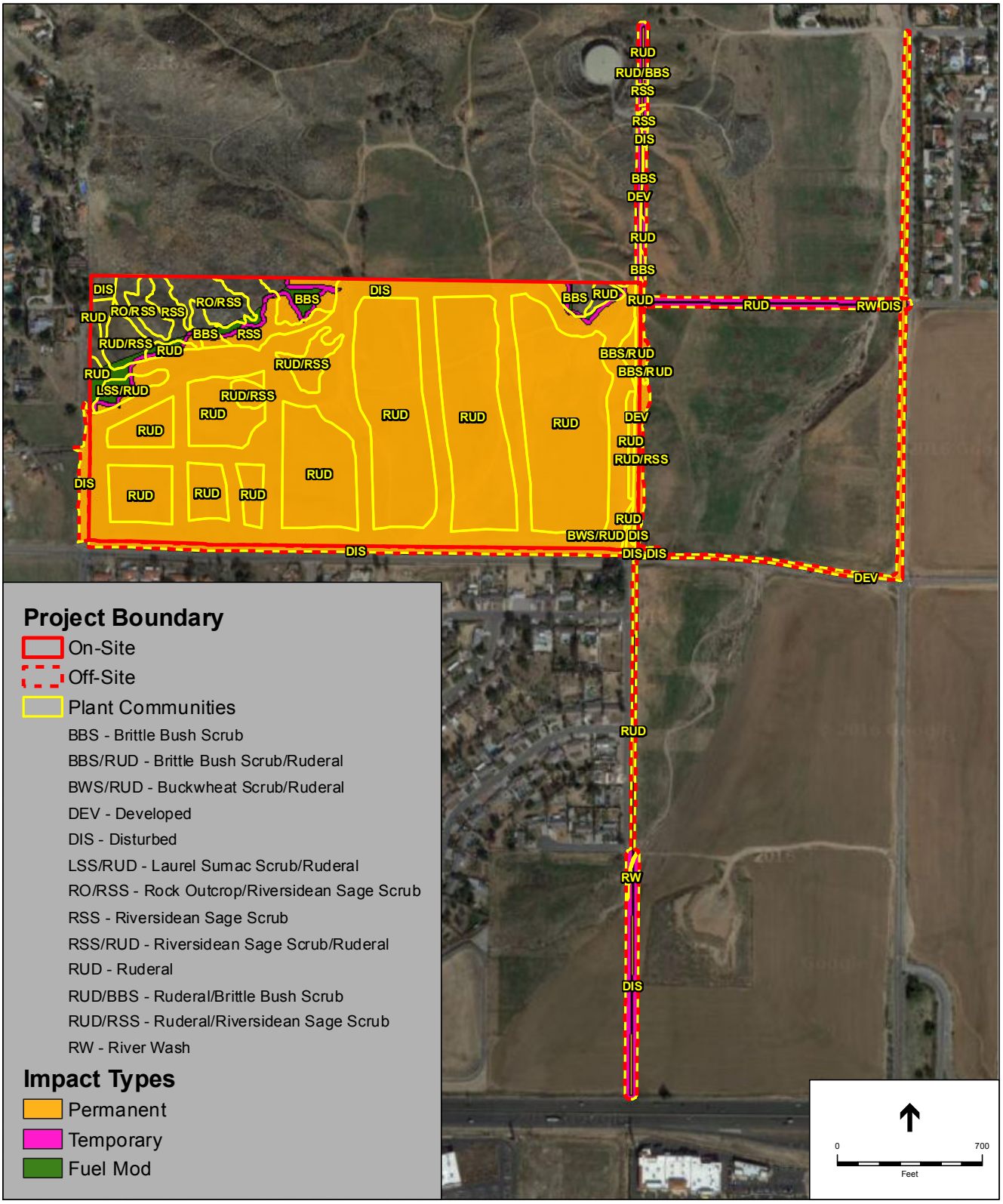
Sensitive plant communities were not observed within the study area; therefore, no impacts would occur. There are seven native communities on the study area that total 9.48 acres, including brittlebush scrub, brittlebush scrub/ruderal, buckwheat scrub/ruderal, laurel sumac scrub/ruderal, Riversidean sage scrub, Riversidean sage scrub/ruderal, and rock outcrop/Riversidean sage scrub. Permanent impacts are proposed to 2.91 acres on-site, which is only 3.8 percent of the total proposed permanent impacts (75.81 acres) to plant communities. The majority of permanent

impacts are proposed to ruderal (37.66 acres) and disturbed (30.54 acres) areas, which are dominated by non-native species. Impacts to these areas comprise 90% of the total impacts to communities on-site. In addition to permanent impacts, 0.83 acres of fuel modification and 1.25 acres of temporary impacts are proposed to native communities on the study area. Impacts to plant communities are shown in **Figure IV-6**, *Impacts to Plant Communities* and **Table IV-6**, *Existing and Proposed Impacts to Plant Communities*.

TABLE IV-6
EXISTING AND PROPOSED IMPACTS TO PLANT COMMUNITIES

Plant Communities	Existing (acres)	Permanent Impacts (acres)	Fuel Modification Impacts (acres)	Temporary Impacts (acres)
Brittlebush Scrub	2.61	0.92	0.32	0.69
Brittlebush Scrub/Ruderal	0.52	0.51	0.00	0.01
Buckwheat Scrub/Ruderal	0.13	0.13	0.00	0.00
Laurel Sumac Scrub/Ruderal	0.78	0.36	0.26	0.16
Riversidean Sage Scrub	3.22	0.98	0.19	0.33
Riversidean Sage Scrub/Ruderal	0.07	0.01	0.00	0.06
Rock Outcrop/Riversidean Sage Scrub	2.15	0.00	0.06	0.00
River Wash	0.05	0.01	0.00	0.04
Ruderal	40.54	37.66	0.35	1.92
Ruderal/Brittlebush Scrub	0.04	0.01	0.00	0.03
Ruderal/Riversidean Sage Scrub	2.72	1.75	0.13	0.03
Disturbed	32.86	30.54	0.19	1.52
Developed	3.36	2.93	0.00	0.43
Total	**89.05**	**75.81**	**1.50**	**5.22**

SOURCE: ESA PCR, 2016



SOURCE: Google Maps, 2015 (Aerial).

Ironwood Village Project

Figure IV-6

Impacts to Plant Communities

ESA PCR

2. CDFW Jurisdiction

The Project study areas support drainages that are considered CDFW jurisdictional streambeds pursuant to Section 1602 of the California Fish and Game Code and are proposed for impacts. Drainage A and Drainage Complex B are all jurisdictional, of which permanent impacts are proposed to Drainages A, B, B2, B3, B4, and B5 totaling 0.077 acre of permanent impacts (including 0.046 acre on-site and 0.031 acre off-site), as shown on **Figure IV-7**, *Impacts to Jurisdictional Features and MSHCP Riverine Areas*. Existing and impact acreages are summarized in **Table IV-7**, *Permanent Impacts to CDFW Jurisdictional Features and MSHCP Riverine Areas*. The permanent impacts total approximately 47 percent of the total 0.165 acre of CDFW jurisdiction identified within the on-site and off-site study areas. It should be noted that this analysis presumes combined impacts associated with the proposed water line alignment and two alternative alignments will occur. However, only one water line alignment will ultimately be implemented. Therefore, permanent and temporary impacts to CDFW jurisdictional waters will be slightly reduced once the final water line alignment is determined. Compensatory mitigation for permanent impacts to CDFW jurisdictional waters will be required for the Project based only on impacts associated with the final water line alignment as part of subsequent CDFW Section 1602 permitting requirements. Temporarily impacted CDFW jurisdictional areas will be restored to pre-Project conditions following completion of construction.

TABLE IV-7
IMPACTS TO CDFW JURISDICTIONAL FEATURES AND MSHCP RIVERINE AREAS[A]

Drainage (Study Area)	Existing (acres)	Permanent Impacts (acres)	Temporary Impacts (acres)
Drainage A (On-Site)	0.046	0.046	-
Drainage A (Off-Site)	0.013	0.013	-
Drainage B (Off-Site)	0.069	0.011	0.058
Drainage B1 (Off-Site)	0.001	0.000	0.001
Drainage B2 (Off-Site)	0.001	0.000[b]	0.001
Drainage B3 (Off-Site)	0.001	0.000[c]	0.001
Drainage B4 (Off-Site)	0.001	0.000[d]	0.001
Drainage B5 (Off-Site)	0.033	0.007	0.026
Total	**0.165**	**0.077**	**0.088**

NOTES:
[a] MSHCP Riverine Areas are presumed equivalent to CDFW jurisdiction.
[b] Impacts are considered negligible; actual acreage of impacts to four decimal places is 0.0003 acre.
[c] Impacts are considered negligible; actual acreage of impacts to four decimal places is 0.0001 acre.
[d] Impacts are considered negligible; actual acreage of impacts to four decimal places is 0.0004 acre.

SOURCE: ESA PCR, 2016.

Impacts to CDFW jurisdictional features would be required to comply with Section 1602 of the California Fish and Game Code, including applying for a permit and providing compensatory streambed mitigation as stated above. COA BIO-2/MM BIO-3, below, are proposed in order to comply with the compensatory mitigation requirement of this regulation, subject to approval by

CDFW. Compliance with Section 1602 of the California Fish and Game Code would reduce impacts to a less than significant level.

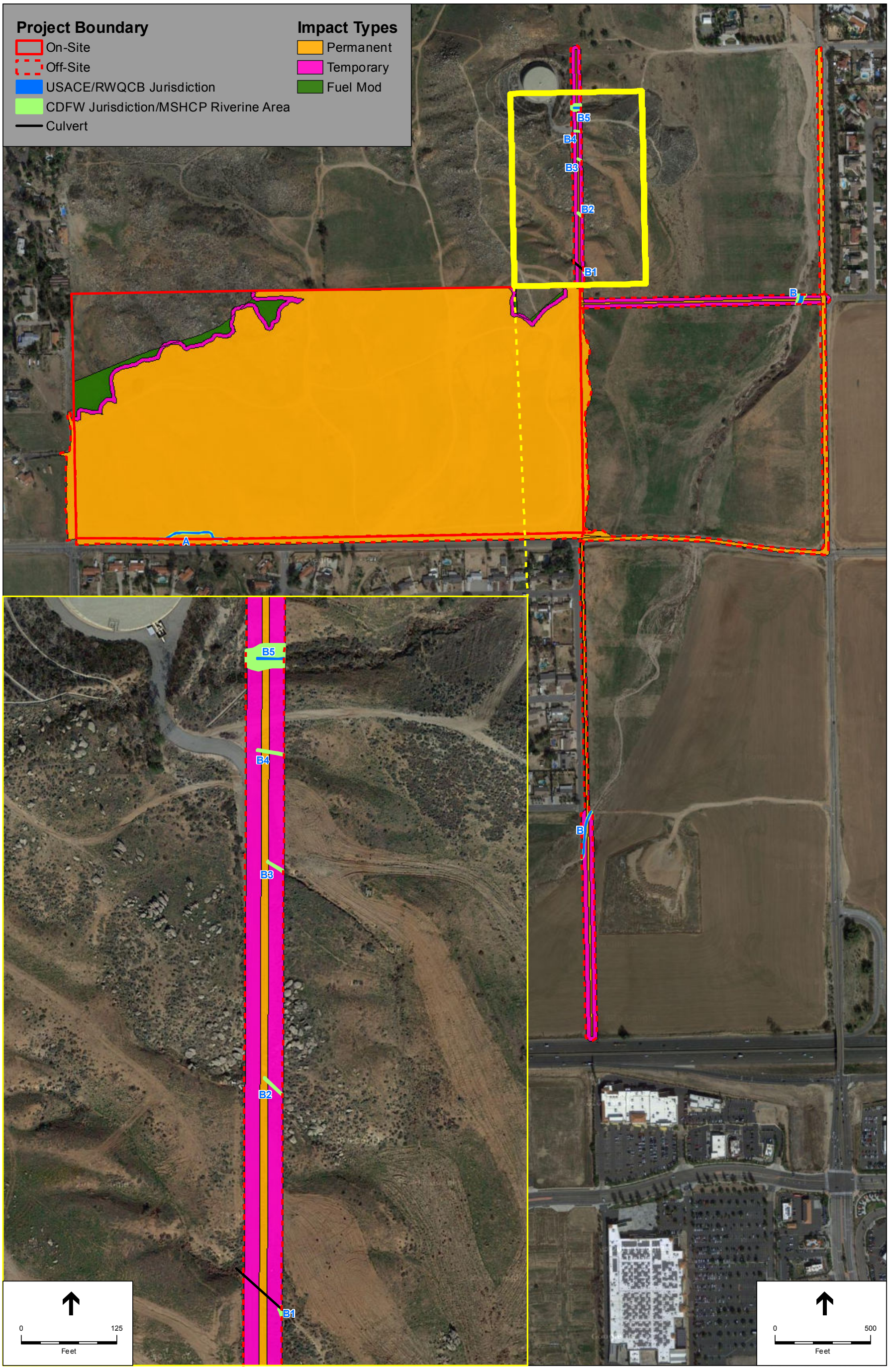
Project Design Features (Conditions of Approval)/Mitigation Measures

COA BIO-2/MM BIO-3 Prior to the issuance of any grading permit for permanent impacts in the areas designated as jurisdictional features, the Project applicant shall obtain regulatory permits from the USACE, RWQCB, and CDFW. The following shall be incorporated into the permitting, subject to approval by the regulatory agencies:

i. On-site or off-site creation, restoration and/or enhancement of USACE/RWQCB jurisdictional "waters of the U.S." within the San Jacinto watershed at a ratio no less than 1:1 or within an adjacent watershed at a ratio no less than 2:1 for permanent impacts, and for any temporary impacts to restore the impact area to pre-Project conditions (i.e. pre-Project contours). Off-site mitigation may occur on land acquired for the purpose of in-perpetuity preservation as approved by the resource agencies, or through the purchase of mitigation credits at a resource agency-approved off-site mitigation bank or in-lieu fee program.

ii. On-site or off-site creation, restoration, and/or enhancement of CDFW jurisdictional streambed within the San Jacinto watershed at a ratio no less than 1:1 or within an adjacent watershed at a ratio no less than 2:1 for permanent impacts, and for any temporary impacts to restore the impact area to pre-Project conditions (i.e. pre-Project contours). Off-site mitigation may occur on land acquired for the purpose of in-perpetuity preservation as approved by the resource agencies, or through the purchase of mitigation credits at a resource agency-approved off-site mitigation bank or in-lieu fee program.

Purchase of any mitigation credits through an agency-approved mitigation bank or in-lieu fee program should occur prior to any impacts to jurisdictional drainages. Any mitigation proposed on land acquired for the purpose of in-perpetuity mitigation that is not part of an agency-approved mitigation bank or in-lieu fee program shall include the creation, restoration, and/or enhancement of similar streambed habitat pursuant to a resource agency-approved Habitat Mitigation and Monitoring Plan (HMMP). The HMMP shall be prepared prior to any impacts to jurisdictional features, and shall provide details as to the implementation of the mitigation, maintenance, and future monitoring of mitigation areas. The goal of the mitigation shall be to create, restore, and/or enhance similar habitat with equal or greater function and value than the impacted habitat.



SOURCE: Google Maps, 2015.

Ironwood Village Project

Figure IV-7

Impacts to Jurisdictional Features and MSHCP Riverine Areas

ESA PCR

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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?

Less Than Significant Impact.

The Project study areas do not support wetlands as defined by Section 404 of the Clean Water Act. However, the Project study areas do support USACE/RWQCB ephemeral non-wetland jurisdictional streambeds regulated under Sections 404/401 of the Clean Water Act (CWA) that are proposed for impacts. Drainage A and Drainage B5 are considered jurisdictional "waters of the U.S.", of which permanent impacts are proposed totaling 0.034 acre (0.023 acre on-site and 0.011 acre off-site), as shown on Figure IV-7 above. Existing and permanent impact acreages are summarized in **Table IV-8**, *Permanent Impacts to USACE/RWQCB Jurisdictional Features*. The permanent impacts total less than 60 percent of the total 0.058 acre of USACE/RWQCB jurisdiction on-site and off-site. Temporarily impacted areas will be restored to pre-Project conditions.

TABLE IV-8
IMPACTS TO USACE/RWQCB JURISDICTIONAL FEATURES

Drainage	Existing (acres)		Permanent Impacts (acres)		Temporary Impacts (acres)	
	Length (ft)	Area (acres)	Length (ft)	Area (acres)	Length (ft)	Area (acres)
Drainage A	285	0.023	285	0.023	0	0.000
Drainage A (off-site)	111	0.007	111	0.007	0	0.000
Drainage B (off-site)	306	0.026	40	0.004	266	0.022
Drainage B5 (off-site)	35	0.002	10	0.001	25	0.001
Total	**737**	**0.058**	**436**	**0.034**	**366**	**0.023**

SOURCE: ESA PCR, 2016

Impacts to USACE and RWQCB jurisdictional "waters of the U.S." would be required to comply with Sections 404 and 401 of the CWA, respectively, including applying for a permit and mitigation subject to approval by USACE and/or RWQCB. COA BIO-2 is proposed in order to comply with the compensatory mitigation requirement of these regulations, subject to approval by USACE and RWQCB. Compliance with Sections 404 and 401 of the CWA is intended to reduce impacts to a less than significant level.

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?

Less Than Significant Impact With Mitigation Incorporated.

1. Wildlife Movement

As described above and in greater detail in Section 4.5.2 of the Project BRA, the study area supports potential live-in and movement habitat for species on a local scale (i.e., some limited live-in and at least marginal movement habitat for reptile, bird, and mammal species), but it likely provides little to no function to facilitate wildlife movement for wildlife species on a regional scale, and is not identified as a regionally important dispersal or seasonal migration corridor. Movement on a local scale likely occurs with species adapted to urban environments due to the development and disturbances in the vicinity of the study area. Although implementation of the Project would result in disturbances to local wildlife movement within the study area, those species adapted to urban areas would be expected to persist on-site following construction, particularly within the open space areas. As such, impacts would be less than significant and no mitigation measures would be required. Since the study area does not function as a regional wildlife corridor and are not known to support wildlife nursery area(s), no impacts would occur and no mitigation measures would be required.

2. Migratory Species

Migratory Birds and Raptors

As discussed in Section 4.7.6, *Special-status Wildlife Species*, of the Project BRA, the site supports potential nesting and foraging habitat for migratory birds, in addition to potential foraging habitat for raptors. Based on the disturbed nature of the site from agriculture and ongoing maintenance activities, the quality of foraging habitat is considered to be low. Higher quality foraging habitat is considered to occur in less developed areas with larger expanses of open space. The loss of a relatively small acreage of low quality foraging habitat as a result of the Project would not be expected to impact the foraging of these species. Therefore, impacts to foraging habitat would be considered less than significant and no mitigation measures are considered required.

The study area has the potential to support songbird and raptor nests due to the presence of shrubs, ground cover, and limited trees on-site. Nesting activity typically occurs from February 15 to August 31. Disturbing or destroying active nests is a violation of the MBTA (16 U.S.C. 703 et seq.). In addition, nests and eggs are protected under Fish and Wildlife Code Section 3503. As such direct impacts to breeding birds (e.g. through nest removal) or indirect impacts (e.g. by noise causing abandonment of the nest) is considered a potentially significant impact as defined by CEQA. Compliance with the MBTA, which is required by MM BIO-4 below, would reduce impacts to a less than significant level.

Mitigation Measures

> **MM BIO-4** Prior to the issuance of any grading permit that would remove potentially suitable nesting habitat for raptors or songbirds, the Project applicant shall demonstrate

to the satisfaction of the City of Moreno Valley that either of the following have been or will be accomplished:

1. Vegetation removal activities shall be scheduled outside the nesting season (September 1 to February 14 for songbirds; September 1 to January 14 for raptors) to avoid potential impacts to nesting birds.

2. Any construction activities that occur during the nesting season (February 15 to August 31 for songbirds; January 15 to August 31 for raptors) will require that all suitable habitat be thoroughly surveyed for the presence of nesting birds by a qualified biologist before commencement of clearing. If any active nests are detected a buffer of 300 feet (500 feet for raptors) around the nest adjacent to construction will be delineated, flagged, and avoided until the nesting cycle is complete. The buffer may be modified and/or other recommendations proposed as determined appropriate by the biological monitor to minimize impacts.

e. Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance?

No Impact. The Project would not conflict with any local policies or ordinances protecting biological resources, such as tree preservations or ordinances. As such, no impact would occur in this regard.

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?

Less Than Significant Impact With Mitigation Incorporated.

The study area is within the Western Riverside County MSHCP and requires payment of the Local Development Mitigation Fee, compliance with requirements of the MSHCP including the Burrowing Owl Survey Area guidelines (Section 6.3.2 of the MSHCP), and the Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools (Section 6.1.2 of the MSHCP). The study area is not within a cell, a designated cell group, or a subunit within the Reche Canyon/Badlands Area Plan; therefore, conservation of land on the study area is not required pursuant to the MSHCP. The study area is also not within the survey overlays for Criteria Area Species, Narrow Endemic Plant Species, Amphibian Species, or Mammal Species (Section 6.3.2 of the MSHCP). Since the study area is not within or in the vicinity of any Criteria Cells, the Project will not result in edge effects that will adversely and directly affect biological resources within the MSHCP Conservation Area. As such, the Project will not be subject to certain requirements outlined in the Guidelines Pertaining to the Urban/Wildlands Interface (Section 6.1.3 of the MSHCP) including those for the treatment and management of edge factors including night lighting, noise, barriers for public access and predators, and grading/land development limits. However, runoff from the site has the potential to indirectly affect MSHCP Conservation Areas downstream through the quantity and quality of water discharged from the site, in addition to the transport of plant seeds. Therefore compliance with the drainage, toxics, and invasive requirements outlined in Section 6.1.3 of the MSHCP would be required. COA

BIO-3 is proposed below, which requires the Project to comply with all provisions of the MSHCP prior to issuance of a grading permit. Compliance with COA BIO-3 would reduce impacts to a less than significant level.

Project compliance with the MSHCP pertaining to Burrowing Owl, Riparian/Riverine, and Urban/Wildlands Interface requirements for drainage, toxics and invasives are summarized below:

- The study area is within the Burrowing Owl Survey Area of the MSHCP. Focused burrowing owl surveys were conducted within all portions of the study area that support potentially suitable habitat for this species. No burrowing owls were observed on the study area. However, due to the presence of potentially suitable habitat, a 30-day pre-construction survey for burrowing owl is required pursuant to the MSHCP. If burrowing owls are found within the study area during the 30-day pre-construction survey, impacts to this species would be potentially significant. COA BIO-1 and MM BIO-2 would reduce this impact to a less than significant level and ensure consistency with the MSHCP.

- Drainage A and Drainage Complex B on the study area meet the definition of Riverine Areas pursuant to the MSHCP. The Project will result in permanent impacts to 0.078 acre of Riverine Areas, including 0.046 acre within the on-site portion of Drainage A, 0.013 acre in the off-site portion of Drainage A, and 0.018 acre within Drainage Complex B. The permanent impacts are equivalent to approximately 47 percent of the total 0.165 acre of Riverine Areas within the Project study areas. The proposed Riverine Areas impacts are summarized in Table IV-7 above.

- The biological function and value of the on- and off-site Riverine Areas within Drainage A and Drainage Complex B include the transport of water, which is restricted based on the ephemeral flows of the drainage and limited watershed. The function and value of the drainages are also limited since they support only small patches of upland and/or ruderal vegetation and are primarily unvegetated. Other types of aquatic features that could provide suitable habitat for Riparian/Riverine species, such as fairy shrimp, are not present within the study area (i.e. vernal pools, swales, vernal pool-like ephemeral ponds, seasonal ponds, stock ponds, or other human-modified depressions such as tire ruts, etc.).

- Impacts to Riverine Areas would be potentially significant based on requirements of the MSHCP. According to Section 6.1.2 of the MSHCP, if an avoidance alternative is not feasible a Determination of Biologically Equivalent or Superior Preservation (DBESP) shall be made by the Project applicant to ensure the replacement of any lost functions and values of habitat as it relates to MSHCP Covered Species. The condition of approval prescribed in this Initial Study and in Section 7.2.3 of the BRA pertaining to jurisdictional drainages ensures consistency with the MSHCP. The DBESP would be submitted to the Wildlife Agencies (CDFW & USFWS) for approval prior to issuance of a grading permit.

- The Project has the potential to affect the quantity and quality of water in downstream MSHCP Conservation Areas or Riverine areas via Drainage A and Drainage Complex B through runoff generated by the development and transport of invasive, non-native plants species from Project landscaping. Since the Project will be required to comply with flood

and water quality standards[12], no indirect effects from the quantity and quality of run-off will occur to downstream areas. In addition, no invasive, non-native plant species listed in Table 6-2 of the MSHCP, *Plants That Should Be Avoided Adjacent To The MSHCP Conservation Area*, will be utilized in the landscape plans. These measures will avoid impacts to water quality and the dispersal of invasive plant seeds in the watershed and are outlined in the Conditions of Approval recommended in this Initial Study and in Section 7.2.5 of the Project BRA.

Project Design Features (Conditions of Approval)

COA BIO-3 Prior to the issuance of any grading permit the Project applicant shall comply with all of the provisions of the MSHCP, including payment of the MSHCP Local Development Mitigation Fee, compliance with Section 6.1.2 of the MSHCP pertaining to Riparian/Riverine Areas, implementation of drainage, toxics and non-native species guidelines pertaining to the Urban/Wildlands Interface in Section 6.1.4 of the MSHCP, and compliance with Section 6.3.2 of the MSHCP pertaining to Burrowing Owl Survey Area requirements. Compliance with Section 6.1.2 of the MSHCP will require approval of the project Determination of Biologically Equivalent or Superior Preservation (DBESP) analysis outlining the impacts and proposed compensatory mitigation for impacts to the Riparian/Riverine Areas for approval by the wildlife agencies prior to issuance of a grading permit. The DBESP will be submitted to the wildlife agencies concurrent to the processing of regulatory permits for jurisdictional streambed impacts, in order to ensure that mitigation requirements proposed under the DBESP are commensurate with the preferences of the resource agencies (USACE, CDFW, and RWQCB) as part of subsequent regulatory permit conditions to be issued following adoption of the project MND.

V. Cultural Resources

The following impact analysis pertaining to cultural resources is based on information contained in the *Phase I Cultural Resources Assessment of the Proposed Ironwood Residential Project; City of Moreno Valley, County of Riverside, California* (herein referred to as the "Cultural Resources Assessment"), prepared by ESA PCR, dated June 2016. The Cultural Resources Assessment is provided in Appendix C.

Would the Project:

a. Cause a substantial adverse change in significance of a historical resource as defined in §15064.5?

No Impact. A historical resource is defined in Section 15064.5(a)(3) of the CEQA Guidelines as any object, building, structure, site, area, place, record, or manuscript determined to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Historical

[12] The project will be required to prepare a Water Quality Management Plan and Storm Water Pollution Prevention Plan consistent with Regional Water Quality Control Board and County requirements that will outline measures such as Best Management Practices (BMPS) to address water quantity and quality, and to address any potential flooding.

resources are further defined as being associated with significant events, important persons, or distinctive characteristics of a type, period or method of construction; representing the work of an important creative individual; or possessing high artistic values. Resources listed in or determined eligible for the California Register, included in a local register, or identified as significant in a historic resource survey are also considered historical resources under CEQA.

A project with an effect that may cause substantial adverse change in the significance of a resource is a project that may have a significant impact on the environment. Substantial adverse change is defined as physical demolition, relocation, or alteration of a resource or its immediate surroundings such that the significance of an historical resource would be materially impaired. Direct impacts are those that cause substantial adverse physical change to a historic property. Indirect impacts are those that cause substantial adverse change to the immediate surroundings of a historic property such that the significance of a historical resource would be materially impaired.

The *Secretary of the Interior's Standards for Rehabilitation* (Standards) are codified at 36 Code of Federal Regulations (CFR) Section 67.7. In most circumstances, the Standards are relevant in assessing whether there is a substantial adverse change under CEQA. Section 15064.5b(3) of the CEQA Guidelines states in part that ". . . a project that follows the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* (1995), Weeks and Grimmer, shall be considered as mitigated to a level of less than a significant impact on the historic resource," and therefore may be considered categorically exempt.

The Cultural Resources Assessment included a records search through the California Historical Resources Information System-Eastern Information Center (CHRIS-EIC). Results from the CHRIS-EIC indicated that there were no previously recorded historical (or built environment) resources within the Study Area and no historical resources were identified during the pedestrian survey; therefore, no impact analysis of historical resources is necessary.

b. Cause a substantial adverse change in significance of an archaeological resource pursuant to §15064.5?

Less Than Significant Impact With Mitigation Incorporated. The results of the Cultural Resources Assessment revealed that two prehistoric cultural resources ((P-33-024882/CA-RIV-12,333 and P-33-024883) are located within the Study Area. Resource P-33-024882/CA-RIV-12,333 is a prehistoric archaeological resource that was previously recorded in the northwestern portion of the Study Area and was revisited by ESA PCR during the pedestrian survey. It consists of one boulder with one milling slick and one boulder with three milling slicks and measures 25 meters (north/south) x 6 meters (east-west). The Applicant has designed the Project to avoid this resource and it is located in an area that is planned for open space; therefore no additional work or mitigation would be warranted. Since the resource would be avoided by the proposed Project, no formal evaluation of the resource was performed by ESA PCR. Resource P-33-024883 was identified in a disturbed and isolated context and therefore the potential for intact subsurface archaeological deposits in the area where it was recorded by ESA PCR is low. As a

result of these factors, P-33-024883 does not yield, or have the potential to yield information important to prehistory (Criterion 4 of the California Register) and therefore recommend as not eligible for listing in the California Register and does not qualify as a unique archaeological resource pursuant to CEQA. No additional work is necessary at this resource and impacts to it from the proposed Project are not considered a significant impact on the environment.

These findings, however, do not preclude the existence of undiscovered archaeological resources located below the ground surface and lacking surface manifestation, which may be encountered during construction excavations associated with the proposed Project. It is possible to encounter buried archaeological resources given the proven prehistoric occupation of the region, the identification of multiple surface archaeological resources within the vicinity of the Study Area (including two archaeological resources within the Study Area and numerous resources recorded in the Reche Hills Complex – see Section 4.1.5 of the Project Cultural Resources Assessment), and the favorable natural conditions (e.g., ephemeral drainages, natural spring, and vegetation communities) that would have attracted prehistoric inhabitants to the area. Therefore, despite the heavy disturbances of the Study Area that may have displaced archaeological resources on the surface, it is possible that intact archaeological resources exist at depth. As a result, MM CULT-1 through MM CULT-8 have been prescribed to reduce potentially significant impacts to previously undiscovered archaeological resources that may be accidentally encountered during Project implementation to a less than significant level.

Mitigation Measures

MM CULT 1: Archaeologist Retained/CRMP Prepared. Prior to the issuance of a grading permit, the Project Applicant shall provide evidence to the City of Moreno Valley that a professional archaeological monitor has been retained by the Applicant to conduct monitoring of all mass grading and trenching activities and that the monitor has the authority to temporarily halt and redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project archaeologist, with input from the appropriate Tribe, shall prepare a Cultural Resources Monitoring Plan (CRMP) to document protocols for inadvertent finds, to determine potential protection measures from further damage and destruction for any identified archaeological resource(s)/ tribal cultural resources (TCRs), outline the process for monitoring and for completion of the final Phase IV Monitoring Report. If any archaeological and/or TCRs are identified during monitoring, these will also be documented and addressed per standard archaeological protocols in the Phase IV report, with the exception of human remains which will be addressed per MM CULT-13. Impacts to The Project Archaeologist shall attend the pre-grading meeting with the City and contractors to explain and coordinate the requirements of the monitoring program.

MM CULT 2: Tribal Monitor Retained. At least 30 days prior to the issuance of a grading permit the Applicant shall contact the appropriate Luiseño tribe to develop a Cultural Resources Treatment Agreement and shall provide evidence to the City of Moreno Valley that the professionally qualified Luiseño Native American monitor(s) has been secured from the interested tribe(s), and that the shall be allowed to monitor all mass grading and trenching activities. The Tribal representative(s) shall attend the pre-grading meeting with the City and contractors to explain and coordinate the requirements of the monitoring program.

MM CULT 3: Grading Plans. Prior to grading permit issuance, 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 archaeological monitor or 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."

MM CULT 4: Preservation Plan for CA-RIV-12,333. Prior to building permit issuance, the Project Applicant and the Pechanga Tribe shall prepare a Preservation and Maintenance Plan for the long-term care and maintenance of CA-RIV-12,333 and, if any, all new features identified during mass grading activities. The Plan shall indicate, at a minimum, the specific areas to be included in and excluded from long-term maintenance; prohibited activities; methods of preservation to be employed (fencing, vegetative deterrence, etc.); the entity(s) responsible for the long-term maintenance; maintenance scheduling and notification; appropriate avoidance protocols; monitoring by the Tribe and compensation for services if applicable; and necessary emergency protocols. The Project Applicant/Landowner shall submit a fully executed copy of the Preservation and Maintenance Plan to the City to ensure compliance with this mitigation measure.

MM CULT 5: Conduct Archaeological Sensitivity Training for Construction Personnel. The Applicant shall retain a qualified professional archaeologist who shall conduct an Archaeological Sensitivity Training for construction personnel prior to commencement of excavation activities. The training session, shall be carried out by a cultural resources professional with expertise in archaeology, will focus on how to identify archaeological resources that may be encountered during earthmoving activities, and the procedures to be followed in such an event. The training session will include a Power Point presentation and/or handouts for all attendees. The basic topics to be addressed in the session include: a brief cultural and archaeological history of the area and the Applicant's and City's cultural resource compliance obligations; training in potential resources that may be encountered through the use of photographs or other illustrations; the duties of archaeological monitors; notification and other procedures to follow upon discovery of resources; and, the general steps that would be followed to conduct a salvage investigation if one is necessary. A sign-in sheet shall be compiled to track attendance and shall be submitted to the City with the Archaeological Monitoring Report.

MM CULT 6: Monitor Construction Excavations for Archeological Resources in Younger Alluvial Sediments. The Applicant shall retain a qualified archaeological monitor, who will work under the direction and guidance of a qualified professional archaeologist. The archaeological monitor shall be present during all construction excavations (e.g., grading, trenching, or clearing/grubbing) into non-fill younger Pleistocene alluvial sediments. Multiple earth-moving construction activities may require multiple archaeological monitors. The frequency of monitoring shall be based on the rate of excavation and grading activities, proximity to known archaeological resources, the materials being excavated (native versus artificial fill soils), and the depth of excavation, and if found, the abundance and type of archaeological resources encountered. Full-time monitoring can be reduced to part-time inspections, or ceased entirely, if determined adequate by the Project archaeologist.

MM CULT 7: Inadvertent Finds. If, during mass grading and trenching activities, the Archaeologist or Tribal representatives suspect that an archaeological resource and/or TCR may have been unearthed, the monitor identifying the potential resources, in consultation with the other monitor as appropriate, shall immediately halt and redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. The Native American monitor(s) or appropriate representative(s) and the archaeological monitor shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2. The archaeological monitor and tribal monitor(s) or appropriate representative(s), the Project Applicant, and the City Planning Division shall confer regarding mitigation of the discovered resource(s). All sacred sites, should they be encountered within the project area, shall be avoided and preserved as the preferred mitigation, if feasible. If preservation in place is not feasible, treatment and/or mitigaiton may include implementation of archaeological data recovery excavations to remove the resource along with subsequent laboratory processing and analysis. The landowner, in consultation with the archaeologist and Native American monitor, shall designate repositories in the event that archaeological material is recovered.

MM CULT 8: Final Phase IV Monitoring Report. Prior to building permit issuance, the Project archaeologist shall prepare a final Phase IV Monitoring Report as outlined in the CRMP, which shall be submitted to the City Planning Division, the appropriate Native American tribe(s), and the Eastern Information Center at the University of California, Riverside. The report shall document project impacts to CA-RIV-857, CA-RIV-3159 and CA-RIV-3341, including the relocation area and protection measures taken for CA-RIV-3341. All cultural material, excluding sacred, ceremonial, grave goods and human remains, collected during the grading monitoring program and from any previous archaeological studies or excavations on the project site shall be curated, as determined by the treatment plan, according to the current professional repository standards and may include the Pechanga Band's curatorial facility in Temecula, CA.

c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact With Mitigation Incorporated. The Cultural Resources Assessment included a records search through the San Bernardino County Museum (SBCM). Results of the paleontological resources records search through SBCM indicate that no vertebrate fossil localities from the SBCM records have been previously recorded within the Study Area or within a one-mile radius. Moreover, no paleontological resources were identified by ESA PCR during the pedestrian survey. These findings; however, do not preclude the existence of undiscovered paleontological resources located below the ground surface and lacking surface manifestation, which may be encountered during construction excavations associated with the proposed Project. The Study Area has been previously mapped geologically as containing surface exposures of early Pleistocene-aged fan deposits, overlain across much of the Study Area by a thin sedimentary veneer of recent Holocene-aged alluvium. The northwestern portion of the Study Area is mapped as Cretaceous-aged tonalite. The tonalite and the surficial Holocene-aged alluvium have very limited to no potential to be conducive to retaining paleontological resources; however, the Pleistocene-aged fan deposits may have high a paleontological sensitivity, depending upon their lithology, as these sediments have yielded significant fossils of extinct animals from the Ice Age throughout the Inland Empire (Scott 2014). As a result, MM CULT-9

through MM CULT-12 have been prescribed to reduce potentially significant impacts to previously undiscovered paleontological resources and/or unique geological features that may be accidentally encountered during Project implementation to a less than significant level.

Mitigation Measures

MM CULT 9: Conduct Paleontological Sensitivity Training for Construction Personnel. The Applicant shall retain a qualified paleontologist who shall conduct a Paleontological Sensitivity Training for construction personnel prior to commencement of excavation activities. The training session, shall be carried out by a cultural resources professional with expertise in paleontology, will focus on how to identify paleontological resources that may be encountered during earthmoving activities, and the procedures to be followed in such an event. The training session will include a Power Point presentation and/or handouts for all attendees. The basic topics to be addressed in the session include: a brief cultural and geologic history of the area and the City cultural resource compliance obligations; training in potential resources that may be encountered through the use of photographs or other illustrations; the duties of paleontological monitors; notification and other procedures to follow upon discovery of resources; and, the general steps that would be followed to conduct a salvage investigation if one is necessary.

MM CULT 10:Monitor Construction Excavations for Paleontological Resources in Older Pleistocene Alluvial Deposits. The Applicant shall retain a qualified paleontological monitor, who will work under the guidance and direction of a qualified professional paleontologist. The paleontological monitor shall be present during all construction excavations (e.g., grading, trenching, or clearing/grubbing) into non-fill older Pleistocene alluvial deposits. Multiple earth-moving construction activities may require multiple paleontological monitors. The frequency of monitoring shall be based on the rate of excavation and grading activities, proximity to known paleontological resources and/or unique geological features, the materials being excavated (native versus artificial fill soils), and the depth of excavation, and if found, the abundance and type of paleontological resources and/or unique geological features encountered. Full-time monitoring can be reduced to part-time inspections if determined adequate by the qualified professional paleontologist.

MM CULT 11:Cease Ground-Disturbing Activities and Implement Treatment Plan if Paleontological Resources Are Encountered. In the event that paleontological resources and or unique geological features are unearthed during ground-disturbing activities, ground-disturbing activities shall be halted or diverted away from the vicinity of the find so that the find can be evaluated. A buffer area of at least 25 feet shall be established around the find where construction activities shall not be allowed to continue. Work shall be allowed to continue outside of the buffer area. The Applicant and City shall coordinate with a qualified professional paleontologist to develop an appropriate treatment plan for the resources. Treatment may include implementation of paleontological salvage excavations to remove the resource along with subsequent laboratory processing and analysis or preservation in place. At the paleontologist's discretion and to reduce any construction delay, the grading and excavation contractor shall assist in removing rock samples for initial processing. Any fossils encountered and recovered shall be prepared to the point of taxonomic identification and catalogued and curated to a suitable museum or other repository with a research interest in the materials, such as the San Bernardino County Museum or Western Science Center. If no institution

accepts the fossil collection, they shall be donated to a local school in the area for educational purposes. Accompanying notes, maps, and photographs shall also be filed at the repository and/or school.

MM CULT 12:Prepare Report Upon Completion of Monitoring Services. Upon completion of the above activities, the paleontologist shall prepare a report summarizing the results of the monitoring and salvaging efforts, the methodology used in these efforts, as well as a description of the fossils collected and their significance. The report shall be submitted to the Applicant, City, the San Bernardino County Natural History Museum, and representatives of other appropriate or concerned agencies to signify the satisfactory completion of the Project and required mitigation measures.

d. Disturb any human remains, including those interred outside of formal cemeteries?

Less Than Significant Impact With Mitigation Incorporated. No known human remains have been identified from the CHRIS-EIC database within a half-mile radius of the Study Area. No human remains were identified during the pedestrian survey of the Study Area. However, these findings do not preclude the existence of previously unknown human remains located below the ground surface, which may be encountered during construction excavations associated with the proposed Project. Similar to the discussion regarding archaeological resources above, it is also possible to encounter buried human remains during construction given the proven prehistoric occupation of the region, the identification of multiple surface archaeological resources within a half-mile of the Study Area, and the favorable natural conditions that would have attracted prehistoric inhabitants to the area. As a result, MM CULT-13 has been prescribed to reduce potentially significant impacts to previously unknown human remains that may be unexpectedly discovered during Project implementation to a less than significant level.

Mitigation Measures

MM CULT 13:Cease Ground-Disturbing Activities and Notify County Coroner If Human Remains Are Encountered. If human remains are unearthed during implementation of the Proposed Project, the City shall comply with State Health and Safety Code Section 7050.5. The City shall immediately notify the County Coroner and no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC). The NAHC shall then identify the person(s) thought to be the Most Likely Descendent (MLD). The MLD may, with the permission of the landowner, inspect the site of the discovery of the Native American remains and may recommend to the landowner means for treating or disposing, with appropriate dignity, the human remains and any associated funerary objects. The MLD shall complete their inspection and make their recommendation within 48 hours of being granted access by the landowner to inspect the discovery. The recommendation may include the scientific removal and nondestructive analysis of human remains and cultural items associated with Native American burials. Upon the discovery of the Native American remains, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this mitigation measure, with the MLD regarding their recommendations, if applicable,

taking into account the possibility of multiple human remains. The landowner shall discuss and confer with the descendants all reasonable options regarding the descendants' preferences for treatment. MLDs in the region typically recommend reburial of the remains as close to the original burial location as feasible accompanied by a ceremony. The MLD shall file a record of the reburial with the NAHC and the Project archaeologist shall file a record of the reburial with the CHRIS-EIC.

If the NAHC is unable to identify a MLD, or the MLD identified fails to make a recommendation, or the landowner rejects the recommendation of the MLD and the mediation provided for in Subdivision (k) of Section 5097.94, if invoked, fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall inter the human remains and items associated with Native American human remains with appropriate dignity on the facility property in a location not subject to further and future subsurface disturbance. A record of the reburial shall be filed with the NAHC and the CHRIS-EIC.

VI. Geology and Soils

The following impact analysis pertaining to the site's underlying geology and soils is based on information contained in the Due Diligence Level Preliminary Geotechnical Evaluation, Proposed Residential Development NWC Ironwood Avenue and Oliver Street, Moreno Valley, Riverside County, California *(herein referred to as the "Preliminary Geotechnical Evaluation"), prepared by EEI Geotechnical & Environmental Solutions, dated November 25, 2014; the* Supplemental Geotechnical Evaluation, Proposed Residential Development NWC Ironwood Avenue and Oliver Street & Tract No. 31556 Off-site Sewer Oliver Street Extension/60 Freeway Undercrossing Moreno Valley, Riverside County, California *(herein referred to as the "Supplemental Geotechnical Evaluation"), prepared by EEI Geotechnical & Environmental Solutions, dated May 18, 2005; and the* Moreno Valley Ironwood Rockfall Investigation City of Moreno Valley, Riverside County, California *(herein referred to as the "Rockfall Investigation"), prepared by KANE GeoTech, Inc, dated March 15, 2016. The Preliminary Geotechnical Evaluation, Supplemental Geotechnical Evaluation, and the Rockfall Investigation are provided in Appendix D.*

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.

Less Than Significant Impact. Fault rupture is the displacement that occurs along the surface of a fault during an earthquake. Based on criteria established by the California Geological Survey (CGS), faults may be categorized as active, potentially active, or inactive. Active faults are those which show evidence of surface displacement within the last 11,000 years (Holocene-age). Potentially active faults are those that show evidence of most recent surface displacement within

the last 1.6 million years (Quaternary-age). Faults showing no evidence of surface displacement within the last 1.6 million years are considered inactive. In addition, there are buried thrust faults, which are low angle reverse faults with no surface exposure. Due to their buried nature, the existence of buried thrust faults is usually not known until they produce an earthquake.

The CGS has established earthquake fault zones known as Alquist-Priolo Earthquake Fault Zones around the surface traces of active faults to assist cities and counties in planning, zoning, and building regulation functions. These zones, which extend from 200 to 500 feet on each side of a known active fault, identify areas where potential surface rupture along an active fault could prove hazardous and identify where special studies are required to characterize hazards to habitable structures.

The Project site is located in the seismically active Southern California region and could be subject to moderate to strong ground shaking in the event of an earthquake on one of the many active Southern California faults. The Preliminary Geotechnical Evaluation conducted for the Project indicates that no currently known active or potentially active surface faults traverse the Project site, and the site is not located within a designated Alquist-Priolo Earthquake Fault Zone. The faults in the vicinity of the Project site include the San Jacinto-San Jacinto Valley Fault and the San Jacinto-San Bernardino Fault, located approximately 1.5 miles and 5.8 miles of the site, respectively. As such, the potential for surface rupture due to faulting occurring on the Project site during the design life of the Project is considered low. Furthermore, Project buildings would be designed and constructed to resist the effects of seismic ground motions as provided in the City's Building Code and the 2013 California Building Code (CBC). Thus, a less than significant impact would occur in this regard.

ii. Strong seismic ground shaking?

Less Than Significant Impact With Mitigation Incorporated. Seismicity is the geographic and historical distribution of earthquakes, including their frequency, intensity, and distribution. The level of ground shaking at a given location depends on many factors, including the size and type of earthquake, distance `from the earthquake, and subsurface geologic conditions. The type of construction also affects how particular structures and improvements perform during ground shaking. A common measure of ground motion is the peak ground acceleration (PGA). It is not a measure of total energy of an earthquake, such as the Richter and moment magnitude scales, but rather of how hard the ground shakes in given geographic area. PGA is expressed as the percentage of the acceleration due to gravity (G), which is approximately 980 centimeters per second squared. According to the United States Geological Survey (USGS), the following chart provides the extent of perceived shaking and potential damage associated with a given acceleration:

Per the CBC, an estimated PGA is determined for a site of proposed construction based on the mapping by the USGS along with detailed analysis as an estimate of anticipated ground shaking for use by the Project structural engineer in design of the proposed structures to resist. There is potential for significant ground shaking at the Project site during a strong seismic event on the San Jacinto-San Jacinto Valley Fault and the San Jacinto-San Bernardino Fault, as well as on the other large active faults in the Southern California region. According to the Preliminary Geotechnical Evaluation, a maximum probable event could produce a PGA value at the Project site of 0.837g. This is a relatively high acceleration do to the proximity of the San Jacinto-San

Jacinto Valley Fault and the San Jacinto-San Bernardino Fault. If this relatively high ground acceleration was not considered in the design and construction phase, ground shaking at this intensity could result in significant damage to buildings and improvements associated with Project implementation.

Acceleration (g)	Perceived Shaking	Potential Damage
< 0.0017	Not felt	None
0.0017 - 0.014	Weak None	None
0.014 - 0.039	Light	None
0.039 - 0.092	Moderate	Very Light
0.092 - 0.18	Strong	Light
0.18 - 0.34	Very Strong	Moderate
0.34 - 0.65	Severe	Moderate to Heavy
0.65 - 1.24	Violent	Heavy
> 1.24	Extreme	Very Heavy

SOURCE: United States Geological Survey. Accessed from website at: http://en.wikipedia.org/wiki/Peak_ground_acceleration, accessed August 2015.

The City requires that all new construction meet or exceed the City's Building Code and the latest standards of the 2013 CBC for construction which requires structural design that can accommodate maximum ground accelerations expected from known faults. Furthermore, the Project would comply with the CGS Special Publications 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California, which provides guidance for evaluation and mitigation of earthquake-related hazards. While the Project would be required to comply with applicable seismic-related regulatory requirements, implementation of the site-specific structural and seismic design parameters and recommendations for foundations, retaining walls/shoring, and excavation of the both the Preliminary Geotechnical Evaluation and the Supplemental Geotechnical Evaluation per MM GEO-1 would further ensure that seismic-related ground shaking impacts would be less than significant.

Mitigation Measures

> **MM GEO-1:** Site-specific structural and seismic design parameters and recommendations for foundations, retaining walls/shoring, and excavation shall be implemented per the Project's Preliminary Geotechnical Evaluation and the Supplemental Geotechnical Evaluation, subject to review and approval by the City of Moreno Valley Building Safety Department.

iii. Seismic-related ground failure, including liquefaction?

Less Than Significant Impact With Mitigation Incorporated. Liquefaction is a phenomenon in which saturated silty to cohesionless soils below the groundwater table are subject to a temporary loss of strength due to the buildup of excess pore pressure during cyclic loading conditions such as those induced by an earthquake. Liquefaction effects include loss of bearing

strength, amplified ground oscillations, lateral spreading, and flow failures. Liquefaction typically occurs in areas where groundwater is less than 50 feet from the surface, and where the soils are composed of poorly consolidated, fine to medium-grained sand. In addition to the necessary soil conditions, the ground acceleration and duration of the earthquake must also be of a sufficient level to initiate liquefaction.

According to the Preliminary Geotechnical Evaluation, a seismic hazard zone map and report for the Sunnymead Quadrangle has not been issued by the CGS. As such, the depth to the historic high groundwater is not known and therefore; the Project site is not situated within a mapped liquefaction zone. Static groundwater is not expected and groundwater was not encountered in any of the exploratory borings or trenches excavated to a maximum explored depth of 50.5 feet below the existing ground surface at the Project site. The majority of the Project site is underlain by generally loose to medium dense alluvial and colluvial deposits that overlie relatively shallow granitic bedrock. The alluvial and colluvial soils are subject to removal and recompaction during Project grading. Due to the presence of shallow bedrock and the lack of shallow groundwater, the Project site is considered as having a low susceptibility to liquefaction. While the Project would be required to comply with applicable seismic-related regulatory requirements of the City's Building Code and the 2013 CBC, implementation of the site-specific design parameters and recommendations of the Preliminary Geotechnical Evaluation and the Supplemental Geotechnical Evaluation per MM GEO-1 to be implemented during construction would ensure that seismic-related ground failure impacts, including liquefaction, would be less than significant.

Mitigation Measures

Refer to MM GEO-1. No additional mitigation measures are necessary.

iv. Landslides?

Less Than Significant Impact. Elevations on-site range from approximately 1,840 feet above mean sea level (MSL) in the south-central portion of the site to approximately 1,980 feet above MSL in the northwestern portion of the site. From east to west across the site is a series of north-south-oriented ridges and alternating drainage gullies in the lower, southern portion of the site. The intervening ridges are generally about 5 to 10 feet higher in elevation them the adjacent drainage gullies. The overall surface gradient across the Project site is gently to moderately south or south-southeast.

A few of the planned residences are proposed on a flat area at the base of a rocky outcrop, which could potentially result in rockfall hazards. This slope adjacent to the proposed residences contains spheroidally weathered, large, rounded boulders. These boulders are comprised of biotite-hornblende tonalite. The tonalite is grey, medium-grained and in some areas contains mafic inclusions. The boulders are heavily weathered and when broken down, form the sandy soil present at the Project site. The majority of these boulders are embedded in the sediment or are actually exposed bedrock. There are some areas of exposed bedrock indicating the depth to bedrock, although varies, is shallow. According to the Rockfall Investigation, the rockfall source would continue to weather and erode and potentially produce rockfall onto the slope. However, based on the observations and modeling of the Rockfall Investigation, the proposed locations of

these planned residences should not be impacted by potential rockfall hazards. Further, the Rockfall Investigation indicated rockfall mitigation would not be necessary, but would be beneficial to construct reinforced concrete or block privacy walls on Lots 36, 37, 38, 39, and 40 to provide supplementary protection and to prevent small, nuisance rockfall from accumulating in proposed residential areas (Project Design Feature GEO-1). As such, the Project site is located in an area with low potential for rockfall or landslides. Thus, based on the above design consideration and Project Design Feature GEO-1, a less than significant impact would occur in this regard.

Project Design Feature

> **PDF-GEO-1:** The Project applicant would construct reinforced concrete or block privacy walls on Lots 36, 37, 38, 39, and 40 to provide supplementary protection and to prevent small, nuisance rockfall from accumulating in proposed residential areas.

b. Result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact. Soil erosion refers to the process by which soil or earth material is loosened or dissolved and removed from its original location. Erosion can occur by varying processes and may occur in a Project area where bare soil is exposed to wind or moving water (both rainfall and surface runoff). The processes of erosion are generally a function of material type, terrain steepness, rainfall or irrigation levels, surface drainage conditions, and general land uses. Topsoil is used to cover surface areas for the establishment and maintenance of vegetation due to its high concentrations of organic matter and microorganisms.

The Project site is currently undeveloped though several unimproved trails/dirt roads traverse the property. Surrounding land uses include vacant land to the north and east with residential uses to the south and west. As the Project site is undeveloped, a majority of the site would include native topsoil. Project construction would result in ground surface disruption during excavation, grading, and trenching that would create the potential for erosion to occur. Wind erosion would be minimized through soil stabilization measures required by the SCAQMD Rule 403 (Fugitive Dust), such as daily watering. Potential for water erosion would be reduced by implementation of standard erosion control measures imposed during site preparation and grading activities. As discussed in more detail under Section IX, *Hydrology and Water Quality*, the Project would be subject to all existing regulations associated with the protection of water quality. Construction activities would be carried out in accordance with applicable City standard erosion control practices required pursuant to the California Building Code and the requirements of the National Pollutant Discharge Elimination System (NPDES) General Construction Permit issued by the Santa Ana Regional Water Quality Control Board (RWQCB), as applicable. Consistent with these requirements, a Stormwater Pollution Prevention Plan (SWPPP) would be prepared that incorporates Best Management Practices (BMPs) to control water erosion during the Project's construction period. Thus, impacts due to erosion of topsoil would be less than significant with compliance to applicable regulatory requirements.

c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potential result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less Than Significant Impact With Mitigation Incorporated. According to the Preliminary Geotechnical Evaluation, the Project site is underlain by weathered Cretaceous-age plutonic rocks composed of tonalite. This material was observed to extend beyond the maximum depth of 50.5 feet below existing grades of the exploratory borings and test pits. Alluvial soils up to 30 feet thick were observed to mantle the weathered tonalite bedrock within the lower lying channel/drainage areas. On the higher, elevated ridge areas of the Project site, colluvial soils were observed to mantle the weathered tonalite bedrock with a thickness varying between 3 and 14 feet. The weathered tonalite bedrock can generally be described as gray, white or black speckled or orange to dark grayish-orange with a granitic or phaneritic texture and was generally unweathered to highly weathered. Outcroppings of the weathered tonalite bedrock are exposed in the northwestern and northeastern portions of the Project site. Over the remainder of the Project site, the tonalite bedrock was found to be weathering into a medium dense to very dense silty sand soil with a decomposed granite texture at depth in the exploratory borings and test pits. The alluvial and colluvial soils are generally comprised of orange-brown or red-brown, medium brown or light gray brown, fine to coarse, damp to moist, loose to dense silty sand. The Project site is relatively undeveloped and artificial fill was not encountered during the field exploration.

Impacts related to liquefaction and landslides are discussed above in Responses VI.a.iii. and VI.a.iv. Lateral spreading is the downslope movement of surface sediment due to liquefaction in a subsurface layer. The downslope movement is due to the combination of gravity and earthquake shaking. Such movement can occur on slope gradients of as little as one degree. Lateral spreading typically damages pipelines, utilities, bridges, and structures. Lateral spreading of the ground surface during a seismic activity usually occurs along the weak shear zones within a liquefiable soil layer and has been observed to generally take place toward a free face (i.e. retaining wall, slope, or channel) and to a lesser extent on ground surfaces with a very gentle slope. As stated in Response VI.a.iii., due to the presence of shallow bedrock and the lack of shallow groundwater, the Project site is considered as having a low susceptibility to liquefaction. Further, due to the absence of any channel, slope, or river within or near the Project site, the potential for lateral spreading occurring on or off the site is considered to be negligible. No large-scale extraction of groundwater, gas, oil, or geothermal energy is occurring or planned at the Project site. Thus, there appears to be little or no potential for ground subsidence due to withdrawal of fluids or gases at the Project site.

While the Project construction and design would be required to comply with the 2013 CBC, which is designed to assure safe construction, implementation of the site-specific design measures including foundation design recommendations of the Preliminary Geotechnical Evaluation and the Supplemental Geotechnical Evaluation per MM GEO-1 would ensure that ground and soil stability hazards would be less than significant.

Mitigation Measures

Refer to MM GEO-1. No additional mitigation measures are necessary.

d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Less Than Significant Impact With Mitigation Incorporated. Soils with shrink-swell or expansive properties typically occur in fine-grained sediments and cause damage through volume changes as a result of a wetting and drying process. Structural damage may occur over a long period of time, usually the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils. According to the Preliminary Geotechnical Evaluation, the results of the laboratory expansion index testing indicated an expansion index of 0 and 2 for the tested soils which represents a very low expansion potential. Expansive soils, if encountered within the Project site, would be removed and/or replaced as part of standard construction practices pursuant to the City and/or 2013 CBC building requirements, as applicable. Furthermore, with incorporation of the site-specific design measures including foundation design slabs on grade recommendations of the Preliminary Geotechnical Evaluation and the Supplemental Geotechnical Evaluation per MM GEO-1, a less than significant impact would occur in this regard.

Mitigation Measures

Refer MM GEO-1. No additional mitigation measures are necessary.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact. The Project would not involve the use of septic tanks or alternative wastewater disposal systems. As such, no impact would occur in this regard.

VII. Greenhouse Gas Emissions

The following impact analysis pertaining to greenhouse gas emissions (GHGs) is based on information contained in the Ironwood Residential (TTM No. 37001), Greenhouse Gas Analysis, City of Moreno Valley *(herein referred to as the "GHG Analysis"), prepared by Urban Crossroads, dated August 31, 2015. The GHG Analysis is provided in Appendix E.*

Would the Project:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less Than Significant Impact. 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 (CO_2), methane (CH_4), NO_x, 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 GHG Analysis would not generate enough greenhouse gas emissions to effect a discernible change in global climate. However, the Project may participate in the potential for GCC by its incremental contribution of greenhouse gasses 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, the GHG Analysis evaluated the potential for the Project to have a significant effect upon the environment as a result of its potential contribution to the greenhouse effect.

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, N2O (Nitrous Oxide), CH_4, 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. According to CARB, the climate change since the industrial revolution differs from previous climate changes in both rate and magnitude.

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 United States emissions inventory total. In 2004, California is estimated to have produced 492 million gross metric tons of carbon dioxide equivalent ($CO2_e$) 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.

The City has not adopted a threshold of significant for GHG emissions. As such, a screening threshold of 3,000 metric ton of carbon dioxide equivalent ($MTCO2_e$) per year for residential land uses is applied herein, which is a widely accepted screening threshold used by the County of Riverside and numerous jurisdictions in the SCAB and based on the 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. 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 modified 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 [MMTCO2$_e$/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."

Thus, based on guidance from the SCAQMD, if a residential project would emit GHGs less than 3,000 MTCO2$_e$ 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 residential project would emit GHGs in excess of 3,000 MTCO2$_e$ per year, then the project could be considered a substantial GHG emitter, requiring additional analysis and potential mitigation.

CEQA Guidelines 15064.4 (b)(1) states that a lead agency may use a model or methodology to quantify *GHGs* associated with a project. On October 2, 2013, the SCAQMD in conjunction with CAPCOA released the latest version of the CalEEMod™ v2013.2.2. The purpose of this model is to more accurately calculate construction-source and operational-source criteria pollutants (NO_X, VOC, PM_{10}, $PM_{2.5}$, SO_X, and CO) and *GHGs* from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures. Accordingly, th*e latest version of* CalEEMod™ has been used for this Project to determine construction and operational air quality impacts.

Construction Emissions

Construction activities associated with the Project would result in emissions of CO2 and CH4. 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 the 30-year Project life, and then adding that number to the annual operational phase GHG emissions.

As such, construction emissions were amortized over a 30-year period and added to the annual operational GHG emissions.

Operational Emissions

Operational activities associated with the Project would result in emissions of CO2, CH4, and nitrogen dioxide (N20). Operational emissions would be expected from area source emissions, energy source emissions, mobile source emissions, solid waste, and water supply, treatment, and distribution. Refer to Response III.b., above, for defining area source emissions, energy source emissions, and mobile source emissions.

Solid Waste

Residential land uses would result in the generation and disposal of solid waste. A large percentage of this waste would 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 would be disposed of at a landfill. GHG emissions from landfills are associated with the anaerobic breakdown of material. GHG emissions associated with the disposal of solid waste associated with the Project were calculated by the CalEEMod™ model using default parameters.

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.

Emissions Summary

The annual GHG emissions associated with the operation of the Project are estimated to be 2,905.71 $MTCO2_e$ per year as summarized in **Table VII-1**, *Total Project Greenhouse Gas Emissions (Annual).* Direct and indirect operational emissions associated with the Project are compared with the SCAQMD threshold of significance for residential use projects, which is 3,000 $MTCO2_e$. As shown in Table VII-1, the Project would result in a less than significant impact with respect to GHG emissions.

TABLE VII-1
TOTAL PROJECT GREENHOUSE GAS EMISSIONS (ANNUAL)

Emission Source	Emissions (metric tons per year)			
	CO2	CH4	N2O	Total $CO2_e$
Annual construction-relatedemissions amortized over 30 years	40.79	4.06E-03	--	41.01
Area	46.51	3.81E-03	8.00E-04	46.84
Energy	589.38	2.00E-02	9.27E-03	592.75
Mobile Sources	2,197.25	0.07	--	2,063.59
Waste	43.11	2.55	--	96.62
Water Usage	53.76	0.39	9.70E-03	64.9
Total CO_2E (All Sources)	2,905.71			
SCAQMD Threshold	3,000			
Significant?	NO			

Note: Totals obtained from CalEEMod™ and may not total 100% due to rounding.
Table results include scientific notation. e is used to represent times ten raised to the power of (which would be written as x 10b") and is followed by the value of the exponent
a Includes emissions of landscape maintenance equipment and architectural coatings emissions
b Includes emissions of natural gas consumption
c Includes emissions of vehicle emissions and fugitive dust related to vehicular travel

SOURCE: CalEEMod™ model output, See Appendix 3.1 for detailed model outputs; Ironwood Residential (TTM No. 37001), Greenhouse Gas Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

b. Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant Impact. Although the City's General Plan does not identify specific GHG or climate change policies or goals, a number of measures identified in the General Plan's Air Quality Element act to reduce or control criteria pollutant emissions and peripherally reduce GHG emissions. The Project has been evaluated for consistency with the City's General Plan Air Quality Element as shown in **Table VII-2**, *City of Moreno Valley General Plan Consistency*. According to Table VII-2, the Project is consistent with the City's General Plan Air Quality Element.

TABLE VII-2
CITY OF MORENO VALLEY GENERAL PLAN CONSISTENCY

General Plan Objective/Policy	Consistency Analysis
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 developed approximately 0.50 miles north of a regional shopping center (Stoneridge Towne Center).
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.
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 would be required to implement fugitive dust control measures consistent with SCAQMD Rule 403.

General Plan Objective/Policy	Consistency Analysis
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 would meet or surpass applicable CCR Title 24 energy conservation requirements.

SOURCE: City of Moreno Valley General Plan, Safety Element; Ironwood Residential (TTM No. 37001), Greenhouse Gas Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

The City released an Energy Efficiency and Climate Action Strategy (CAS) and a Greenhous 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 Project has been evaluated for consistency with the City's Energy Efficiency and CAS as described in **Table VII-3**, *City of Moreno Valley Energy Efficiency and CAS Consistency.* According to Table VII-3, the Project is consistent with the applicable measures of the City's Energy Efficiency and CAS.

TABLE VII-3
CITY OF MORENO VALLEY ENERGY EFFICIENCY AND CAS CONSISTENCY

Energy Efficiency	Consistency Analysis
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:** Not applicable.
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 would comply with this measure if adopted by the City.
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 off-site.	**Project Consistency:** Consistent. The Project would comply with this measure if adopted by the City.
R2-E5: New Construction Commercial Energy Efficiency Requirements. Require energy efficient design for all new commercial buildings to be 10 percent beyond the current Title 24 standards (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.

Energy Efficiency	Consistency Analysis
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 would 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 5.3030.2 requires that indoor water use be reduced by 20 percent. The Project would be consistent with this measure.
R3-W1: Water Efficiency Training and Education. Work with EMWS and local water companies to implement a public information and education program that promotes water conservation.	**Project Consistency:** Not applicable.
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 would comply with the City of Moreno Valley's citywide goal of solid waste reduction. Additionally, the Project would be compliant with the MVMC Section 8.80.030 by implementing a waste management plan.

SOURCE: Ironwood Residential (TTM No. 37001), Greenhouse Gas Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

Overall, as the Project is consistent with the City's General Plan Air Quality Element and the City's Energy Efficiency and CAS, the Project would not conflict with any applicable plan, policy, or regulation to reduce GHG emissions. As such, a less than significant impact would occur.

VIII. Hazards and Hazardous Materials

The following impact analysis pertaining to hazards and hazardous materials impacts is based on information contained in the Phase I Environmental Site Assessment Ironwood Avenue Property – 75.1-Acres Northwest of Ironwood Avenue and Oliver Street APN 473-160-004-5 City of Moreno Valley, Riverside County, California 92555 *(herein referred to as the "Phase I ESA"), prepared by EEI Geotechnical & Environmental Solutions, dated October 15, 2014. The Phase I ESA is provided in Appendix F.*

Would the Project:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less Than Significant Impact. Hazardous materials may be used during the construction phase of the Project. Hazardous materials that may be used include, but are not limited to, fuels (gasoline and diesel), paints and paint thinner, adhesives, surface coatings and possibly herbicides and pesticides. Generally, these materials would be used in concentrations that would not pose significant threats during the transport, use and storage of such materials. Furthermore, it is assumed that potentially hazardous materials would be contained, stored, and used in accordance with manufacturers' instructions and handled in compliance with applicable standards and regulations, including California Occupational Safety and Health Administration (OSHA)

requirements, and Title 8 and Title 22 of the Code of California Regulations. Accordingly, risks associated with hazards to the public or environment posed by the transport, use or disposal of hazardous materials during construction are considered less than significant due to compliance with applicable and required standards and regulations.

Operation of the residential uses would involve the use and storage of small quantities of potentially hazardous materials in the form of cleaning solvents, painting supplies, pesticides for landscaping, and pool maintenance. These hazardous materials are regulated by stringent federal and State laws mandating the proper transport, use, and storage of hazardous materials in accordance with product labeling. The use and storage of these substances is not considered to present a health risk when used in accordance with manufacturer specifications and with compliance to applicable regulations.

Overall, based on the above, construction and operation of the Project would result in a less than significant impact with regard to routine transport, use, or disposal of hazardous materials relative to the safety of the public or the environment.

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?

Less Than Significant Impact. The main objective of the Phase I ESA was to identify the presence, or likely presence, use, or release of hazardous substances or petroleum products as defined in the American Testing and Materials Practice E 1527 as a "recognized environmental condition" (REC). RECs include property uses that may indicate 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 a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. In order to identify RECs at the Project site, the Phase I included: (1) a review of readily available documents which included topographic, geologic, and hydrogeologic conditions associated with the Project site; (2) a review of readily available maps, aerial photographs and other documents relative to historical Project site usage and development; (3) a review of readily available federal, State, County, and City documents and database files concerning hazardous material storage, generation and disposal, active and inactive landfills, existing environmental concerns, and associated permits related to the Project site and/or immediately adjacent sites; (4) a site reconnaissance to ascertain current conditions of the Project site; interviews with persons(s) knowledgeable of the Project site; and (5) the preparation of the Phase I ESA which presents the findings, conclusions, and recommendations. The findings of the Phase I ESA are listed below.

According to the Phase I ESA and based on the historical use review, with the exception of several unimproved roadways, the Project site has been historically undeveloped. Residential and agricultural development likely began in the site vicinity during the 1930s. Sanborn Fire Insurance maps were not available for the Project site indicating little or no development on the Project site or vicinity occurred prior to 1950. The City's Building and Safety Department, County of Riverside Department of Environmental Health, the California Department of Toxic Substances Control (DTSC), and the State Water Resources Control Board (SWRCB) were

contacted as well as State and federal databases reviewed to determine if the Project site, or any adjacent properties, were listed as hazardous waste generators, underground storage tank (UST) releases, or as having other environmental concerns (i.e., spill, leak, or aboveground storage tank [AST]). Neither the Project site nor adjacent properties were listed on any of the databases researched. As the Project site is currently undeveloped land, the presence of asbestos-containing materials or lead-based paint are not considered environmental concerns. On October 6, 2014, a site reconnaissance was conducted to physically observe the Project site and adjoining properties for conditions indicating a potential environmental concern. No evidence of an environmental concern was recorded during the site reconnaissance. A Vapor Encroachment Screen (VES) was performed on the Project site as part of the Phase I ESA. The purpose was to evaluate if the Project site or adjacent properties store of dispose potential chemicals of concern or has documented releases that may migrate as vapors onto the Project site, as a result of contaminated soil and/or groundwater which may be present on or near the site (i.e., a vapor encroachment condition [VEC]). Based on the VES, the Phase I ESA concluded that a VEC for the Project site could be ruled out as a VEC does not, or is not, likely to exist due to the lack of known or suspected contaminated properties within the area of concern. In summary, the Phase I ESA has revealed no evidence of RECs in connection with the Project site.

Overall, based on the above, the Project would result in a less than significant impact with regard to reasonably foreseeable upset and accident conditions involving the release of hazardous materials relative to the safety of the public or the environment 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?

Less Than Significant Impact. The Cloverdale Elementary School, located at 12050 Kitching Street, is located approximately 1.5 miles west of the Project site. The Palm Middle School, located at 11900 Swanson Avenue, is located approximately 1.25 miles west of the Project site. The Valley View High School, located at 13135 Nason Street, is located approximately 1.2 miles south of the Project site. As such, the Project site is not located within one-quarter mile of an existing or proposed school. Construction of the Project would involve the temporary use of hazardous substances in the form of paint, adhesives, surface coatings and other finishing materials, and cleaning agents, fuels, and oils. All materials would be used, stored, and disposed of in accordance with applicable laws and regulations and manufacturers' instructions.

Operation of the Project would not create a significant risk of exposure to hazardous materials for the public or the environment, including the schools. Occupancy of the residential uses would not cause hazardous substance emissions or generate hazardous waste. Types of hazardous materials to be used in association with the Project such as small quantities of potentially hazardous materials in the form of cleaning solvents, painting supplies, pesticides for landscaping, and pool maintenance would be contained, stored, and used in accordance with manufacturers' instructions and handled in compliance with applicable standards and regulations. Further, as discussed in Response VIII.b, the Phase I ESA has revealed no evidence of RECs in connection with the Project site. As such, the potential for creation of a significant hazard through handling or routine transport of hazardous materials or the release of hazardous materials

into the environment within one-quarter mile of an existing or proposed school is considered less than significant.

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?

Less Than Significant Impact. Government Code Section 65962.5, amended in 1992, requires the California Environmental Protection Agency (CalEPA) to develop and update annually the Cortese List, which is a list of hazardous waste sites and other contaminated sites. While Government Code Section 65962.5 makes reference to the preparation of a list, many changes have occurred related to web-based information access since 1992 and information regarding the Cortese List is now compiled on the websites of the DTSC, the State Water Board, and CalEPA. The DTSC maintains the EnviroStor database, which includes sites on the Cortese List and also identifies potentially hazardous sites where cleanup actions (such as a removal action) or extensive investigations are planned or have occurred. The database provides a listing of Federal Superfund sites [National Priorities List (NPL)]; State Response sites; Voluntary Cleanup sites; and School Cleanup sites. Geotracker is the State Water Resources Control Board's data management system for managing sites that impact groundwater, especially those that require groundwater cleanup [USTs, Department of Defense, Site Cleanup Program] as well as permitted facilities such as operating USTs and land disposal sites. CalEPA's database includes lists of sites with active Cease and Desist Orders (CDO) or Cleanup and Abatement Orders (CAO) from the State Water Board.

As part of the Phase I ESA, a search was conducted for available federal, State, and local environmental database records for the Project site and where practicable, adjoining properties and nearby properties or surrounding areas within approximate minimum search distances from the Project site. The site's property records were also reviewed by the City's Building and Safety Department, County of Riverside Department of Environmental Health, DTSC, and SWRCB. According to the Phase I ESA, the Project site was not listed on any of the databases reviewed as having an environmental concern. As such, a less than significant impact would occur in this regard.

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 the people residing or working in the area?

No Impact (e and f). The Project site is not located within an airport land use plan or within two miles of a public or private airport. The nearest airport is the March Inland Port, a joint-use military and public airport, located approximately 5.15 miles southwest of the Project site. Therefore, the Project would not result in an airport-related safety hazard for people residing or working in the Project area, and no impact would occur in this regard.

g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. The Project site is located in an established rural area that is well served by the surrounding roadway network. While it is expected that the majority of construction activities for the Project would be confined on-site, construction activities may temporarily affect access on portions of adjacent streets during certain periods of the day. However, through-access for drivers, including emergency personnel, along all roads would still be provided. In these instances, the Project would implement traffic control measures (e.g., construction flagmen, signage, etc.) to maintain flow and access. Furthermore, in accordance with the City, the Project would develop a Construction Management Plan, which includes designation of a haul route, to ensure that adequate emergency access is maintained during construction. Therefore, construction is not expected to result in inadequate emergency access.

Project operation would generate traffic in the Project vicinity and would result in some modifications to access (i.e., street widening, new curb cuts for Project driveways) from the streets that surround the Project site. However, emergency access to the Project site and surrounding area would continue to be provided similar to existing conditions. Emergency vehicles and fire access would be provided from the primary driveway for the Project site located on Ironwood Avenue about mid-block between Nason Street and Oliver Street, immediately opposite from and north of Lantz Lane. Secondary site access would be provided by driveways on both Nason Street and Oliver Street just north of Ironwood Avenue. Future street widening, driveway, and building configurations would comply with applicable fire code requirements for emergency evacuation. Subject to review and approval of Project site access and circulation plans by the Moreno Valley Fire Department (MVFD), the Project would not impair implementation or physically interfere with adopted emergency response or emergency evacuation plans. Since the Project would not cause significant impediments along a designated emergency evacuation route, and the proposed residential uses would not impair implementation of the City's emergency response plan, the Project would have a less than significant impact with respect to these issues.

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?

Less Than Significant Impact With Mitigation Incorporated. According to Figure 5.5-2, Floodplains and High Fire Hazard Areas, of the GP FEIR, the Project site is located in a very high fire hazard severity zone (VHFHSZ). Section XIV, *Public Services,* Response XIV.a, below, describes fire protection services and facilities that serve the Project site and evaluates the ability of the service providers to provide fire protection service to the Project site. The analysis below focuses on the potential for the Project to expose people and structures to wildland fire hazards. This impact is considered potentially significant given the site's designation and location adjacent to wildlands.

Development of the Project would require compliance with development designs, applicable provisions, and safety requirements of Title 8, Buildings and Construction, Chapter 8.36,

International Fire Code (herein referred to as the "Fire Code").[13] Fuel modification zone areas are proposed on the north side of the Project site, which would be implemented pursuant to the Project-specific Fuel Modification Plan prepared for the Project in accordance with the *General Guidelines for Creating Defensible Space* prepared by the California Department of Forestry and Fire Protection (CDFFP).[14] The conceptual fuel modification zones for the Project are illustrated below in **Figure VIII-1**, *Preliminary Fuel* Modification *Plan*, which also specifies the applicable guidelines for vegetation removal, establishment of fire breaks, types of plantings, and the spacing, clearance, and maintenance of the fuel modification zones. In addition, it should be noted that the removal and/or preservation of plants and trees as part of the Project's Fuel Modification Plan would be subject to review and approval by the City's Fuel Management Officer and/or the Moreno Valley Fire Department (MVFD). Maintenance of the fuel modification zones pursuant to the approved Fuel Modification Plan would be the responsibility of the Ironwood Village HOA(s). The 20-foot-wide fire access road/multi-use trail that traverses along the northern edge of the developed portion of the Project would be incorporated into the final Fuel Modification Plan for the Project.

All landscaping within the Project would comply with the City's Landscape and Irrigation Standards Section 9.17.030 of the MVMC. Given implementation of an approved final Fuel Modification Plan, as required by MM HAZ-1 below, impacts related to wildland fire hazards would be reduced to less than significant.

Mitigation Measures

> **MM HAZ-1:** The Project applicant shall implement a Project-specific Fuel Modification Plan based on the *General Guidelines for Creating Defensible Space* prepared by the California Department of Forestry and Fire Protection (2006). The Fuel Modification Plan shall be subject to review and approval by the Moreno Valley Fire Department.

[13] Per Title 8, Buildings and Construction, Chapter 8.36, International Fire Code, Section 8.36.020, Adoption of the International Fire Code, the City adopted the 2012 Edition of the International Fire Code, California Fire Code 2013 Edition, California Code of Regulations Title 24, Part 9, Appendices Chapter 4, A, B, BB, C, CC, E, F, G, and H, the California Fire Code Standards and the body of code in its entirety, with the exception of Appendices D, I, and J of the California Fire Code as compiled and adopted by the International Code Council.

[14] State Board of Forestry and Fire Protection (BOF) California Department of Forestry and Fire Protection, "General Guidelines for Creating Defensible Space", Adopted by BOF on February 8, 2006, Approved by Office of Administrative Law on May 8, 2006.

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FUEL TREATMENT GUIDELINES

THE FOLLOWING FUEL TREATMENT GUIDELINES COMPLY WITH THE REQUIREMENTS OF 14 CCR 1299 AND PRC 4291. ALL PERSONS USING THESE GUIDELINES TO COMPLY WITH CCR 1299 AND PRC 4291 SHALL IMPLEMENT GENERAL GUIDELINES 1., 2., 3., AND EITHER 4A OR 4B., AS DESCRIBED BELOW.

GENERAL GUIDELINES:

1. MAINTAIN A FIREBREAK BY REMOVING AND CLEARING AWAY ALL FLAMMABLE VEGETATION AND OTHER COMBUSTIBLE GROWTH WITHIN 30 FEET OF EACH BUILDING OR STRUCTURE, WITH CERTAIN EXCEPTIONS PURSUANT TO PRC §4291(A). SINGLE SPECIMENS OF TREES OR OTHER VEGETATION MAY BE RETAINED PROVIDED THEY ARE WELL-SPACED, WELL-PRUNED, AND CREATE A CONDITION THAT AVOIDS SPREAD OF FIRE TO OTHER VEGETATION OR TO A BUILDING OR STRUCTURE.

2. DEAD AND DYING WOODY SURFACE FUELS AND AERIAL FUELS WITHIN THE REDUCED FUEL ZONE SHALL BE REMOVED. LOOSE SURFACE LITTER, NORMALLY CONSISTING OF FALLEN LEAVES OR NEEDLES, TWIGS, BARK, CONES, AND SMALL BRANCHES, SHALL BE PERMITTED TO A DEPTH OF 3 INCHES. THIS GUIDELINE IS PRIMARILY INTENDED TO ELIMINATE TREES, BUSHES, SHRUBS AND SURFACE DEBRIS THAT ARE COMPLETELY DEAD OR WITH SUBSTANTIAL AMOUNTS OF DEAD BRANCHES OR LEAVES/NEEDLES THAT WOULD READILY BURN.

3. DOWN LOGS OR STUMPS ANYWHERE WITHIN 100 FEET FROM THE BUILDING OR STRUCTURE, WHEN EMBEDDED IN THE SOIL, MAY BE RETAINED WHEN ISOLATED FROM OTHER VEGETATION. OCCASIONAL (APPROXIMATELY ONE PER ACRE) STANDING DEAD TREES (SNAGS) THAT ARE WELL-SPACE FROM OTHER VEGETATION AND WHICH WILL NOT FALL ON BUILDINGS OR STRUCTURES OR ON ROADWAYS/DRIVEWAYS MAY BE RETAINED.

4. WITHIN THE REDUCED FUEL ZONE, ONE OF THE FOLLOWING FUEL TREATMENTS (4A. OR 4B.) SHALL BE IMPLEMENTED. PROPERTIES WITH GREATER FIRE HAZARDS WILL REQUIRE GREATER CLEARING TREATMENTS. COMBINATIONS OF THE METHODS MAY BE ACCEPTABLE UNDER §1299(C) AS LONG AS THE INTENT OF THESE GUIDELINES IS MET.

4A. REDUCED FUEL ZONE: FUEL SEPARATION

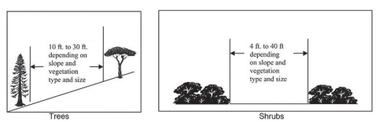
IN CONJUNCTION WITH GENERAL GUIDELINES 1., 2., AND 3., ABOVE, MINIMUM CLEARANCE BETWEEN FUELS SURROUNDING EACH BUILDING OR STRUCTURE WILL RANGE FROM 4 FEET TO 40 FEET IN ALL DIRECTIONS, BOTH HORIZONTALLY AND VERTICALLY.

CLEARANCE DISTANCES BETWEEN VEGETATION WILL DEPEND ON THE SLOPE, VEGETATION SIZE, VEGETATION TYPE (BRUSH, GRASS, TREES), AND OTHER FUEL CHARACTERISTICS (FUEL COMPACTION, CHEMICAL CONTENT ETC.). PROPERTIES WITH GREATER FIRE HAZARDS WILL REQUIRE GREATER SEPARATION BETWEEN FUELS. FOR EXAMPLE, PROPERTIES ON STEEP SLOPES HAVING LARGE SIZED VEGETATION WILL REQUIRE GREATER SPACING BETWEEN INDIVIDUAL TREES AND BUSHES (SEE PLANT SPACING GUIDELINES AND CASE EXAMPLES BELOW). GROUPS OF VEGETATION (NUMEROUS PLANTS GROWING TOGETHER LESS THAN 10 FEET IN TOTAL FOLIAGE WIDTH) MAY BE TREATED AS A SINGLE PLANT. FOR EXAMPLE, THREE INDIVIDUAL MANZANITA PLANTS GROWING TOGETHER WITH A TOTAL FOLIAGE WIDTH OF EIGHT FEET CAN BE "GROUPED" AND CONSIDERED AS ONE PLANT AND SPACED ACCORDING TO THE PLANT SPACING GUIDELINES IN THIS DOCUMENT.

GRASS GENERALLY SHOULD NOT EXCEED 4 INCHES IN HEIGHT. HOWEVER, HOMEOWNERS MAY KEEP GRASS AND OTHER FORBS LESS THAN 18 INCHES IN HEIGHT ABOVE THE GROUND WHEN THESE GRASSES ARE ISOLATED FROM OTHER FUELS OR WHERE NECESSARY TO STABILIZE THE SOIL AND PREVENT EROSION.

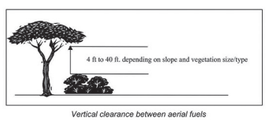
CLEARANCE REQUIREMENTS INCLUDE:

- HORIZONTAL CLEARANCE BETWEEN AERIAL FUELS, SUCH AS THE OUTSIDE EDGE OF THE TREE CROWNS OR HIGH BRUSH. HORIZONTAL CLEARANCE HELPS STOP THE SPREAD OF FIRE FROM ONE FUEL TO THE NEXT.



Horizontal clearance between aerial fuels

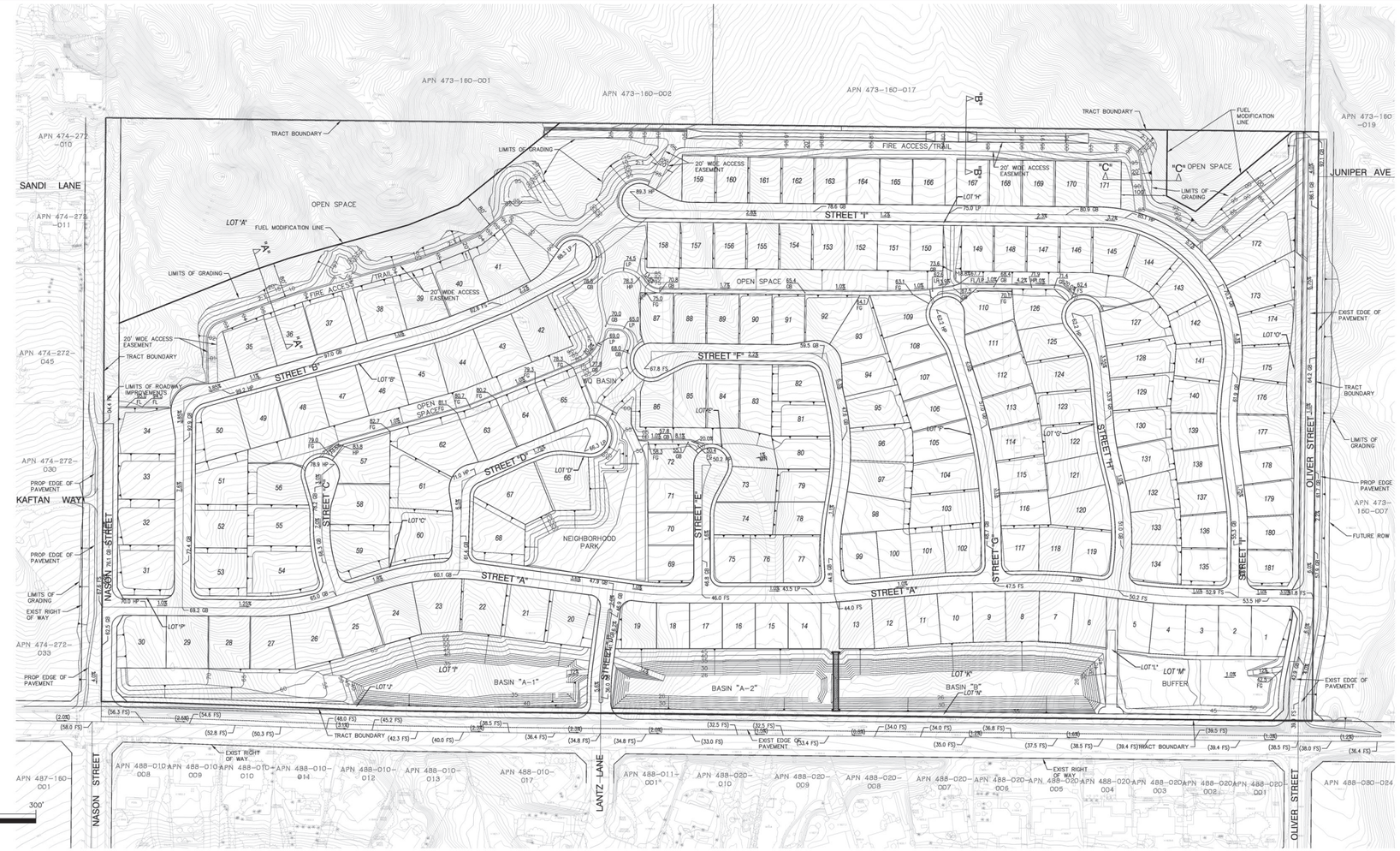
- VERTICAL CLEARANCE BETWEEN LOWER LIMBS OF AERIAL FUELS AND THE NEAREST SURFACE FUELS AND GRASS/WEEDS. VERTICAL CLEARANCE REMOVES LADDER FUELS AND HELPS PREVENT A FIRE FROM MOVING FROM THE SHORTER FUELS TO THE TALLER FUELS.



Vertical clearance between aerial fuels

Plant Spacing Guidelines		
Guidelines are designed to break the continuity of fuels and be used as a "rule of thumb" for achieving compliance with Regulation 14 CCR 1299.		
Trees	**Minimum horizontal space from edge of one tree canopy to the edge of the next**	
	Slope	Spacing
	0% to 20 %	10 feet
	20% to 40%	20 feet
	Greater than 40%	30 feet
Shrubs	**Minimum horizontal space between edges of shrub**	
	Slope	Spacing
	0% to 20 %	2 times the height of the shrub
	20% to 40%	4 times the height of the shrub
	Greater than 40%	6 times the height of the shrub
Vertical Space	**Minimum vertical space between top of shrub and bottom of lower tree branches:** 3 times the height of the shrub	

Adapted from: Gilmer, M. 1994. California Wildfire Landscaping

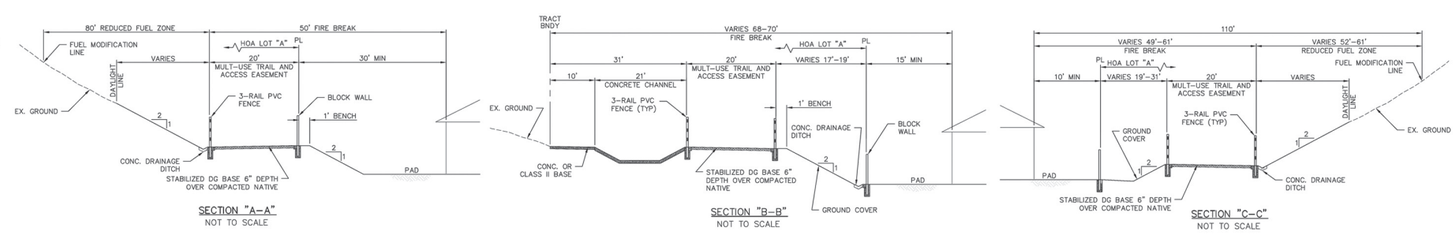


4B. REDUCED FUEL ZONE: DEFENSIBLE SPACE WITH CONTINUOUS TREE CANOPY TO ACHIEVE DEFENSIBLE SPACE WHILE RETAINING A STAND OF LARGER TREES WITH CONTINUOUS TREE CANOPY APPLY THE FOLLOWING TREATMENTS:

GENERALLY, REMOVE ALL SURFACE FUELS GREATER THAN 4 INCHES IN HEIGHT. SINGLE SPECIMENS OF TREES OR OTHER VEGETATION MAY BE RETAINED PROVIDED THEY ARE WELL-SPACED, WELL-PRUNED, AND CREATE A CONDITION THAT AVOIDS SPREAD OF FIRE TO OTHER VEGETATION OR TO A BUILDING OR STRUCTURE.

REMOVE LOWER LIMBS OF TREES ("PRUNE") TO AT LEAST 6 FEET UP TO 15 FEET (OR THE LOWER 1/3 BRANCHES FOR SMALL TREES). PROPERTIES WITH GREATER FIRE HAZARDS, SUCH AS STEEPER SLOPES OR MORE SEVERE FIRE DANGER, WILL REQUIRE PRUNING HEIGHTS IN THE UPPER END OF THIS RANGE.

Defensible Space retaining continuous trees



SOURCE: Anderson Consulting Engineers, Inc., 2016

Ironwood Village Project

Figure VIII-1

Preliminary Fuel Modification Plan

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IX. Hydrology and Water Quality

The following impact analysis pertaining to hydrology and water quality is based on information contained in the Preliminary Hydrology and Hydraulic Study for Tentative Tract Map 37001 Ironwood *(herein referred to as the "Preliminary Hydrology Study"), prepared by JLC Engineering & Consulting, Inc., dated June 17, 2016 and the* Project Specific Water Quality Management Plan *(herein referred to as the "WQMP"), prepared by JLC Engineering & Consulting, Inc., dated September 29, 2015. The Preliminary Hydrology Study and WQMP are provided in Appendix G of this Initial Study.*

Preliminary Hydrology Study Summary

The purpose of the Preliminary Hydrology Study was to determine the preliminary drainage improvements required to provide flood protection to the on-site area from the flows emanating from the on-site and off-site areas that drain into or across the Project site. Additionally, the study determined the preliminary drainage improvements required to convey the on-site flows to the two proposed on-site stormwater detention basins. The scope of the study includes the following: (1) determine the peak 100-year and 10-year flow rates for the existing condition watershed using the Riverside County Flood Control and Water Conservation District (RCFC & WCD) Rational Method; (2) determine the 100-year and 10-year flow rates for the post-Project condition on-site and off-site areas using the RCFC & WCD Rational Method; (3) determine the 2-year, 24-hour storm duration peak flow rates for the pre-Project and post-Project areas tributary to each basin using the RCFC & WCD Unit Hydrograph Method; (4) determine the 100-year, 1-hour peak flow rate for the on-site and off-site areas tributary to the basins using the RCFC & WCD Unit Hydrograph Method; (5) determine the existing condition flow rates tributary to the existing culverts, and perform a Hydrologic Engineering Center's River Analysis System ("HEC-RAS") analysis for the existing conditions regarding flooding; (6) determine the post-Project condition flow rates tributary to the existing culverts and streams based upon the proposed basin mitigation, and perform HEC-RAS analyses for the post-Project condition; (7) develop preliminary storm drain alignments and sizes required to flood protect the Project site from off-site and on-site flows; and (8) determine the required water quality volume to be treated and the required storage volume of the basins to address the hydrologic conditions of concern ("HCOCs") addressed in the Project WQMP.

Project Site Stormwater Drainage Overview

The Project proposes to collect all on-site and off-site stormwater flows via a subsurface storm drain system. A portion of the northerly Project boundary would enter the off-site storm drain system for the peak 100-year flow rate only. Low-flow pipes would be provided to divert the flow up to the 2-year, 24-hour flow rate into the basin prior to comingling with off-site flows for water quality treatment and mitigation of the HCOCs. The majority of the off-site flows would be conveyed to one of the two downstream culverts located at Ironwood Avenue. Flow-by structures would be utilized within the basins that allow for a certain flow rate to bypass downstream to the existing culvert crossing Ironwood Avenue, and the remaining flow to overtop into the basins for retention. This would ensure that the Project does not adversely impact downstream existing properties and streams. Analyses have been performed to demonstrate that flows leaving the Project site would not increase relative to existing conditions, and would

actually decrease in the post-Project condition. Detailed basin routing analyses would be performed during final engineering.

The majority of the flows westerly off-site area would be conveyed directly to an existing culvert without passing through one of the basins. The flows in excess of the existing downstream culvert capacity would be collected within a storm drain system along Nason Street, which would allow flows to bubble out into Nason Street south of Ironwood Avenue.

The Project site is tributary to three existing culverts crossing Ironwood Avenue. Per a meeting with the City of Moreno Valley, the Project must mitigate the peak 100-year flow rates tributary to these three existing culverts to a maximum flow rate equal to the existing capacity of these culverts. Therefore, the basins would also serve to mitigate the 100-year storm event so that the existing culvert capacities are not exceeded.

Hydrology Analysis

Pre-Project Hydrology

The pre-Project condition rational method analysis has been included in Appendix A of the Preliminary Hydrology Study, and the pre-Project condition rational method hydrology map has been included as **Figure IX-1**, *Existing Hydrology Map*, below. The off-site areas were analyzed for the existing land use as undeveloped, poor cover, as recommended by the Riverside County Hydrology Manual.

The existing watershed areas were designated as Areas A, B, C, and D, as shown below in Figure IX-1. Area “A” is tributary to the existing 42-inch culvert westerly along Ironwood Avenue (Culvert A1), Area “B” is tributary to the existing 42-inch culvert midway between Nason Street and Oliver Street along Ironwood Avenue (Culvert B1), and Area C is tributary to the easterly 24-inch culvert along Ironwood Avenue (Culvert C1, see Figure IX-1 below for existing culvert locations). Downstream of Ironwood Avenue, Areas A, B, and C confluence within the natural channel. Area D consists of the most easterly area within the watershed boundary, and is tributary to an existing culvert east of Oliver Street.

SOURCE: JLC Engineering & Consulting, Inc., 2016

Ironwood Village Project

Figure IX-1

Existing Hydrology Map

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Post-Project Hydrology

The rational method hydrology calculations for the post-Project condition have been included in Appendix B of the Preliminary Hydrology Study, and the post-Project condition hydrology maps have been included as **Figure IX-2**, *Proposed On-Site Hydrology Map*, and **Figure IX-3**, *Proposed Off-Site Hydrology Map*. The post-Project condition on-site and off-site rational method hydrology analyses were performed for five watershed areas designated as Areas A, B, C, D and E. As shown in Figures IX-2 and IX-3, Area A is the area tributary to Basin A1 and A2, Area B is tributary to Basin B, Areas C and D are tributary to the west side of Oliver Street, and Area E is tributary to the intersection of Nason Street and Ironwood Avenue.

The unit hydrograph calculations analyzed five different areas (as shown on Exhibit C and Exhibit D of the Preliminary Hydrology Study):

- Off-site Area "A" – Off-site Area A (30.79 acres) is the area tributary to the flow-by structure located within Basin A1, and discharges into Culvert B1. Off-site Area A was analyzed for the 100-year storm events only.

- Off-site Area "B" – Off-site Area B (73.03 acres) is tributary to the flow-by structure located in Basin A2, and discharges into Culvert B1. Off-site Area B was analyzed for the 100-year storm events only.

- On-site Area "A1" – On-site Area A1 (17.86 acres for the 100-year storm event and 25.15 acres for the Water Quality Area and 2-year, 24-hour storm event) is tributary to Basin A1. The areas differ between the 100-year and 2-year storm events due to the low-flow storm drain systems incorporated at Node 118 and node 121. These systems would be designed to by-pass the low-flows up to the 2-year, 24-hour storm duration so that the flows would not enter the off-site storm drain system, and rather be collected by the on-site systems that discharge the entire flow rate directly into Basin A. This would ensure that the entire on-site area is treated for water quality purposes and mitigated for the HCOCs.

- On-site Area "A2" - On-site Area A2 (23.24 acres for the 100-year storm event and 29.70 acres for the Water Quality Area and 2-year, 24-hour storm event) is tributary to Basin A2. The areas differ between the 100-year and 2-year storm events due to the low-flow storm drain systems incorporated at Node 145 and node 148 (see Figure IX-1). These systems would be designed to by-pass the low-flows up to the 2-year, 24-hour storm duration so that the flows would not enter the off-site storm drain system, and rather be collected by the on-site systems that discharge the entire flow rate directly into Basin A2. This would ensure that the entire on-site area is treated for water quality purposes and mitigated for the HCOCs.

- On-site Area "B" – On-site Area B is the area tributary to Basin B (15.65 acres), and includes the total rational method Area B watershed. This area was used for the water quality analysis for Basin B and for the 2-year, 24-hour unit hydrograph analysis for Basin B. The area for the water quality, 2-year, 24-hour unit hydrograph and the 100-year unit hydrograph are the same.

The unit hydrograph hydrology maps for the 100-year storm events and the 2-year, 24-hour storm duration have been included as Exhibits C and D, respectively, of the Preliminary Hydrology Study. The 100-year unit hydrograph calculations have been included in Appendix D of the

Preliminary Hydrology Study, while the pre-Project and post-Project 2-year, 24-hour unit hydrograph calculations have been included in Appendix C of the Preliminary Hydrology Study.

HEC-RAS Analyses

HEC-RAS analyses were performed for the existing condition flow rates and the post-Project condition flow rates to determine the flooding limits for both conditions. Two streams were identified in the HEC-RAS analysis, which are depicted in Exhibits K and L in the Preliminary Hydrology Study, and have been designated as the Main Channel and the Westerly Channel. The Main Channel collects flows from Culverts B1 and C1, and the Westerly Channel collects flows from A1.

Existing Condition Results

The existing condition HEC-RAS modeled the streams to four sections upstream of Ironwood Avenue to a point where flows enter a culvert at Darlene Drive. The flows were then modeled through the culverts traversing Ironwood Avenue. Based upon the HEC-RAS results, the flows would overtop the roadway at Culvert B1 (with 111.1 cubic feet per second [cfs] overtopping the roadway and the remaining 131.3 cfs passing through Culvert B1).

The flows would also overtop the roadway at the culvert crossing Walfred Way (with 149.5 cfs overtopping the roadway and the remaining 167.9 cfs passing through the culvert). Therefore the capacity for Culvert B1 is 131.3 cfs, and would be utilized as the maximum allowable flow rate that can be discharged from the Project site into Culvert B1.

The culvert crossing Lantz Lane does not have capacity to convey the tributary flow of 87.2 cfs. Based upon iterations with the HEC-RAS analyses, a total of 46.0 cfs can be conveyed through the culvert, and 41.2 cfs overtops Lantz Lane and is conveyed southerly within Lantz Lane.

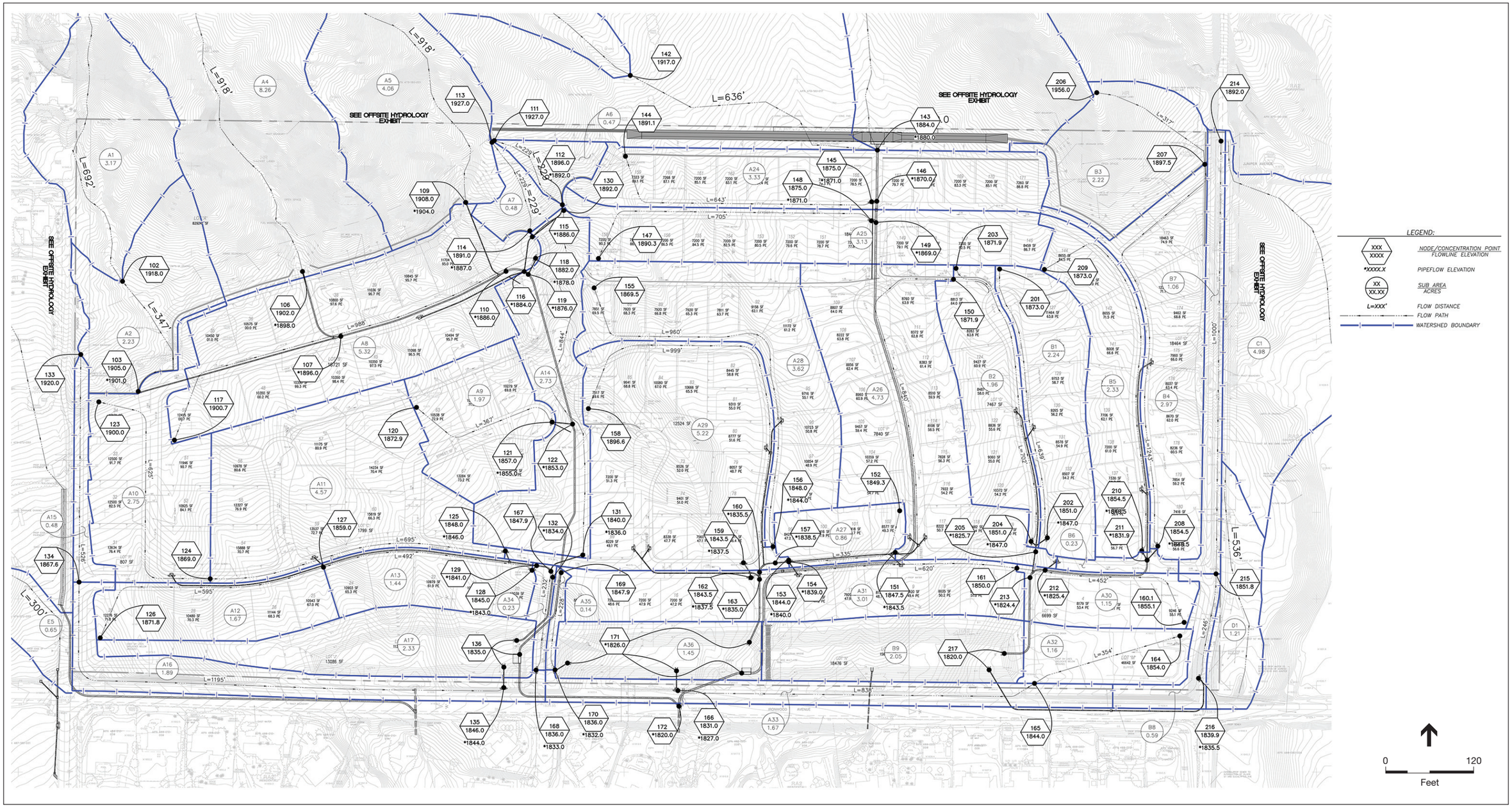
The existing condition HEC-RAS flood plain has been delineated on Exhibit K of the Preliminary Hydrology Study, and the existing condition HEC-RAS calculations has been included in Appendix H of the study.

Post-Project Condition Results

The post-Project condition HEC-RAS modeled the streams from Ironwood Avenue to a point where flows enter a culvert at Darlene Drive. The starting flow rates for the post-Project condition are equal to the flows discharging from Culverts A1 and B1. A detailed discussion for the post-Project flow rates used in the HEC-RAS analyses has been provided in Section VI of the Preliminary Hydrology Study.

Based upon the HEC-RAS results, the flows at Walfred Lane would overtop the roadway, with 1.1 cfs overtopping the roadway and the remaining 150.5 cfs passing through the culvert.

The HEC-RAS results indicate that flows would break out at the culvert crossing Lantz Lane, as also determined in the existing condition HEC-RAS. The flow rate was decreased from 87.2 cfs until the flows no longer overtopped the roadway. The flow rate that would be conveyed through the culvert and not overtop the roadway is 46.0 cfs, and the remaining 41.2 cfs would be conveyed southerly down Lantz Lane.



SOURCE: JLC Engineering & Consulting, Inc., 2016

Ironwood Village Project

Figure IX-2

Proposed On-Site Hydrology Map

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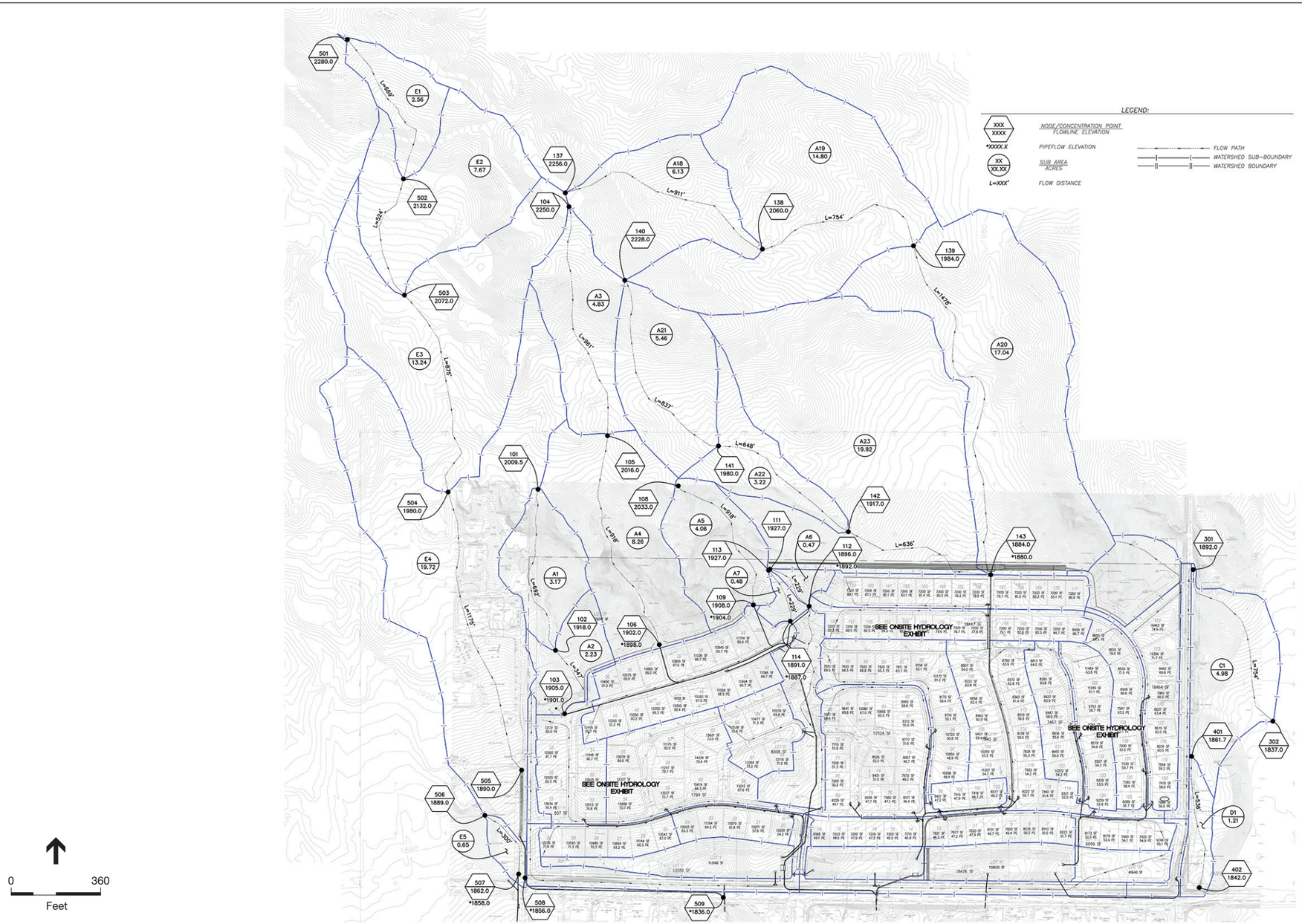

SOURCE: JLC Engineering & Consulting, Inc., 2016

Ironwood Village Project

Figure IX-3

Proposed Off-Site Hydrology Map

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The HEC-RAS calculations have been included in Appendix H of the Preliminary Hydrology Study and the flood plain delineation has been shown on Exhibit L of the report.

Existing Flooding Analysis

An existing condition rational method hydrology was performed for the area tributary to the natural streams upstream and downstream of Ironwood Avenue. Currently, as shown in Figure IX-1 above, there are three culverts crossing Ironwood Avenue, designated as Culvert A1 (the westerly 42-inch CMP Culvert), Culvert B1 (the easterly 42-inch CMP Culver) and Culvert C1 (the easterly 24-inch CMP Culvert). **Figure IX-4**, *Flow Rate Analyses*, below, summarizes the flow rate analyses, and the following paragraphs provide detailed descriptions of the analyses.

Point 1 is located at the intersection of Ironwood Avenue and Nason Street. The existing condition flow rate is 89.7 cfs per the existing condition rational method calculations at node 104 to 108 (see Figure IX-1 above). Capacity calculations were performed for the north and south sides of Ironwood Avenue to determine the amount of flow that would be conveyed to the east within Ironwood Avenue. The north side of Ironwood Avenue would discharge into the natural stream tributary to Culvert A1, and has a capacity of 33.6 cfs. The south side of Ironwood Avenue would discharge at the low-point on the south side of Culvert B1, and has a capacity of 21.6 cfs. The remaining 34.5 cfs, which overtops the Ironwood Avenue Centerline, would be conveyed in a southerly direction along Nason Street.

Point 2 is the upstream end of Culvert A1, and has a flow rate of 75.8 cfs. This flow rate was determined by taking the existing condition flow rate from the rational method calculations at nodes 107 to 108 of 42.2 cfs, and adding the 33.6 cfs from the north side of Ironwood Avenue. This flow rate would be conveyed to the south side of Ironwood, as the capacity of Culvert A1 based upon the nomographs is 78.0 cfs.

Point 3 is located downstream of Culvert A1, and has a flow rate equal to the existing condition flow rate at nodes 109-215 of 142.1 cfs, minus the 21.6 cfs conveyed easterly in the southerly half of Ironwood Avenue to the low-point on Ironwood Avenue and minus the 33.4 cfs splitting to the south along Nason Street, for a total flow rate within this channel of 87.2 cfs.

Point 4 is located downstream of the culvert crossing Lantz Lane. Based upon iterations with the HEC-RAS model, a total of 46.0 cfs can be conveyed through the culvert, and the remaining 41.2 cfs would overtop and split to the south along Lantz Lane.

Point 5 is the upstream point of Cuvert B1 which has a tributary flow rate of 241.6 cfs per the existing condition rational method calculations at Node 212 (see Figure IX-1). However, Culvert B1 has a capacity of 131.3 cfs per the HEC-RAS calculations, therefore the remaining flows would overtop the roadway. Since Ironwood Avenue is a low point at the Culvert B1 crossing, all flows overtopping Ironwood Avenue would enter the stream downstream of Culvert B1.

Point 6 is the upstream point of Culvert C1, which has an existing condition flow rate of 39.2 cfs at node 303. The capacity of Culvert C1 based upon the nomograph is 40.0 cfs, therefore all 39.2 cfs would be conveyed through the culvert. Both Culverts B1 and C1 are tributary to Point 7.

The flow rate at **Point 7**, which is the location upstream of the culvert crossing Walfred Way, was determined by taking the flow rate from the existing condition rational method calculations at node 214 of 295.8 cfs (which is the confluence point for Culvert B1 and C1 flows), and adding the flows from the south side of Ironwood Avenue of 21.6 cfs, resulting in a total tributary flow rate of 317.4 cfs.

This flow rate is conveyed to **Point 8**, which is downstream of the culvert crossing Walfred Way. Based upon the HEC-RAS analyses, the flows at this culvert would overtop the roadway, however, the roadway incorporates a low point at this location, and therefore all flows would continue to the south side of the culvert crossing.

Point 9 is the location where Point 4 and Point 8 flows confluence. The flow rate at this location was determined by taking the existing condition flow rate at node 216 of 489.0 cfs, and subtracting the 33.4 cfs that splits southerly along Nason Avenue and the 41.2 cfs that splits southerly along Lantz Lane, resulting in a total flow rate of 414.5 cfs at Point 9.

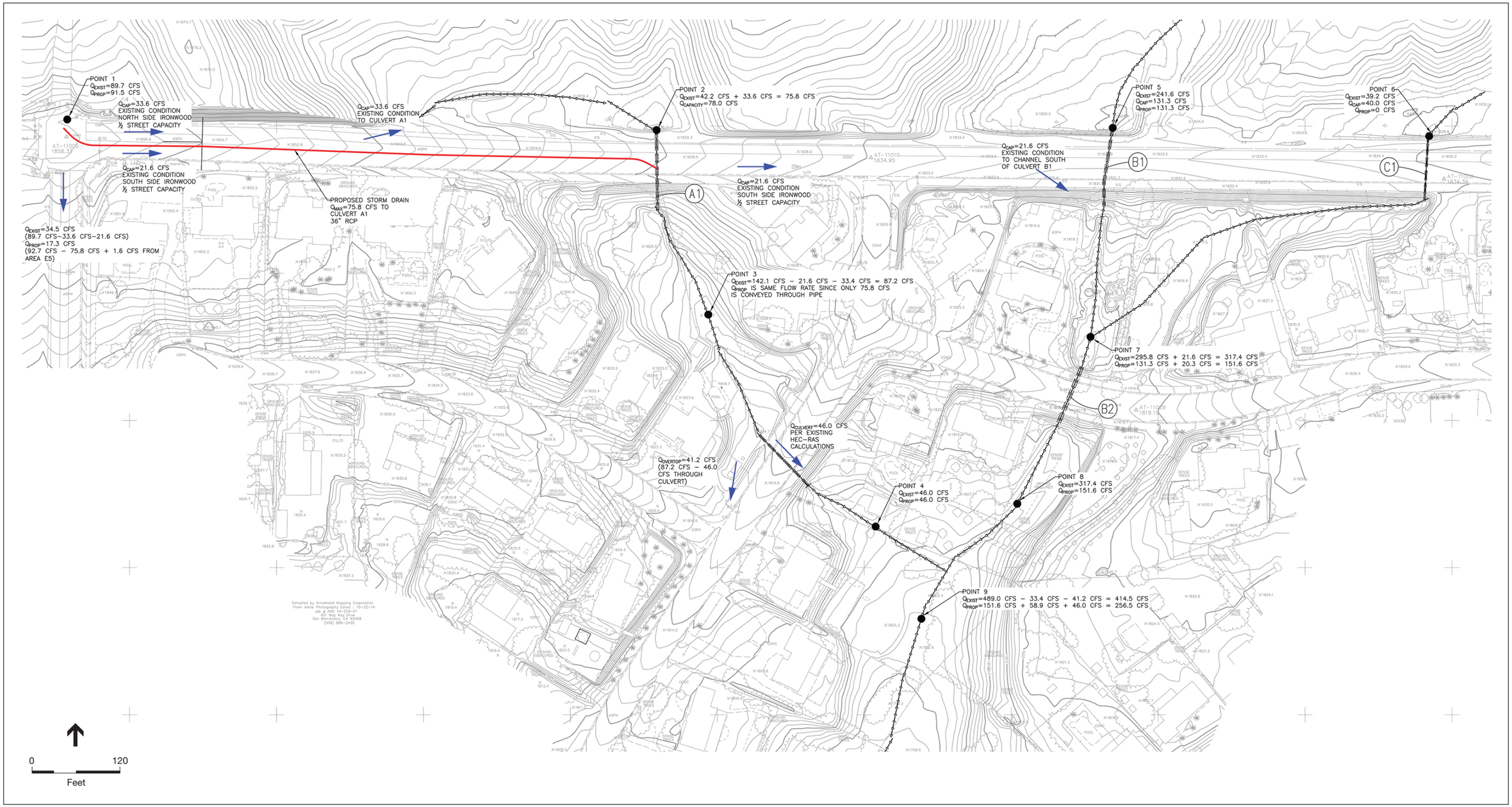
These flow rates were utilized in the HEC-RAS analyses for the existing condition, which is discussed in the HEC-RAS section below. The normal depth calculations for the street capacities of Ironwood Avenue have been included in Appendix I of the Preliminary Hydrology Study.

Post-Project Condition Flow Rate and Mitigation Analyses

Since the post-Project condition would implement basins and flow-by structures to mitigate runoff, unit hydrograph calculations were required in order to appropriately size the basins. The rational method calculations are utilized for the sizing of storm drain and for the HEC-RAS flood plain analyses.

Based upon the HEC-RAS analyses for the existing condition, the post-Project condition sends 75.8 cfs through Culvert A1, which is the existing condition flow rate for Culvert A1 and Culvert B1 can convey a total of 131.3 cfs. These flow rates are based upon the rational method hydrology analyses. In order to determine the rational method flow rate for each storm drain discharging from the splitter structure, the ratio of the two peak flow rates to each basin was determined. The 67.5 cfs tributary to the splitter structure within Basin A1 is 31.4% of the total flow rate tributary to Culvert B1 (67.5 cfs ÷ 215.3 cfs). The Basin A2 splitter structure has 68.6% of the total tributary flow rate. Therefore, each basin would contribute this percentage of the allowable flow rate. Basin A1 would discharge 31.4% of the allowable flow rate tributary to Culvert B1 and Basin A2 would discharge 68.6% of the allowable flow rate tributary to Culvert B1, resulting in 41.2 cfs for Basin A1 and 90.1 cfs for Basin A2.

Off-site Area E has a total flow rate at node 505 of 91.5 cfs in the post-Project condition. Since Culvert A1 has an existing condition flow rate of 75.8 cfs, a structure would be designed at Node 505 such that 75.8 cfs would enter the storm drain system and the remaining 15.7 cfs would overtop to inlets provided at the intersection of Nason Street and Ironwood Avenue.



SOURCE: JLC Engineering & Consulting, Inc., 2016

Ironwood Village Project

Figure IX-4

Flow Rate Analyses

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Culvert B1 (Basins A2 an A1) has a total 100-year rational method tributary flow rate of 67.5 cfs from Off-site Area A at node 122 and 147.8 cfs from Off-site Area B at node 149, for a total tributary flow rate of 215.3 cfs, which is greater than the 131.3 cfs allowable for Culvert B1. Therefore, two flow-by structures would be required within Basins A1 and A2 to allow a limited amount of flow to bypass, and the remaining flow and volume to overtop into the basins. To determine the volume required to be stored in order to mitigate the flows, unit hydrograph calculations were required. In order to more appropriately compare the unit hydrograph flow rates and the rational method flow rates for the area, the ratio of the allowable rational method flow rate out (131.3 cfs) compared to the inflow rational method flow rate (215.3 cfs) was determined, and is equal to 61.0%. This percentage was multiplied by the peak unit hydrograph flow rates for the 100-year, 1-hour storm duration to determine the equivalent allowable flow rate to by-pass for the unit hydrograph calculations. The 100-year, 1-hour unit hydrograph for off-site area A resulted in a peak flow rate of 74.7 cfs and off-site area B resulted in a peak flow rate of 159.9 cfs. Taking 61.0% of these flows results in 45.6 cfs allowable to discharge from Basin A1, and 97.5 cfs to discharge from Basin A2. When comparing these allowable flow rates to the different durations for the 100-year storm event, the 1-hour storm duration for Basin A1 and the 1-hour and 3-hour durations for Basin A2 would require storage within Basins.

In order to determine the volume required to be stored for the applicable durations, corresponding flow rates were found within the unit hydrograph calculations on the rising and recess limbs of the hydrograph. The corresponding volumes for these flow rates were subtracted to obtain the volume that must overtop the splitter structure and be stored within the basin. The following tables summarizes the results:

Basin A1 – Area A1 Off-site Unit Hydrograph

100-Year, 1-hour Flow Rate	Maximum Allowable Flow Rate	Corresponding Flow Rates on limbs of hydrograph	Corresponding Volumes	Volume Required to Be Retained
74.7 cfs	45.6 cfs	31.08 cfs	1.0008 ac-ft	1.3661 ac-ft
		27.49 cfs	2.3669 ac-ft	

Basin A2 – Area A2 Off-site Unit Hydrograph

100-Year, 1-hour Flow Rate	Maximum Allowable Flow Rate	Corresponding Flow Rates on limbs of hydrograph	Corresponding Volumes	Volume Required to Be Retained
159.9 cfs	97.5 cfs	66.16 cfs	2.0783 ac-ft	3.1096 ac-ft
		69.92 cfs	5.1879 ac-ft	

100-Year, 3-hour Flow Rate	Maximum Allowable Flow Rate	Corresponding Flow Rates on limbs of hydrograph	Corresponding Volumes	Volume Required to Be Retained
98.6 cfs	97.5 cfs	89.63 cfs	5.3343 ac-ft	1.2671 ac-ft
		85.37 cfs	6.6014 ac-ft	

These additional volumes would be stored within the basin. A discussion and summary Table of the basin volumes and outflows has been provided in the following paragraphs.

Basin A1 (Unit Hydrograph Summary)

	100-Year Storm Events			
	1-Hour	**3-Hour**	**6-Hour**	**24-Hour**
On-site Flow Rate	41.6 cfs	25.5 cfs	21.8 cfs	8.1 cfs
Off-site Flow Rate	74.7 cfs	44.0 cfs	34.4 cfs	16.2 cfs
Allowable Off-site Flow-By	45.6 cfs	45.6 cfs	45.6 cfs	45.6 cfs
On-site Volume Generated	1.3901 ac-ft	1.8294 ac-ft	2.2213 ac-ft	3.9417 ac-ft
Off-site Volume Generated	2.6284 ac-ft	3.5390 ac-ft	3.828 ac-ft	6.3263 ac-ft
Basin Storage Volume	3.0960 ac-ft	3.0960 ac-ft	3.0960 ac-ft	3.0960 ac-ft
On-site Volume Retained [1]	1.3901 ac-ft	1.8294 ac-ft	2.2213 ac-ft	3.0960 ac-ft
Off-site Volume Retained [2]	1.3661 ac-ft	0 ac-ft	0 ac-ft	0 ac-ft
Total Volume Retained	2.7892 ac-ft	1.8294 ac-ft	2.2213 ac-ft	3.0960 ac-ft
Maximum Basin Outflow [3]	45.6 cfs	44.0 cfs	34.4 cfs	21.7 cfs

Notes:

1 – The onsite volume retained equals the total onsite volume generated, with the exception of the 24-hour storm duration. This duration resulted in a larger volume than available to store within the basin, therefore a corresponding flow rate was calculated on the recess limb of the hydrograph where the calculations reached 3.0960 ac-ft of volume generated, equaling 5.53 cfs of outflow.
2 – The offsite Volume retained for the basin was determined in the previous summary tables by taking the delta volume difference between the rising a recess limbs of the hydrograph where approximately 45.6 cfs occurs. The 3-hour, 6-hour and 24-hour durations have peak flows less than the 45.6 cfs allowable, therefore the entire flow rates for these durations will flow-by.
3 – The maximum basin outflow equals the maximum flow-by for the 1-hour storm duration, the peak flow rate for the offsite 3-hour and 6-hour storm duration, and the peak offsite flow rate plus the Basin A1 onsite outflow of 5.5 cfs, which is discussed in detail in the following paragraphs.

Since the on-site 24-hour storm duration volume generates more volume than the proposed basin can store, the corresponding flow rate that would discharge from the basin had to be determined. The basin storage volume is 3.096 ac-ft. The On-site Area A1 unit hydrograph calculations for the 100-year, 24-hour storm duration have a flow rate of 5.5 cfs at a volume of 3.0646 ac-ft, which is the closest volume to the basin volume without going over. Therefore this is the maximum flow rate that would discharge from the basin for the 100-year, 24-hour storm duration from the on-site area is 5.5 cfs. Adding this to the flow-by for the 100-year, 24-hour storm duration for the off-site area of 16.2 cfs results in a total outflow for the 24-hour storm duration of 21.7 cfs.

Basin A2 and Basin B (Unit Hydrograph Summary)

	100-Year Storm Events			
	1-Hour	**3-Hour**	**6-Hour**	**24-Hour**
On-site Flow Rate [4]	96.7 cfs	56.5 cfs	48.4 cfs	17.7 cfs
Off-site Flow Rate	159.9 cfs	98.6 cfs	82.6 cfs	36.0 cfs
Allowable Off-site Flow-By	97.5 cfs	97.5 cfs	97.5 cfs	97.5 cfs

	100-Year Storm Events			
	1-Hour	**3-Hour**	**6-Hour**	**24-Hour**
On-site Volume Generated [4]	3.0274 ac-ft	3.9614 ac-ft	4.7718 ac-ft	8.4048 ac-ft
Off-site Volume Generated	6.0253 ac-ft	7.7868 ac-ft	8.0310 ac-ft	12.9052 ac-ft
Basin Storage Volume	7.9900 ac-ft	7.9900 ac-ft	7.9900 ac-ft`	7.9900 ac-ft
On-site Volume Retained [1]	3.0274 ac-ft	3.9614 ac-ft	4.7718 ac-ft	7.9900 ac-ft
Off-site Volume Retained [2]	3.1096 ac-ft	1.2671 ac-ft	0 ac-ft	0 ac-ft
Total Volume Retained	6.1370 ac-ft	5.2285 ac-ft	4.7718 ac-ft	7.9900 ac-ft
Maximum Basin Outflow [3]	97.5 cfs	97.5 cfs	82.6 cfs	38.9 cfs

Notes:

1 – The onsite volume retained equals the total onsite volume generated, with the exception of the 24-hour storm duration. This duration resulted in a larger volume than available to store within the basin, therefore a corresponding flow rate was calculated on the recess limb of the hydrograph where the calculations reached 7.9900 ac-ft of volume generated, equaling 2.9 cfs of outflow. A detailed discussion on this is provided in the following paragraphs.
2 – The offsite volume retained for the basin was determined in the previous summary tables by taking the delta volume difference between the rising and recess limbs of the hydrograph where approximately 97.5 cfs occurs. The 6-hour and 24-hour durations have peak flows less than the 97.5 cfs allowable, therefore the entire flow rates for these durations will flow-by.
3 – The maximum basin outflow equals the maximum flow-by for the 1-hour and 3-hour storm durations, the peak flow rate for the 6-hour storm duration, and the peak offsite flow rate plus the Basin A2 and Basin B onsite outflow of 2.9 cfs, which is discussed in detail in the following paragraphs.
4 – The onsite flow rate and volume is equal to the summation of On-site Area A1 and On-site Area B flow rates and volumes.

Since the on-site 24-hour storm duration volume generates more volume than the proposed basin can store, the corresponding flow rate that would discharge from the basin had to be determined. The basin storage volume is 7.9900 ac-ft, and the summation of the volumes generated from both on-site Area A2 and B is 8.4048 ac-ft, resulting in a net excess volume of 0.4148 cfs. Since this basin has two tributary unit hydrographs that would equalize, this value was divided by two (equaling 0.2074 ac-ft) and subtracted from each on-site 100-year, 24-hour storm duration unit hydrograph total generated volume, which was 4.8091 ac-ft for Basin A2 and 3.1809 ac-ft for Basin B. The corresponding flow rates at these volumes for each hydrograph was utilized as the peak flow rate for the on-site areas that would leave the basins, 0.8 cfs and 2.1 cfs, respectively, totaling 2.9 cfs that would discharge into Culvert B1 from the on-site areas. Adding this to the 100-year, 24-hour peak flow rate for the off-site area results in a total flow rate of 38.9 cfs discharging into Culvert B1 for the 100-year, 24-hour storm duration.

At Point 1, the post-Project condition flow rate is 91.5 cfs per the post-Project rational method hydrology calculations at node 509 (see Exhibit B). A pipe and inlet would be designed to intercept 75.8 cfs of this flow rate, and discharge into Culvert A1. This would ensure that flows discharging from Culvert A1 would not exceed the pre-Project flow rates in the post-Project condition. The remaining 15.7 cfs would be intercepted on the north side and south sides of Ironwood Avenue on Nason Street, in addition to 1.6 cfs that is generated from Area E5. A special system would be constructed so that the flows intercepted by these catch basins would be allowed to bubble out of a parkway drain within Nason Street south of Ironwood Avenue.

There would be no flows at Point 2 entering the culvert system, since the maximum allowable flow for Culvert A1 would be collected at Nason Street and Ironwood Avenue via the proposed

storm drain connecting to Culvert A1. Points 3 and 4 would have the same flow rates in the post-Project condition since the same flow rate would be discharging from Culvert A1.

Point 5 would collect the off-site flows from Area A and B. Area A has a 100-year, 1-hour flow rate of 41.2 cfs leaving the splitter structure within Basin A1, and Area B has a 100-year, 1-hour flow rate of 90.1 cfs leaving the splitter structure within Basin A2, which is a total of 131.3 cfs. It should be noted that the storm drain system collecting the flows from Off-site Area A also collects a portion of the on-site areas 100-year flow rate. The storm drain would convey the flows to a structure at Basin A1 in which 41.2 cfs would bypass to Culvert B1, and the remaining 100-year flows would overtop into Basin A1. It should also be noted that during the preliminary stages, no flows would be sent to Culvert C1. Should this culvert be required during final engineering, no more than 39.2 cfs would be tributary to this culvert, which is the existing condition tributary flow rate.

By sending a total flow rate of 75.8 cfs to Culvert A1, 131.3 cfs to Culvert B1, and nothing to Culvert C1, the flows leaving TTM 37001 would be less than the pre-Project condition and therefore improve the existing flooding downstream of Ironwood Avenue.

Based upon the analyses, Point 7 would have a post-Project flow rate of 151.6 cfs, which was determined by taking the 131.3 cfs discharging form Culvert B1, and adding 20.3 cfs generate by the existing Area B12 (node 214 to 215). This flow rate is conveyed to Point 8.

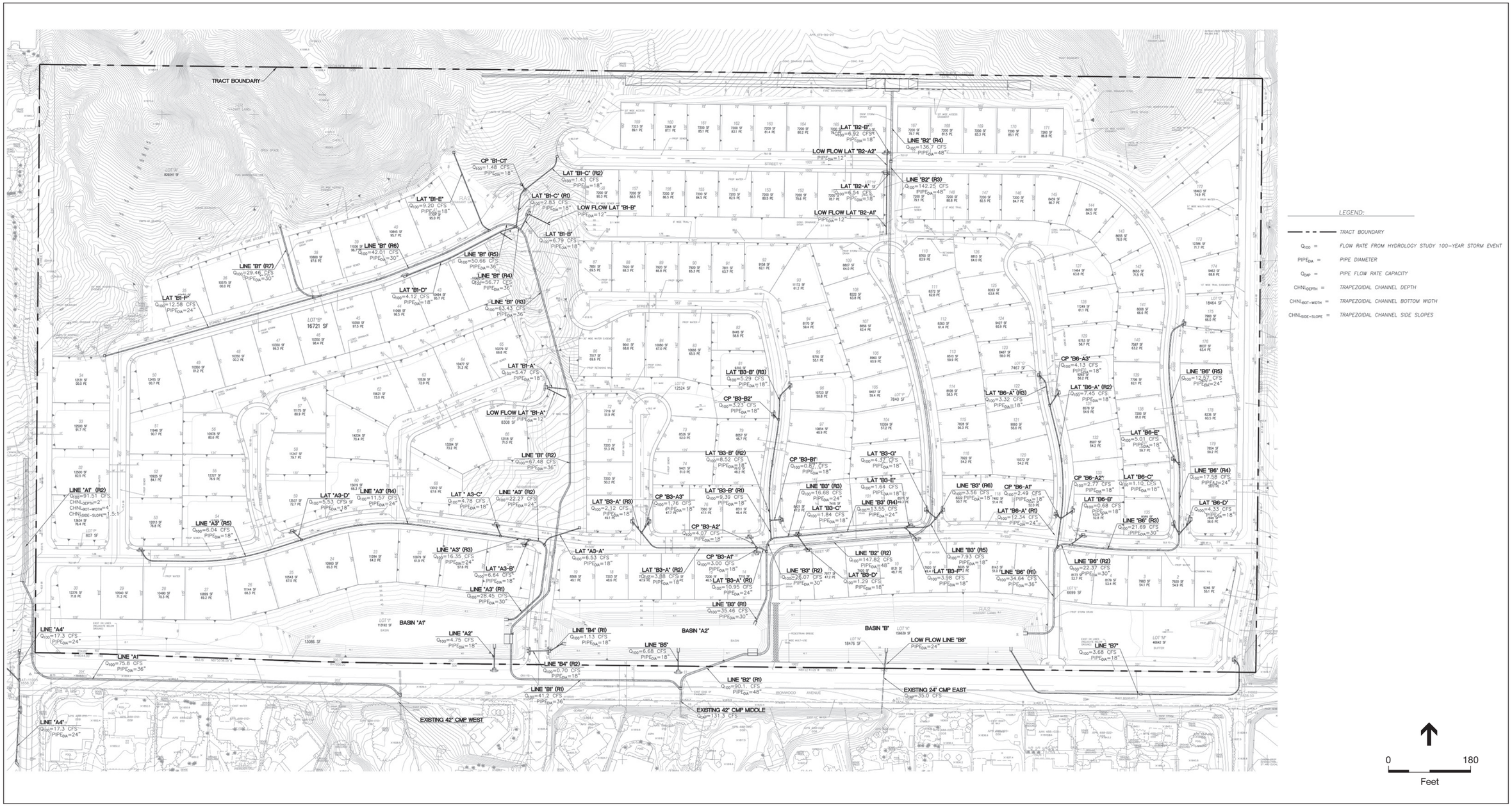
Point 9 has a post-Project flow rate of 256.5 cfs, which is the sum of the 151.6 cfs from Point 7, the 46.0 cfs from Point 4, and the existing condition flow rate for Area B13 (node 215 to 216) of 58.9 cfs.

These flow rates were utilized in the Post-Project Condition HEC-RAS analyses discussed previously. Summary tables for the increased runoff mitigation analyses have been provided in Appendix G of the Preliminary Hydrology Study.

Hydraulic Analysis

The proposed Project consists of subsurface storm drain systems and detention basins, as illustrated below in **Figure IX-5**, *Proposed Drainage Facilities Map*. The facilities would be utilized to flood protect the Project site, treat on-site flows for water quality purposes, and mitigate flows for increased runoff/address the HCOCs. During the preliminary stages, the storm drain systems were sized using normal depth.

The sizing of the preliminary storm drain systems utilized a minimum 1% slope, since this is the minimum slope of the in-tract streets. The off-site storm drain system Line A1 utilized a minimum slope of 1.5% due to the steepness of the terrain. The off-site systems utilized the adjacent roadway slope where applicable, and a 1%-2% slope in other locations.



SOURCE: JLC Engineering & Consulting, Inc., 2016

Ironwood Village Project

Figure IX-5

Proposed Drainage Facilities Map

ESA PCR

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In order to collect off-site flows tributary to the westerly Project boundary, a trapezoidal channel would be constructed adjacent to Nason Street north of Ironwood Avenue. This channel would collect the off-site flows, and discharge 75.8 cfs into Line A1. The remaining flows would be collected within one of two inlets provided at the intersection of Nason Street and Ironwood Avenue. The flows would be conveyed across Ironwood Avenue, and would bubble out of a proposed catch basin and 12-inch low-flow drain connected to a parkway drain. This modified design was provided at the request of the City of Moreno Valley to alleviate flooding at the intersection of Ironwood Avenue and Nason Street. Details for this design would be provided during final engineering.

Due to the requirement to provide a minimum 12-foot dry travel lane within the private streets for the 100-year storm event per the City of Moreno Valley Design Policy, Standard Plan MVSI-160A-0, catch basins were required in excess of those provided to meet the typical street flooding design criteria of:

- 10-year storm flows contained within the top-of-curb elevation
- 100-year storm flows contained within the right-of-way elevation

Since the hydrology calculations were based upon the 100-year storm event being contained within the top of curb elevation (which is the right-of-way), additional yield calculations and street capacity calculations were performed to determine the limits of storm drain in order to provide the 12-foot dry lane on-site. Figure IX-5, above, delineates the areas and summarizes the yield calculations. A spreadsheet has also been provided in Appendix J of the Preliminary Hydrology Study that summaries the yield calculations.

Water Quality and Hydrologic Conditions of Concern

The Project site would utilize three extended detention basins to treat for water quality purposes and to address the Hydrologic Conditions of Concern (“HCOCs”) and increased runoff mitigation.

The required water quality volume was determined by using the Santa Ana Watershed BMP Design Volume Spreadsheets. The effective impervious fraction utilized the impervious area determined by the rational method calculations for the on-site area, and multiplied the impervious fraction by 1.0 and the pervious fraction by 0.1 (which corresponds to landscaped area per the LID manual). The results are 0.55 effective impervious fraction for Area A1, 0.55 effective impervious fraction for Area A2, and 0.486 for Area B. Area B resulted in a slightly lower value due to the tributary open space area from the north easterly Project boundary.

The water quality volume, per the LID Manual, must be stored within a depth equal to or less than six inches above the surface of the soil media (which includes the voids within the soil media and gravel layer). The table below provides the required water quality volume and the volume provided within six inches of depth above the soil media:

Area	Water Quality Volume	Volume Provided with 6 Inches Above Soil Media
A1	23,805 ft^3/s	45,932 ft^3/s
A2	28,112 ft^3/s	35,159 ft^3/s
B	13,140 ft^3/s	50,949 ft^3/s

Areas A1 and A2 are greater than the maximum allowable tributary area of 25 acres, however, per meetings with the City of Moreno Valley, this additional area (0.15 acres for Area A1 and 4.7 acres for Area A2) is acceptable.

Pre-Project and Post-Project Unit hydrograph calculations were performed for the 2-year, 24-hour storm duration to determine the required storage volume to address the HCOCs. During the preliminary stages, the required volume to address the HCOCs was determined by taking the entire 2-year, 24-hour volume and retaining the volume within the basins. During final engineering, the mitigation would be validated using basin routing calculations. The following tables summarize the unit hydrograph results:

Area	Pre-Project 2-Year, 24-Hour Volume	Post-Project 2-Year, 24-Hour Volume	Basin Volume Provided
A1	**0.4191 ac-ft**	**2.0957 ac-ft**	**3.0960 ac-ft**
A2	**0.4950 ac-ft**	**2.4749 ac-ft**	**7.9900 ac-ft [1]**
B	**0.2608 ac-ft**	**1.1560 ac-ft**	**7.9900 ac-ft [1]**

Notes:

1 – Area A2 and B would be mitigated within Basins A2 and B, which would function together for addressing the hydrologic conditions of concern and increased runoff mitigation. The total 2-year, 24-hour volume to both basins from Areas A2 and B is 3.6309 ac-ft, and the basin has a total available volume of 7.9900 ac-ft, therefore the basins have sufficient volume to address the hydrologic conditions of concern.

The water quality calculations and the hydrologic conditions of concern mitigation have been included in Appendix G of the Preliminary Hydrology Study.

Hydrology and Drainage Conclusions

Drainage analyses were prepared for the Project site in order to determine the pre-Project and post-Project conditions, the required storm drain infrastructure to flood protect the Project site, and the required mitigation measures for the Project site. The following conclusions were derived from the hydrology and hydraulic results:

2. The proposed storm drain alignments would provide flood protection to the Project site for the 100-year storm events as well as provide a minimum 12-foot dry lane within the local streets during the 100-year storm event.

3. The proposed extended detention basins would adequately treat for water quality purposes and mitigate the 2-year, 24-hour storm duration post-Project condition to pre-Project levels.

4. The Project would discharge flows equal to the existing culvert capacities or existing tributary flow rates, whichever is less, for the 100-year storm event. During final engineering, detailed basin routing calculations would be performed to validate the basin and flow-by structure designs.

5. The Project site would not adversely impact downstream properties by mitigating increased flows to less than or equal to pre-Project levels.

Would the Project:

a. Violate any water quality standards or waste discharge requirements?

Less Than Significant Impact. During construction, the Project would be required to implement an approved Stormwater Pollution Prevention Plan (SWPPP) throughout all grading and building activities in accordance with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Construction Permit. The SWPPP would prescribe various stormwater Best Management Practices ("BMPs") to be implemented on and around the Project site that would minimize the potential for adverse water quality impacts to downstream receiving water bodies. Given implementation of a Project-specific SWPPP during construction activities, as required by the City and the Santa Ana Regional Water Quality Control Board (RWQCB), Project-related construction activities would not violate any water quality standards or waste discharge requirements of the RWQCB and water quality-related impacts in this regard would be less than significant.

With regard to long-term operations, as discussed above, the proposed Project would be required to implement an approved WQMP that requires various stormwater features, most notably the proposed on-site detention basins, which are designed to address both hydrology/flooding and water quality issues. The proposed on-site stormwater facilities illustrated above in Figure IX-5 include catch basins, local storm drains, lateral drains, and Basins A1, A2, and B, all of which would be owned and maintained in perpetuity by the on-site Homeowners' Association(s). The Project-specific WQMP, which is included in Appendix G of this Initial Study, concludes that the provision of Basins A1, A2, and B, which are sized to accommodate stormwater flows from a 2-year, 24-hour event, would mitigate any HCOCs regarding stormwater volumes affecting downstream drainage areas. No HCOCs or other water quality-related issues are cited in the WQMP, and thus with implementation of the Project-specific WQMP, as approved by the City and/or the RWQCB, the Project would not violate any water quality standards or waste discharge requirements and water quality-related impacts in this regard would be less than significant.

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 level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned land uses for which permits have been granted)?

Less Than Significant Impact. As discussed in the Phase I Environmental Site Assessment (ESA) prepared for the Project, and included as Appendix F of this Initial Study, the California Department of Water Resources Water Data Library website does not indicate the presence of

water supply wells located on the subject property (Township 02 South, Range 03 West, Section 34); however, two wells were indicated within one-mile of the subject property. Data indicated depth to groundwater in Well No. EMWD12003, located approximately three-quarter miles northeast, was 239 feet as measured in 2014. Data from the second nearby well, state Well No. 002S03W34C001S, located approximately eight-tenths of a mile north-northwest, indicated depth to groundwater was 240 feet, as measured in 2014. Based on these considerations, groundwater is neither expected to be encountered during construction, nor have a detrimental effect on the Project. Therefore, construction activities would not substantially deplete groundwater supplies or interfere with groundwater recharge.

No known aquifer conditions exist on the Project site or in the surrounding area which could be intercepted by excavation or development of the Project. The Project would not install any groundwater wells or otherwise directly withdraw groundwater. As discussed further below in Section XVII, Utilities and Service Systems, of this Initial Study, the Project would connect to the existing water supply system owned and operated by Eastern Municipal Water District ("EMWD"), which serves the Project site and surrounding areas. While the EMWD receives some its supply from groundwater, a significant portion of the water supply is imported water from the Metropolitan Water District ("MWD"). Under normal operation, the Project would use approximately 41,268 gpd, or 15,062,820 gallons per year (approximately 46 AFY) when fully occupied. The proposed water usage would be negligible in comparison to the overall water service provided by the EMWD and would not result in significant impacts from depletion of groundwater supplies. Compliance with water conservation measures such as those required by Titles 20 and 24 of the California Administrative Code and the City of Moreno Valley Energy Efficiency and Climate Action Strategy would help to reduce this projected water demand. Further, the Project does not propose to extract groundwater and therefore would not deplete groundwater supplies. As such, construction and operation of the Project would not substantially deplete groundwater supplies or result in a substantial net deficit in the aquifer volume or lowering of the local groundwater table. Thus, less than significant impacts would occur in this regard.

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 which would result in substantial erosion or siltation on- or off-site?

Less Than Significant Impact. As noted above, Project construction activities would be required to implement a Project-specific SWPPP, which addresses, among other issues, temporary erosion and sedimentation effects. As such, with implementation of an approved SWPPP for the Project, construction-related erosion and sedimentation impacts would be less than significant. In addition, the Project would permanently modify the existing drainage pattern of the Project site and surrounding area through development of a residential subdivision on the property. However, as discussed in detail above under Preliminary Hydrology Study Summary, the Project has been designed to include various on- and off-site stormwater facilities, most notably the on-site extended detention basins (Basins A1, A2, and B), which would retain stormwater flows for an extended period of time and also limit stormwater flows leaving the Project site to pre-Project levels. The proposed on- and off-site stormwater improvements and detention basins depicted above in Figure IX-5, which are required as part of the Project's

WQMP, would effectively preclude the potential for the Project to result in increased on- or off-site erosion or sedimentation during long-term Project operation. Thus, with implementation of the Project-specific WQMP, operation of the Project would not result in substantial erosion or siltation on- or off-site and impacts in this regard would be less than significant.

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 in a manner which would result in flooding on- or off site?

Less Than Significant Impact. As discussed in Response IX.c., above, the Project would implement a Project-specific WQMP that requires construction of on-site extended detention basins to limit the volume and rate of stormwater flows leaving the Project site to pre-Project conditions. Thus, with implementation of the Project-specific WQMP, the amount of stormwater generated on-site or otherwise flowing from the site to downstream areas, most notably the residential neighborhood immediately south of the Project site across Ironwood Avenue, would not be increased relative to existing conditions. As such, implementation of the proposed Project and associated WQMP would not increase the rate or amount of surface runoff in a manner which would result in flooding on- or off site, and impacts would be less than significant.

e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less Than Significant Impact. As discussed previously, the Project would implement a Project-specific WQMP and construct various stormwater facilities as shown in Figure IX-5 above that have been designed and sized to meet or exceed projected stormwater volumes during major storm events. The Project's detention basins would retain all stormwater in excess of existing flow volumes on-site and drain the excess volume into the City's storm drain system at a steady rate in a manner that does not exceed the capacity of these off-site facilities. Thus, the Project would not have the potential to exceed the capacity of existing or planned stormwater drainage systems. The proposed Project would involve the development of a single-family residential neighborhood on a currently vacant, undeveloped site, and thus the proposed development would not include land uses that would be expected to generate substantial pollutants that could potentially affect stormwater quality. Further, as noted above, the Project-specific WQMP would be implemented throughout Project operation and therefore would minimize the potential for the Project to generate substantial additional sources of polluted runoff. Therefore, impacts in this regard would be less than significant.

f. Otherwise substantially degrade water quality?

Less Than Significant Impact. The Project would not generate substantial pollutant volumes based on the nature of single-family residential developments and the lack of any known on-site hazardous materials conditions that could potentially result in increase pollutant loads in stormwater flows leaving the site. In addition, the Project would implement an approved WQMP and maintain required BMPs, including the on-site detention basins and other facilities, in perpetuity in order to ensure that the proposed development does not adversely affect water

quality in stormwater runoff. As such, the Project would have little potential to otherwise substantially degrade water quality and impacts would be less than significant.

g. Place housing within a 100-year flood hazard area as mapped on federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. According to the Federal Emergency Management Agency (FEMA) National Flood Hazard Map data[15], the Project site is not located within the boundaries of a 100-year flood hazard area. Thus, the development of housing within the Project site would not result in a flood risk for people or property within the Project boundaries. As such, no impact would occur.

h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

No Impact. As noted above, the Project site is not located within the boundaries of a 100-year flood hazard area. Thus, implementation of the proposed residential Project would not place structures which would impede or redirect flood flows within a 100-year flood hazard area. As such, no impact would occur.

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?

No Impact. The Project site is not located in an area subject to flooding, and there are no reservoirs, lakes, or other water bodies, nor any dams or levees upstream of the Project site that could potentially result in flooding at this location. As such, the Project would not 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, and no impact would occur in this regard.

j. Inundation by seiche, tsunami, or mudflow?

No Impact. A seiche is an oscillation of a body of water in an enclosed or semi-enclosed basin, such as a reservoir, harbor, lake, or storage tank. A tsunami is a great sea wave, commonly referred to as a tidal wave, produced by a significant undersea disturbance such as tectonic displacement of the sea floor associated with large, shallow earthquakes. Mudflows result from the downslope movement of soil and/or rock under the influence of gravity. The Project site is not located in a coastal area or near any inland bodies of water, and thus there would be no potential for the Project to affect or be affected by seiches or tsunamis.

As mentioned above in Section VII, Geology and Soils, of this Initial Study, the Project site is not located within an area identified as having a potential for mass slope instability such that sizeable landslides or mudflows could occur. Despite the incidental rock fall hazards along the rock outcroppings in the northwest portion of the property, there are no known landslides near the

[15] Federal Emergency Management Agency. *FEMA Flood Map Service Center*, https://msc.fema.gov/portal. Panels 06065C0755G and 06065C0760G. Accessed August 17, 2016.

Project site, nor is the site in the path of any known or potential landslides. Thus, no impact associated with inundation by seiche, tsunami, or mudflows would occur.

X. Land Use and Planning

Would the Project:

a. Physically divide an established community?

No Impact. The Project site is located on vacant land surrounded by existing single-family residential neighborhoods to the west and south and vacant land to the north and east. The proposed single-family homes would be consistent with the existing land use pattern in the area and would be designed to be compatible with the surrounding land uses. While the proposed Project would introduce new single-family residential uses to the currently undeveloped Project site, such development would be consistent with existing lower density residential development in the northern portion of the City of Moreno Valley and would be similar to future residential uses planned for surrounding parcels in the area. Thus, the proposed Project would not physically divide an established community and no impact would occur in this regard.

b. Conflict with 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, coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

Less Than Significant Impact. The City of Moreno Valley General Plan designates the Project site as Residential 2, which is intended for low density land uses with a maximum of two dwelling units per acre, while the site is zoned RA2 which also limits single-family development density to a maximum density of two units per acre. As discussed in Attachment A, Project Description, of this Initial Study, the proposed Project would entail the construction of a new, 181-unit single-family residential development on the currently undeveloped approximately 75-acre Project site. Lot sizes for the proposed single-family homes would range from a minimum of 7,200 square feet to over 17,200 square feet, with an average lot size of approximately 9,260 square feet. In order to accommodate the proposed density on the Project site, which is currently zoned RA2 with a density of up to two units per acre, the applicant is requesting a General Plan Amendment to change the land use designation from Residential 2 to a mix of Residential 3 and Residential 5 (see Figure A-3 in Attachment A, Project Description, of this Initial Study), and similarly, a change of zone from RA2 to R3 (single-family residential up to 3 units per acre) on the western portion of the Project site and R5 (single-family residential uses up to 5 units per acre) on the eastern portion of the site. As such, the residential density would be lower on the western side of the Project site, to the west of a proposed open space and recreation corridor that would bisect the property in a north-south orientation, while higher density development would be located east of the of this corridor. According to Chapter 9, Goals and Objectives, of the City's 2006 General Plan, 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 (Policy 2.2.6), while the primary purpose of areas designated Residential 5 is to provide for single-family

detached housing on standard sized suburban lots (Policy 2.2.7). The shift in density on-site under the proposed Project is intended to serve a transition between existing lower density R1 residential uses immediately to the west of the Project site across Nason Street and existing R2 residential uses to the south and farther to the east across Moreno Beach Drive, as well as R2 or potentially higher density residential uses immediately to the east of the Project site, and thus would be consistent with the intent of Policies 2.2.6 and 2.2.7 as relates to providing single-family residential uses that transition from lower density neighborhoods to higher density developments.

The proposed Project is proposed to be implemented in accordance with the Ironwood Village Design Guidelines (Design Guidelines), which would serve as a guide for implementation of the residential development. The Design Guidelines, which would be subject to review and approval by the City, would include site development regulations in order to provide cohesive design throughout the Ironwood Village Project, and would be consistent with Section 9.03.040 (Residential site development standards) of the Moreno Valley Municipal Code (MVMC). The Ironwood Village Project would conserve the northwestern hillside areas of the Project site and would not build any physical improvements in that area. The proposed Project is designed to respect the existing topography, maintain rock outcroppings where feasible and provide a transition into the hillside areas.

The land use and zoning designations for the site permit residential uses such as those proposed by the Project, albeit at a lower density. As such, the Project would require approval of a The proposed single-family residences would be a maximum of two-stories and up to 35 feet in height relative to lot grade, which is consistent with the two-story, 35-foot height limit for single-family residential uses within the R3 and R5 zones per Section 9.03.040 of the MVMC. Overall, by proposing 181 single-family residences and associated change of zone from R2 to R3 and R5 on the Project site, the Project would be consistent with the allowable uses set forth in the City's general plan and zoning code and would provide a logical extension of existing single-family residential development along Ironwood Avenue in the northern portion of the City of Moreno Valley. Thus, based on the preceding discussion, the proposed Project would not conflict with the City's General Plan or MVMC. It should be noted that because the Project proposes the construction of up to 181 new single-family homes on land already designated for similar uses, it is not considered regionally significant[16] and thus analysis of the Project's consistency with various Southern California Association of Governments (SCAG) plans and programs is not required. Therefore, less than significant land use impacts relative to consistency with plans, policies, or regulations of agencies with jurisdiction over the Project site would occur.

c. Conflict with any applicable habitat conservation plan or natural community conservation plan?

Less Than Significant Impact With Mitigation Incorporated. Refer to Response IV.f. above, under Section IV, *Biological Resources*, of this Initial Study.

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16 Per California Environmental Quality Act Section 15206(b)(2)(A), Projects of Statewide, Regional, or Areawide Significance include proposed residential developments of more than 500 dwelling units.

XI. 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?

No Impact (a-b). Minerals are defined as any naturally occurring chemical elements or compounds formed from inorganic processes and organic substances. The California Surface Mining and Reclamation Act of 1975 (SMARA) requires that all cities address significant mineral resources, classified by the State Geologist and designated by the State Mining and Geology Board, in their General Plans. According to the GP FEIR, no regionally or statewide significant mineral resources are located within the City. As such, the potential of uncovering mineral resources during Project construction is considered low. Therefore, the Project would not result in the loss of availability of a known mineral resource delineated on a local general plan, specific plan, or other land use plan as there are no known mineral resources or mineral resource recovery sites on or near the Project site. No impact would occur in this regard.

XII. Noise

The following impact analysis pertaining to noise impacts is based on information contained in the Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley *(herein referred to as the "Noise Impact Analysis"), prepared by Urban Crossroads, dated August 31, 2015. The Noise Impact Analysis is provided in Appendix H.*

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?

Less Than Significant Impact With Mitigation Incorporated.

Applicable Noise and Vibration Regulations

City of Moreno Valley General Plan Safety Element

The City's General Plan does not include a noise element or specific transportation-related noise standards. Rather, noise is considered in Section 6.4 of the Environmental Safety section of the General Plan Safety Element. 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. Instead, the General Plan includes policies associated with each element in Chapter 9, Goals and Objectives. The objectives identified in Chapter 9 of the General Plan to address potential noise impacts are listed below:

Objective 6.3: Provide noise compatible land use relationships by establishing noise standards utilized for design and siting purposes.

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.

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.

The General Plan's policies act to ensure that when exterior noise levels exceed 65 A-weighted decibels (dBA) community noise-equivalent level (CNEL) at sensitive land uses, mitigation is provided to ensure that interior noise levels of 45 dBA CNEL are maintained. The General Plan's policies in this regard are consistent with, and support, the California Building Code interior noise standards.

City of Moreno Valley Municipal Code Noise Standards

The most effective method to control community noise impacts from non-transportation noise sources (such as playgrounds, trash compactors, air-conditioning units, etc.) is through the application of a noise control ordinance. For the purpose of Noise Impact Analysis, the potential non-transportation noise impacts include Project-related short-term construction activities during the permitted hours of construction established in the MVMC. As a subset of its stationary-source noise regulations, the MVMC establishes restrictions on construction-source noise. More specifically, MVMC 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.

The City defines a "noise disturbance" as any sound which:

Disturbs a reasonable person of normal sensitivities; exceeds the sound level limits set forth in this chapter [Section 11.80.030(C)]; or 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 (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.

Therefore, Project construction shall be limited to the hours of 7:00 AM to 8:00 PM on any day and may not generate a noise level at 200 feet from the property line which exceeds the noise standards provided in the Noise Ordinance, Section 11.80.030(C), Non-impulsive Sound Decibel Limits, which states the following:

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 non-impulsive sound which exceeds the limits set forth for the source land use category 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.

Even though the MVMC does not identify specific construction noise limits, the Code does provide noise level limits for the source land use category when measured at a distance of 200 feet. For the purpose of Noise Impact Analysis, the Project is considered a residential land use since it is land primarily for dwelling units, as defined by the MVMC. For residential land uses, the City's 60 dBA equivalent continuous (average) sound level (Leq) noise level standard at a distance of 200 feet is used as the limit for this analysis to assess the construction noise level impacts at sensitive receivers in the Project study area. Therefore, to conform to the applicable provisions of the MVMC, the maximum allowable noise generated by on-site construction activities when measured at 200 feet from any property line, shall not exceed 60 dBA Leq.

Construction Vibration Standards

To analyze the vibration impacts originating from the construction of a project, vibration from construction activities are typically evaluated against standards established under a city's municipal code. The MVMC, however, does not identify specific vibration standards for construction. Therefore, the construction-related vibration standards provided by the United States Department of Transportation Federal Transit Administration (FTA) are used in this analysis to assess the potential vibration impacts due to Project construction.

FTA Vibration Standards

The FTA identifies guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines allow 80 vibration decibels (VdB) for residential uses and buildings where people normally sleep. Construction activity 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 to no ground vibration. Occasionally large bulldozers and loaded trucks can cause perceptible vibration levels at close proximity. While not enforceable regulations within the City, the FTA guidelines of 80 VdB for sensitive land uses provide the basis for determining the relative significance of potential Project-related vibration impacts. For this analysis, the FTA-provided 80 VdB vibration standard represents residential annoyance as perceived by the nearby sensitive receivers in the Project study area.

Thresholds of Significance

The following significance thresholds evaluate potential noise and vibration impacts of the Project based on the regulatory framework described above; refer to **Table XII-1**, *Significance*

Criteria Summary. The Project would result in potentially significant impacts under the following circumstances:

TABLE XII-1
SIGNIFICANCE CRITERIA SUMMARY

Analysis	Condition(s)	Significance Criteria	
		Daytime	**Nighttime**
Off-Site[a]	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[b]	Exterior residential land use	65 dBA CNEL	
	Interior residential land use	45 dBA CNEL	
Construction[c]	Permitted hours of 7:00 a.m. to 8:00 p.m. on any day.		
	Noise Level Threshold	60 dBA Leq @ 200[a]	n/a
	Vibration Level Threshold[d]	80 VdB	n/a

a Source: FICON, 1992.
b Source: City of Moreno Valley General Noise Element, Policy 6.3.1.
c Source: City of Moreno Valley Municipal Code Section 11.80.030(D)(7) (Appendix 3.1).
d Source: FTA Transit Noise and Vibration Impact Assessment, May 2006.
"Daytime" = 8:00 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:59 a.m.; "n/a" = No nighttime construction activity is permitted and therefore, no nighttime construction noise and vibration thresholds are identified.

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

Off-Site Traffic Noise

If the off-site traffic noise levels at nearby noise-sensitive land uses adjacent to roadways conveying Project traffic:

- 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 noise level increase; or
- already exceeds 65 dBA CNEL, and the Project creates a community noise level impact of greater than 1.5 dBA CNEL.

On-Site Traffic Noise

If the on-site exterior noise levels exceed 65 dBA CNEL at the residential land uses within the Project site. Interior noise levels shall not exceed 45 dBA CNEL for residential land uses.

Construction Noise and Vibration

If Project-related construction activities:

- occur anytime other than between the permitted hours of 7:00 AM and 8:00 PM on any day; or
- create noise levels at sensitive residential receivers in the City of Moreno Valley which exceed the short-term construction noise level limit of 60 dBA Leq at 200 feet from the Project site; or
- if short-term Project generated construction vibration levels exceed the FTA maximum acceptable vibration standard of 80 VdB at sensitive receiver locations.

Existing Conditions.

To assess the existing noise level environment, five 24-hour noise level measurements were taken at sensitive 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. **Figure XII-1**, *Noise Measurement Locations,* 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 on Wednesday, January 28, 2015. The noise measurements presented below focus on the Leq which represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. **Table XII-2**, *24-Hour Ambient Noise Level Measurements*, identifies the hourly daytime (8:00 AM to 10:00 PM) and nighttime (10:01 PM to 7:59 AM) noise levels at each noise level measurement location.

Location L1: represents the noise levels at the northeastern corner of Ironwood Avenue and Nason Street near existing residential homes across Ironwood Avenue. The noise level measurements collected show an overall 24-hour exterior noise level of 63.6 dBA CNEL. The hourly noise levels measured at location L1 ranged from 55.5 to 61.9 dBA Leq during the daytime hours and from 45.3 to 62.8 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 60.1 dBA Leq with an average nighttime noise level of 57.1 dBA Leq.

Location L2: represents the noise levels in the northwestern portion of the Project site, east of existing residential homes across Nason Street. The noise level measurements collected show an overall 24-hour exterior noise level of 55.4 dBA CNEL. The hourly noise levels measured at location L2 ranged from 45.4 to 50.2 dBA Leq during the daytime hours and from 44.2 to 52.8 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 48.7 dBA Leq with an average nighttime noise level of 49.0 dBA Leq.

SOURCE: Urban Crossroads, 2015

Ironwood Village Project

Figure XII-1

Noise Measurement Locations

ESA PCR

TABLE XII-2
24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location [a]	Distance from Project Site (Feet)	Description	Hourly Noise Level (dBA Leq)[b]		CNEL
			Daytime	Nighttime	
L1	0'	Located at the northeastern corner of Ironwood Avenue and Nason Street near existing residential homes across Ironwood Avenue.	0.1	57.1	63.6
L2	0'	Located in the northwestern portion of the Project site, east of existing residential homes across Nason Street.	48.7	49.0	55.4
L3	96'	Located at the southwestern corner of Ironwood Avenue and Oliver Street adjacent to an existing residential home.	59.7	56.1	63.0
L4	0'	Located north of Ironwood Avenue on the eastern Project site boundary.	49.7	49.1	55.5
L5	81'	Located south of the Project site across Ironwood Avenue adjacent to existing residential homes.	69.9	66.8	73.2

a See Exhibit 5-A for the location of the noise level measurement locations.
b Energy (logarithmic) average hourly levels. The long-term 24-hour measurement printouts 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.

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

Location L3: represents the noise levels at the southwestern corner of Ironwood Avenue and Oliver Street adjacent to an existing residential home. The 24-hour CNEL indicates that the overall exterior noise level is 63.0 dBA CNEL. At location L3 the background ambient noise levels ranged from 56.2 to 61.9 dBA Leq during the daytime hours to levels of 46.8 to 61.0 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 59.7 dBA Leq with an average nighttime noise level of 56.1 dBA Leq.

Location L4: located on the eastern Project site boundary, represents the noise levels north of Ironwood Avenue at the Project site. The noise level measurements collected show an overall 24-hour exterior noise level of 55.5 dBA CNEL. The hourly noise levels measured at location L4 ranged from 46.7 to 51.2 dBA Leq during the daytime hours and from 43.6 to 53.2 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 49.7 dBA Leq with an average nighttime noise level of 49.1 dBA Leq.

Location L5: represents the noise levels south of the Project site across Ironwood Avenue adjacent to existing residential homes. The 24-hour CNEL indicates that the overall exterior noise level is 73.2 dBA CNEL. At location L5 the background ambient noise levels ranged from 66.7 to 71.6 dBA Leq during the daytime hours to levels of 58.2 to 72.2 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 69.9 dBA Leq with an average nighttime noise level of 66.8 dBA Leq,

Table XII-2, 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. The background ambient noise levels in the Project study area dominated by transportation related noise associated with the arterial roadway network. This includes the automobile and heavy truck activities near the noise level measurement locations. The 24-hour existing noise level measurements shown in Table XII-2 presents the worst-case existing unmitigated ambient noise conditions.

Sensitive Receivers

To assess the potential for short-term construction noise impacts, the following nine receiver locations, as shown on **Figure XII-2**, *Receiver Locations*, were identified as representative locations for the 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.

Representative sensitive receivers in the vicinity of the Project site include existing residential homes represented by receiver locations R1 to R9. The nearest sensitive receiver is represented by location R1 where an existing residential home is located approximately 40 feet west of the Project site.

R1: Located approximately 40 west of the Project site, R1 represents existing residential homes at the northwest corner of Nason Street and Sandi Lane.

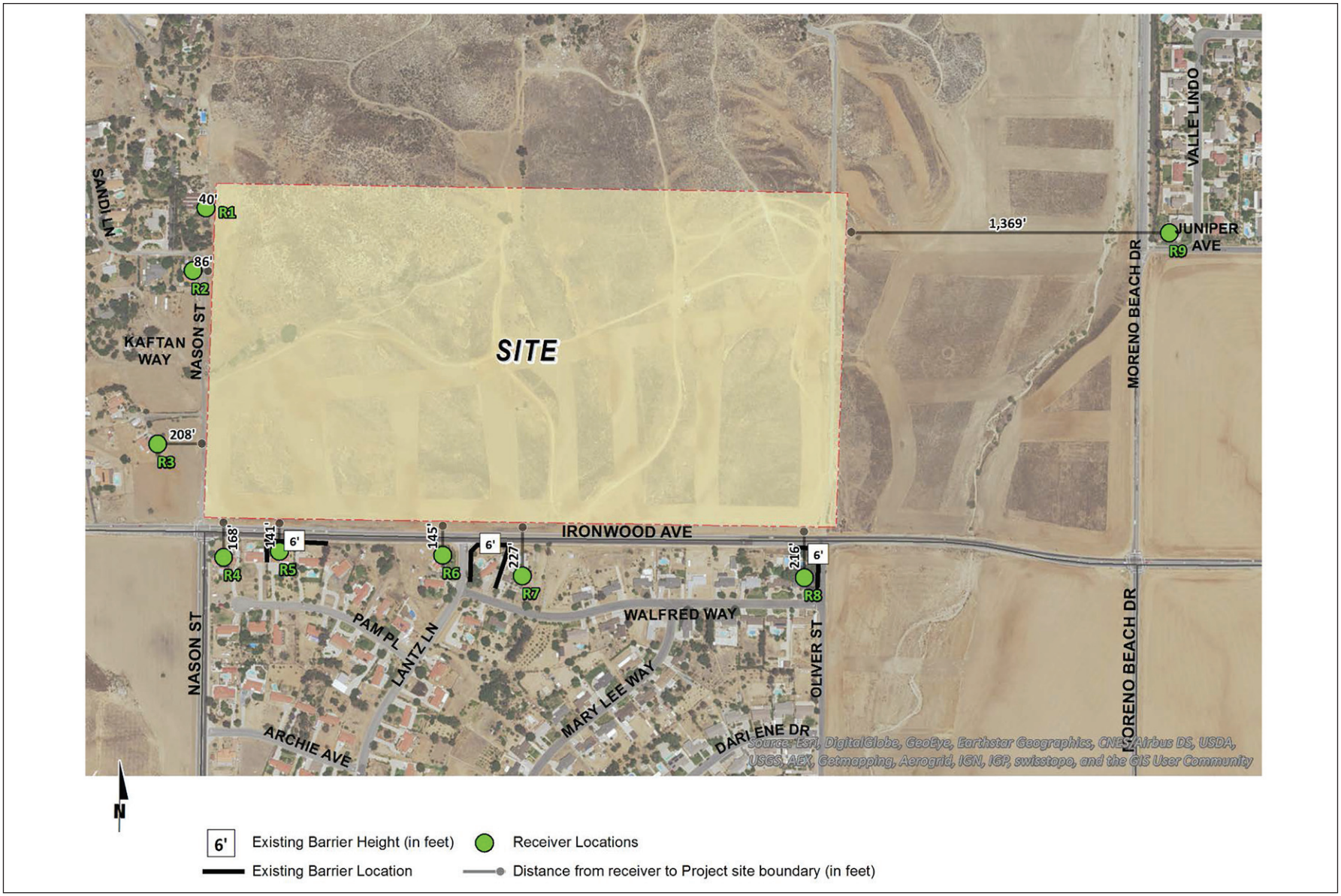
R2: Location R2 represents the existing single-family residential home located approximately 86 feet west of the Project site across Nason Street.

R3: Location R3 represents the existing residential homes situated west of the Project site across Nason Street at a distance of approximately 208 feet.

R4: Location R4 represents the existing residential home situated approximately 168 feet south of the Project site across Ironwood Avenue.

R5: At a distance of approximately 141 feet, location R5 represents single-family residential homes south of the Project site across Ironwood Avenue.

R6: At a distance of approximately145 feet south of the Project site, R6 describes the residential homes located at the southwest corner of Ironwood Avenue and Lantz Lane.



SOURCE: Urban Crossroads, 2015

Ironwood Village Project

Figure XII-2

Receiver Locations

ESA PCR

R7: Location R7 represents existing single-family residential homes located south of the Project at a distance of approximately 227 feet on Walfred Way.

R8: Location R8 represents the existing residential home situated approximately 216 feet south of the Project site at the northwest corner of Walfred Way and Oliver Street.

R9: Location R9 represents the existing residential community located approximately 1,369 feet east of the Project site.

Short-Term Construction Noise

Noise generated by the Project construction equipment would 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 during grading, paving, building construction, and architectural coating. Noise levels generated by heavy construction equipment can range from approximately 62 dBA to 76 dBA when measured at 200 feet. However, these noise levels diminish with distance from the construction site at a rate of 6 dBA per doubling of distance. **Table XII-3**, *Grading Equipment Noise Levels*, **Table XII-4**, *Paving Equipment Noise Levels*, **Table XII-5**, *Building Construction Equipment Noise Levels*, and **Table XII-6**, *Architectural Coating Equipment Noise Levels*, present the short-term construction noise levels at a distance of 200 feet from the center of construction activity for each stage of construction. **Table XII-7**, *Unmitigated Construction Equipment Noise Level Summary*, provides a summary of the construction noise levels by phase at the nine noise receiver locations. Based on the four stages of construction, the noise impacts associated with the Project are expected to create temporary high noise levels at the nearby receiver locations. To assess the construction noise levels at each receiver location, this analysis shows the construction noise levels by phase when all heavy equipment is operating simultaneously at a distance of roughly 100 feet from the Project site boundary. Figure XII-2 displays the receiver locations and construction activity locations used in this analysis.

Construction activities are estimated to occur during the permitted hours of 7:00 AM to 8:00 PM on any day, based on the MVMC. As shown in Table XII-7, the unmitigated peak construction noise levels are expected to range from 46.2 dBA Leq to 66.6 dBA Leq. Based on the construction noise standards described above, the potential short-term unmitigated construction noise level impacts are expected to exceed the acceptable construction noise level threshold of 60 dBA Leq at nearby sensitive receiver locations R1, R2, R4, and R6 during the permitted hours of construction activity. Therefore, temporary noise abatement would be needed to reduce the potential construction noise impacts. With the installation of temporary exterior noise control barriers providing a minimum attenuation of 10 dBA, construction noise levels at the nearby residential receivers would be reduced, but not eliminated.

TABLE XII-3
GRADING EQUIPMENT NOISE LEVELS

Equipment Type[a]	Quantity	Usage Factor[b]	Hours Of Operation[c]	Reference Noise Level @50 Feet (dBA Lmax)	Combined Level @ 200 Feet (dBA Leq)
Excavators	2	40%	3.2	81.0	68.0
Graders	1	40%	3.2	85.0	69.0
Water Trucks	1	40%	3.2	76.0	60.0
Rubber Tired Dozers	1	40%	3.2	82.0	66.0
Scrapers	2	40%	3.2	84.0	71.0
Tractor/Loader/Backhoes	2	40%	3.2	79.0	66.0
Combined Hourly Noise Levels 200 Feet (dBA Leq)					75.5
Distance to 65 dBA Leq Contour (Feet)					672'
Construction Noise Reference Distance	Distance To Construction Activity (Feet)[d]		Distance Attenuation (dBA Leq)[e]	Estimated Existing Barrier Attenuation (dBA Leq)[f]	Construction Noise Level (dBA Leq)
R1	140'		-8.9	0.0	66.6
R2	186'		-11.4	0.0	64.1
R3	308'		-15.8	0.0	59.7
R4	269'		-14.6	0.0	60.9
R5	241'		-13.7	-5.0	56.9
R6	245'		-13.8	0.0	61.7
R7	327'		-16.3	0.0	59.2
R8	316'		-16.0	-5.0	54.5
R9	1,469'		-29.4	0.0	46.2

[a] Source: FHWA's Roadway Construction Noise Model, January 2006.
[b] Estimates the fraction of time each piece of equipment is operating at full power during a construction operation.
[c] Represents the actual hours of peak construction equipment activity out of a typical 8 hour workday.
[d] Distance from the nearest point of construction activity to the nearest receiver.
[e] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[f] Estimated barrier attenuation provided by the existing barriers in the Project study area.

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

TABLE XII-4
PAVING EQUIPMENT NOISE LEVELS

Equipment Type[a]	Quantity	Usage Factor[b]	Hours Of Operation[c]	Reference Noise Level @ 50 Feet (dBA Lmax)	Combined Level @ 200 Feet (dBA Leq)
Pavers	2	50%	4.0	77.0	65.0
Paving Equipment	2	40%	3.2	76.0	63.0
Rollers	2	20%	1.6	80.0	64.0
Combined Hourly Noise Levels 200 Feet (dBA Leq)					68.8
Distance to 65 dBA Leq Contour (Feet)					311'

Construction Noise Reference Distance	Distance To Construction Activity (Feet)[d]	Distance Attenuation (dBA Leq)[e]	Estimated Existing Barrier Attenuation (dBA Leq)[f]	Construction Noise Level (dBA Leq)
R1	140'	-8.9	0.0	59.9
R2	186'	-11.4	0.0	57.4
R3	308'	-15.8	0.0	53.0
R4	269'	-14.6	0.0	54.2
R5	241'	-13.7	-5.0	50.2
R6	245'	-13.8	0.0	55.0
R7	327'	-16.3	0.0	52.5
R8	316'	-16.0	-5.0	47.8
R9	1,469'	-29.4	0.0	39.5

[a] Source: FHWA's Roadway Construction Noise Model, January 2006.
[b] Estimates the fraction of time each piece of equipment is operating at full power during a construction operation.
[c] Represents the actual hours of peak construction equipment activity out of a typical 8 hour workday.
[d] Distance from the nearest point of construction activity to the nearest receiver.
[e] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[f] Estimated barrier attenuation provided by the existing barriers in the Project study area.

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

TABLE XII-5
BUILDING CONSTRUCTION EQUIPMENT NOISE LEVELS

Equipment Type[a]	Quantity	Usage Factor[b]	Hours Of Operation[c]	Reference Noise Level @ 50 Feet (dBA Lmax)	Combined Level @ 200 Feet (dBA Leq)
Cranes	1	16%	1.3	81.0	61.0
Forklifts	3	20%	1.6	75.0	60.7
Generator Sets	1	50%	4.0	81.0	65.9
Tractor/Loader/Backhoes	3	40%	3.2	79.0	67.8
Welders	1	40%	3.2	74.0	58.0
Combined Hourly Noise Levels 200 Feet (dBA Leq)					71.1
Distance to 65 dBA Leq Contour (Feet)					405'

Construction Noise Reference Distance	Distance To Construction Activity (Feet)[d]	Distance Attenuation (dBA Leq)[e]	Estimated Existing Barrier Attenuation (dBA Leq)[f]	Construction Noise Level (dBA Leq)
R1	140'	-8.9	0.0	62.2
R2	186'	-11.4	0.0	59.7
R3	308'	-15.8	0.0	55.3
R4	269'	-14.6	0.0	56.5
R5	241'	-13.7	-5.0	52.5
R6	245'	-13.8	0.0	57.3
R7	327'	-16.3	0.0	54.8
R8	316'	-16.0	-5.0	50.1
R9	1,469'	-29.4	0.0	41.8

[a] Source: FHWA's Roadway Construction Noise Model, January 2006.
[b] Estimates the fraction of time each piece of equipment is operating at full power during a construction operation.
[c] Represents the actual hours of peak construction equipment activity out of a typical 8 hour workday.
[d] Distance from the nearest point of construction activity to the nearest receiver.
[e] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[f] Estimated barrier attenuation provided by the existing barriers in the Project study area.

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

TABLE XII-6
ARCHITECTURAL COATING EQUIPMENT NOISE LEVELS

Equipment Type[a]	Quantity	Usage Factor[b]	Hours Of Operation[c]	Reference Noise Level @ 50 Feet (dBA Lmax)	Combined Level @ 200 Feet (dBA Leq)
Air Compressors	1	40%	3.2	78.0	62.0
Combined Hourly Noise Levels 200 Feet (dBA Leq)					62.0
Distance to 65 dBA Leq Contour (Feet)					141'

Construction Noise Reference Distance	Distance To Construction Activity (Feet)[d]	Distance Attenuation (dBA Leq)[e]	Estimated Existing Barrier Attenuation (dBA Leq)[f]	Construction Noise Level (dBA Leq)
R1	140'	-8.9	0.0	53.0
R2	186'	-11.4	0.0	50.6
R3	308'	-15.8	0.0	46.2
R4	269'	-14.6	0.0	47.4
R5	241'	-13.7	-5.0	43.3
R6	245'	-13.8	0.0	48.2
R7	327'	-16.3	0.0	45.7
R8	316'	-16.0	-5.0	41.0
R9	1,469'	-29.4	0.0	32.6

[a] Source: FHWA's Roadway Construction Noise Model, January 2006.
[b] Estimates the fraction of time each piece of equipment is operating at full power during a construction operation.
[c] Represents the actual hours of peak construction equipment activity out of a typical 8 hour workday.
[d] Distance from the nearest point of construction activity to the nearest receiver.
[e] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[f] Estimated barrier attenuation provided by the existing barriers in the Project study area.

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

While noise attenuation of greater than 10 dBA may be possible to achieve with the use of temporary barriers, the noise barrier costs are expected to increase exponentially in relation to additional attenuation provided above 10 dBA. This suggests a point of diminishing return of noise attenuation for temporary noise barriers beyond 10 dBA. While a 10 dBA reduction in sound level is considered attainable, a reduction of 15 dBA is very difficult and a 20 dBA reduction is nearly impossible. Further noise attenuation strategies include the installation of temporary barriers or window inserts and treatments at each receiver location to reduce the noise levels and block the line of sight to the source. However, the ability to install such measures at the approval of nearby homeowners may not be feasible and will vary depending on each homeowner's willingness to allow for installation. Further, noise abatement at the receiver is usually only cost-effective if fewer residences are involved as each home may require different materials based on each home's specifications. Therefore, an attainable attenuation of 10 dBA through the use of temporary construction noise barriers is recommended to reduce construction noise levels at the nearby residential receivers.

TABLE XII-7
UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Noise Receiver[a]	Distance To Construction Activity (Feet)	Construction Phase Hourly Noise Level (dBA Leq)					Potential Significant Impact c
		Grading	Paving	Building Const.	Arch. Coating	Peakb	
R1	140'	66.6	59.9	62.2	53.0	66.6	Yes
R2	186'	64.1	57.4	59.7	50.6	64.1	Yes
R3	308'	59.7	53.0	55.3	46.2	59.7	No
R4	269'	60.9	54.2	56.5	47.4	60.9	Yes
R5	241'	56.9	50.2	52.5	43.3	56.9	No
R6	245'	61.7	55.0	57.3	48.2	61.7	Yes
R7	327'	59.2	52.5	54.8	45.7	59.2	No
R8	316'	54.5	47.8	50.1	41.0	54.5	No
R9	1,469'	46.2	39.5	41.8	32.6	46.2	No

[a] Noise receiver locations are shown on Exhibit 10-A.
[b] Estimated construction noise levels during peak operating conditions.
[c] Do the peak construction noise levels exceed the City of Moreno Valley 60 dBA Leq threshold?

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

Table XII-8, *Mitigated Construction Equipment Noise Level Summary*, indicates the peak construction noise levels are expected to range from 46.2 to 56.6 dBA Leq with the attenuation provided by the temporary construction noise barriers. With the temporary noise control barrier providing a minimum attenuation of 10 dBA, the construction noise levels will satisfy the 60 dBA Leq construction noise level threshold. Although construction noise is temporary, intermittent and of short duration, and would not present any long-term impacts, MM NOISE-1 through MM NOISE-5 would reduce any noise level increases produced by the construction equipment to nearby noise-sensitive residential uses. Therefore, with incorporation of the prescribed mitigation measures, Project construction would result in a less than significant impact.

TABLE XII-8
MITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Noise Receiver[a]	Distance ToConst. Activity (Feet)	Without Temporary Noise Barriers			With Temporary Noise Barriers		
		Const. Noise Level (dBA Leq)[b]	Threshold (dBA Leq)[c]	Compliance With [d]	Attenuation	Const. Noise Levels With [e]	Compliance With [d]
R1	140'	66.6	60	No	-10.0	56.6	Yes
R2	186'	64.1	60	No	-10.0	54.1	Yes
R3	308'	59.7	60	Yes	n/a	n/a	n/a
R4	269'	60.9	60	No	-10.0	50.9	Yes
R5	241'	56.9	60	Yes	-10.0	46.9	Yes
R6	245'	61.7	60	No	-10.0	51.7	Yes
R7	327'	59.2	60	Yes	n/a	n/a	n/a

Noise Receiver[a]	Distance Const. Activity (Feet)	To Without Temporary Noise Barriers			With Temporary Noise Barriers		
		Const. Noise Level (dBA Leq)[b]	Threshold (dBA Leq)[c]	Compliance With [d]	Attenuation	Const. Noise Levels With [e]	Compliance With [d]
R8	316'	54.5	60	Yes	n/a	n/a	n/a
R9	1,469'	46.2	60	Yes	n/a	n/a	n/a

[a] Noise receiver locations are shown on Exhibit 10-A.
[b] Estimated construction noise levels during peak operating conditions, as shown on Table 10-5.
[c] Source: City of Moreno Valley Municipal Code, Section 11.80.030 (D) (7) (Appendix 3.1)
[d] Do the estimated Project construction noise levels meet the threshold of 60 dBA Leq?
[e] Peak construction noise levels with the recommended minimum temporary noise barrier attenuation of 10 dBA when operating near sensitive receiver locations.

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

Mitigation Measures

MM NOISE-1: Prior to approval of the grading plans and/or issuance of building permits, plans shall include a note indicating that noise-generating Project construction activities shall only occur between the hours of 7:00 AM and 7:00 PM, Monday through Friday, excluding holidays, and from 8:00 AM and 4:00 PM on Saturday, unless written approval is obtained from the City's building official or city engineer. The Project construction supervisor shall ensure compliance with the note and the City shall conduct periodic inspection at its discretion.

MM NOISE-2: The Project applicant shall install temporary noise control barriers that provide a minimum noise level attenuation of 10 dBA when Project construction occurs near existing noise-sensitive structures. The noise control barrier must present a solid face from top to bottom. The noise control barrier must be designed with appropriate height and length to block the view of the noise source. Unnecessary openings shall not be made.

The noise barrier may 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.

The noise barriers 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 barriers and associated elements shall be completely removed and the site appropriately restored upon the conclusion of the construction activity.

MM NOISE-3: 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.

MM NOISE-4: The construction contractor shall locate equipment staging in areas that would create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site (i.e., to the northern center) during all Project construction.

MM NOISE-5: The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment (between the hours of 7:00 AM and 7:00 PM, Monday through Friday, excluding holidays, and from 8:00 AM and 4:00 PM on Saturday, unless written approval is obtained from the City's building official or city engineer). The contractor shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.

Off-Site Traffic Noise

Traffic generated by the Project would influence the traffic noise levels in surrounding off-site areas. To quantify the off-site traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on nine roadways segments surrounding the Project site were estimated 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 of the Project's Traffic Impact Analysis. To assess the off-site transportation CNEL noise level impacts associated with the Project, noise contours were developed based on the Project's Traffic Impact Analysis. Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway. 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 Without/With Project: This scenario refers to the existing present-day noise conditions, without the Project, and with the construction of the Project.

Year 2020 Without/With Project: This scenario refers to the background noise conditions at future year 2020 with and without the Project. The With Project scenario corresponds to Year 2020 conditions and includes all cumulative projects identified in the Traffic Impact Analysis.

Year 2035 Without/With Project: This scenario refers to the background noise conditions at Future Year 2035 With and Without the Project. The With Project scenario corresponds to Year 2035 conditions and includes all cumulative projects identified in the Traffic Impact Analysis.

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 take into account the effect of any existing noise barriers or topography that may affect ambient noise levels. In addition, since the noise contours reflect modeling of vehicular noise on area roadways, the contours do not appropriately reflect noise contributions from any nearby stationary noise sources within the Project study area. **Table XII-9**, *Existing Without Project Conditions Noise Contours*, **Table XII-10**, *Existing With Project Conditions Noise Contours*, **Table XII-11**, *Year 2020 Without Project Conditions Noise Contours*, **Table XII-12**, *Year 2020 With Project Conditions Noise Contours*, **Table XII-13**, *Year 2035 Without Project Conditions Noise Contours*, **Tabled XII-14**, *Year 2035 With Project Conditions Noise Contours*, present a summary of the unmitigated exterior traffic noise levels for the nine study area roadway segments analyzed from the Without Project to the With Project conditions in each of the three timeframes: Existing, Year 2020, and Year 2035 conditions.

TABLE XII-9
EXISTING WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use [a]	CNEL at Nearest Adjacent Land Use (dBA)	Distance to Contour from Centerline (Feet) [b]		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Nason St.	s/o Ironwood Av.	Residential	64.9	RW	RW	93
2	Nason St.	n/o SR-60 WB Ramps	Residential	65.3	RW	46	100
3	Nason St.	n/o SR-60 WB Fwy	Open Space	69.6	RW	89	191
4	Nason St.	s/o SR-60 EB Ramps	Commercial	71.0	52	111	239
5	Ironwood Av.	w/o Nason St.	Residential	66.8	RW	58	126
6	Ironwood Av.	e/o Nason St.	Residential	67.4	RW	63	136
7	Ironwood Av.	e/o Lantz Ln.	Residential	67.1	RW	60	130
8	Ironwood Av.	e/o Oliver St.	Residential	67.1	RW	60	130

[a] Source: City of Moreno Valley General Plan Land Use Map, Figure 2-2.
[b] "RW" = Location of the respective noise contour falls within the right-of-way of the road.

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

TABLE XII-10
EXISTING WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use [a]	CNEL at Nearest Adjacent Land Use (dBA)	Distance to Contour from Centerline (Feet) [b]		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Nason St.	s/o Ironwood Av.	Residential	65.8	RW	49	107
2	Nason St.	n/o SR-60 WB Ramps	Residential	66.1	RW	52	112
3	Nason St.	n/o SR-60 WB Fwy	Open Space	69.8	RW	91	197
4	Nason St.	s/o SR-60 EB Ramps	Commercial	71.1	52	113	243
5	Ironwood Av.	w/o Nason St.	Residential	67.0	RW	60	130
6	Ironwood Av.	e/o Nason St.	Residential	68.0	RW	69	149
7	Ironwood Av.	e/o Lantz Ln.	Residential	67.3	RW	62	134
8	Ironwood Av.	e/o Oliver St.	Residential	67.5	RW	65	140

[a] Source: City of Moreno Valley General Plan Land Use Map, Figure 2-2.
[b] "RW" = Location of the respective noise contour falls within the right-of-way of the road.

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

TABLE XII-11
YEAR 2020 WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use [a]	CNEL at Nearest Adjacent Land Use (dBA)	Distance to Contour from Centerline (Feet) [b]		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Nason St.	s/o Ironwood Av.	Residential	68.1	RW	70	152
2	Nason St.	n/o SR-60 WB Ramps	Residential	68.3	RW	73	157
3	Nason St.	n/o SR-60 WB Fwy	Open Space	71.2	53	115	247
4	Nason St.	s/o SR-60 EB Ramps	Commercial	72.5	64	139	299
5	Ironwood Av.	w/o Nason St.	Residential	69.4	RW	86	186
6	Ironwood Av.	e/o Nason St.	Residential	69.6	RW	90	193
7	Ironwood Av.	e/o Lantz Ln.	Residential	69.4	RW	87	187
8	Ironwood Av.	e/o Oliver St.	Residential	69.4	RW	87	187

[a] Source: City of Moreno Valley General Plan Land Use Map, Figure 2-2.
[b] "RW" = Location of the respective noise contour falls within the right-of-way of the road.

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

TABLE XII-12
YEAR 2020 WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use [a]	CNEL at Nearest Adjacent Land Use (dBA)	Distance to Contour from Centerline (Feet) [b]		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Nason St.	s/o Ironwood Av.	Residential	68.5	RW	75	162
2	Nason St.	n/o SR-60 WB Ramps	Residential	68.7	RW	78	167
3	Nason St.	n/o SR-60 WB Fwy	Open Space	71.4	55	118	253
4	Nason St.	s/o SR-60 EB Ramps	Commercial	72.5	65	140	302
5	Ironwood Av.	w/o Nason St.	Residential	69.5	RW	88	189
6	Ironwood Av.	e/o Nason St.	Residential	70.1	44	96	206
7	Ironwood Av.	e/o Lantz Ln.	Residential	69.6	RW	89	192
8	Ironwood Av.	e/o Oliver St.	Residential	69.6	RW	90	193

[a] Source: City of Moreno Valley General Plan Land Use Map, Figure 2-2.
[b] "RW" = Location of the respective noise contour falls within the right-of-way of the road.

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

TABLE XII-13
YEAR 2035 WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use [a]	CNEL at Nearest Adjacent Land Use (dBA)	Distance to Contour from Centerline (Feet) [b]		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Nason St.	s/o Ironwood Av.	Residential	68.5	RW	75	162
2	Nason St.	n/o SR-60 WB Ramps	Residential	68.7	RW	78	167
3	Nason St.	n/o SR-60 WB Fwy	Open Space	71.7	57	122	264
4	Nason St.	s/o SR-60 EB Ramps	Commercial	72.9	69	148	319
5	Ironwood Av.	w/o Nason St.	Residential	69.8	RW	92	198
6	Ironwood Av.	e/o Nason St.	Residential	70.1	44	96	206
7	Ironwood Av.	e/o Lantz Ln.	Residential	69.8	RW	92	198
8	Ironwood Av.	e/o Oliver St.	Residential	69.8	RW	92	198

[a] Source: City of Moreno Valley General Plan Land Use Map, Figure 2-2.
[b] "RW" = Location of the respective noise contour falls within the right-of-way of the road.

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

TABLE XII-14
YEAR 2035 WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use [a]	CNEL at Nearest Adjacent Land Use (dBA)	Distance to Contour from Centerline (Feet) [b]		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Nason St.	s/o Ironwood Av.	Residential	68.9	RW	80	171
2	Nason St.	n/o SR-60 WB Ramps	Residential	69.1	RW	82	178
3	Nason St.	n/o SR-60 WB Fwy	Open Space	71.8	58	125	270
4	Nason St.	s/o SR-60 EB Ramps	Commercial	72.9	69	149	321
5	Ironwood Av.	w/o Nason St.	Residential	69.9	RW	93	201
6	Ironwood Av.	e/o Nason St.	Residential	70.5	47	102	219
7	Ironwood Av.	e/o Lantz Ln.	Residential	70.0	44	94	203
8	Ironwood Av.	e/o Oliver St.	Residential	70.0	44	95	205

[a] Source: City of Moreno Valley General Plan Land Use Map, Figure 2-2.
[b] "RW" = Location of the respective noise contour falls within the right-of-way of the road.

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

Existing Condition Project Traffic Noise Level Contributions

Table XII-15, *Existing Project-Related Traffic Noise Impacts*, presents a comparison of the Existing Without and With Project conditions CNEL noise levels. Table XII-9, indicates that the exterior noise levels are expected to range from 64.9 to 71.0 dBA CNEL for Existing Without Project conditions. Table XII-10 presents the Existing With Project conditions noise level contours that are expected to range from 65.8 to 71.1 dBA CNEL. As shown on Table XII-15 the Project is expected to generate an exterior noise level increase of up to 0.9 dBA CNEL. Based on the significance criteria discussed in Table XII-1, the Project-related off-site traffic noise level increases are considered a less than significant impact for all roadway segments under Existing conditions.

TABLE XII-15
EXISTING PROJECT-RELATED TRAFFIC NOISES IMPACTS

ID	Road	Segment	Adjacent Land Use [a]	CNEL at Adjacent Land Use(dBA)			Potential Significant Impact? [b]
				Without Project	With Project	Project Addition	
1	Nason St.	s/o Ironwood Av.	Residential	64.9	65.8	0.9	No
2	Nason St.	n/o SR-60 WB Ramps	Residential	65.3	66.1	0.8	No
3	Nason St.	n/o SR-60 WB Fwy	Open Space	69.6	69.8	0.2	No
4	Nason St.	s/o SR-60 EB Ramps	Commercial	71.0	71.1	0.1	No
5	Ironwood Av.	w/o Nason St.	Residential	66.8	67.0	0.2	No
6	Ironwood Av.	e/o Nason St.	Residential	67.4	68.0	0.6	No
7	Ironwood Av.	e/o Lantz Ln.	Residential	67.1	67.3	0.2	No
8	Ironwood Av.	e/o Oliver St.	Residential	67.1	67.5	0.4	No

[a] Source: City of Moreno Valley General Plan Land Use Map, Figure 2-2.
[b] Significance Criteria (Section 4, Table 4-1).

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

Year 2020 Project Traffic Noise Level Contributions

Table XII-16, *Year 2020 Project-Related Traffic Noise Impacts*, presents a comparison of the Year 2020 Without and With Project conditions CNEL noise levels. Table XII-11 indicates that the exterior noise levels are expected to range from 68.1 to 72.5 dBA CNEL for Year 2020 Without Project conditions. Table XII-12 presents the Year 2020 With Project conditions noise level contours that are expected to range from 68.5 to 72.5 dBA CNEL. As shown on Table XII-16, the Project is expected to generate an exterior noise level increase of up to 0.5 dBA CNEL. Based on the significance criterion discussed in Table XII-1, the Project-related off-site traffic noise level increases are considered a less than significant impact for all roadway segments under Year 2020 conditions.

TABLE XII-16
YEAR 2020 PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Adjacent Land Use [a]	CNEL at Adjacent Land Use(dBA)			Potential Significant Impact? [b]
				Without Project	With Project	Project Addition	
1	Nason St.	s/o Ironwood Av.	Residential	68.1	68.5	0.4	No
2	Nason St.	n/o SR-60 WB Ramps	Residential	68.3	68.7	0.4	No
3	Nason St.	n/o SR-60 WB Fwy	Open Space	71.2	71.4	0.2	No
4	Nason St.	s/o SR-60 EB Ramps	Commercial	72.5	72.5	0.0	No
5	Ironwood Av.	w/o Nason St.	Residential	69.4	69.5	0.1	No
6	Ironwood Av.	e/o Nason St.	Residential	69.6	70.1	0.5	No
7	Ironwood Av.	e/o Lantz Ln.	Residential	69.4	69.6	0.2	No
8	Ironwood Av.	e/o Oliver St.	Residential	69.4	69.6	0.2	No

[a] Source: City of Moreno Valley General Plan Land Use Map, Figure 2-2.
[b] Significance Criteria (Section 4, Table 4-1).

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

Year 2035 Project Traffic Noise Level Contributions

Table XII-17, *Year 2035 Project-Related Traffic Noise Impacts*, presents a comparison of the Year 2035 Without and With Project conditions CNEL noise levels. Table XII-13 indicates that the exterior noise levels are expected to range from 68.5 to 72.9 dBA CNEL for Year 2035 Without Project conditions. Table XII-14 presents the Year 2035 With Project conditions noise level contours that are expected to range from 68.9 to 72.9 dBA CNEL. As shown on Table XII-17, the Project is expected to generate an exterior noise level increase of up to 0.4 dBA CNEL. Based on the significance criterion discussed in Table XII-1, the Project-related off-site traffic noise level increases are considered a less than significant impact for all roadway segments under Year 2035 conditions.

Project Traffic Noise Level Contributions

The off-site traffic noise analysis identifies that the greatest Project-related noise level contribution of 0.9 dBA CNEL under Existing conditions would decrease 0.4 dBA CNEL under Year 2035 conditions. This shows that the Project's incremental traffic-related noise level increases at land uses adjacent to roadways conveying Project traffic would diminish over time. This occurs as the background traffic on the study area roadway segments increases and the Project represents a smaller percentage of the overall traffic volume. The off-site traffic noise analysis indicates that the Project's contributions to roadway noise levels would be less than significant.

TABLE XII-17
YEAR 2035 PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Adjacent Land Use [a]	CNEL at Adjacent Land Use(dBA)			Potential Significant Impact? [b]
				Without Project	With Project	Project Addition	
1	Nason St.	s/o Ironwood Av.	Residential	68.5	68.9	0.4	No
2	Nason St.	n/o SR-60 WB Ramps	Residential	68.7	69.1	0.4	No
3	Nason St.	n/o SR-60 WB Fwy	Open Space	71.7	71.8	0.1	No
4	Nason St.	s/o SR-60 EB Ramps	Commercial	72.9	72.9	0.0	No
5	Ironwood Av.	w/o Nason St.	Residential	69.8	69.9	0.1	No
6	Ironwood Av.	e/o Nason St.	Residential	70.1	70.5	0.4	No
7	Ironwood Av.	e/o Lantz Ln.	Residential	69.8	70.0	0.2	No
8	Ironwood Av.	e/o Oliver St.	Residential	69.8	70.0	0.2	No

[a] Source: City of Moreno Valley General Plan Land Use Map, Figure 2-2.
[b] Significance Criteria (Section 4, Table 4-1).

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

On-Site Traffic Noise

An on-site exterior noise impact analysis has been completed to determine the traffic noise exposure and to identify potential necessary noise abatement measures for the Project. It is expected that the primary source of noise impacts to the Project site would be traffic noise from Ironwood Avenue. The Project would also experience some background traffic noise impacts from Nason Street, Oliver Street, and the Project's internal streets. However, due to the distance, topography and low traffic volume/speed, traffic noise from these roads would not make a significant contribution to the noise environment.

On-Site Exterior Noise Analysis

Table XII-18, *Exterior Noise Levels (CNEL)*, presents a summary of future exterior noise level impacts in the outdoor living areas (backyards) for the lots within the Project site. The on-site traffic noise level impacts indicate the lots adjacent to Ironwood Avenue would experience unmitigated exterior noise levels ranging from 63.3 to 67.0 dBA CNEL. To satisfy the City of Moreno Valley 65 dBA CNEL exterior noise level standards for residential land use, the construction of 4-foot high noise barriers for the outdoor living areas of lots 26 to 30 are required (MM NOISE-6). With the recommended noise barriers illustrated on **Figure XII-3**, *Summary of Recommendations*, the mitigated future exterior noise levels would range from 61.5 to 63.3 dBA CNEL. The Noise Impact Analysis states that the recommended noise barriers would satisfy the City of Moreno Valley 65 dBA CNEL exterior noise level standards. As such, with incorporation of MM NOISE-6, a less than significant impact to on-site exterior noise would occur.

TABLE XII-18
EXTERIOR NOISE LEVELS (CNEL)

Lot Number	Roadway	Unmitigated Noise Level (dBA CNEL)	Mitigated Noise Level (dBA CNEL)	Recommended Barrier Height (Feet)	Top of Barrier Elevation (Feet)
1	Ironwood Av.	64.5	_[a]	_[a]	_[a]
5	Ironwood Av.	64.4	_[a]	_[a]	_[a]
12	Ironwood Av.	64.4	_[a]	_[a]	_[a]
19	Ironwood Av.	64.4	_[a]	_[a]	_[a]
20	Ironwood Av.	64.3	_[a]	_[a]	_[a]
23	Ironwood Av.	63.3	_[a]	_[a]	_[a]
25	Ironwood Av.	64.6	_[a]	_[a]	_[a]
27	Ironwood Av.	66.6	61.5	4'	1876'
30	Ironwood Av.	67.0	61.6	4'	1882'

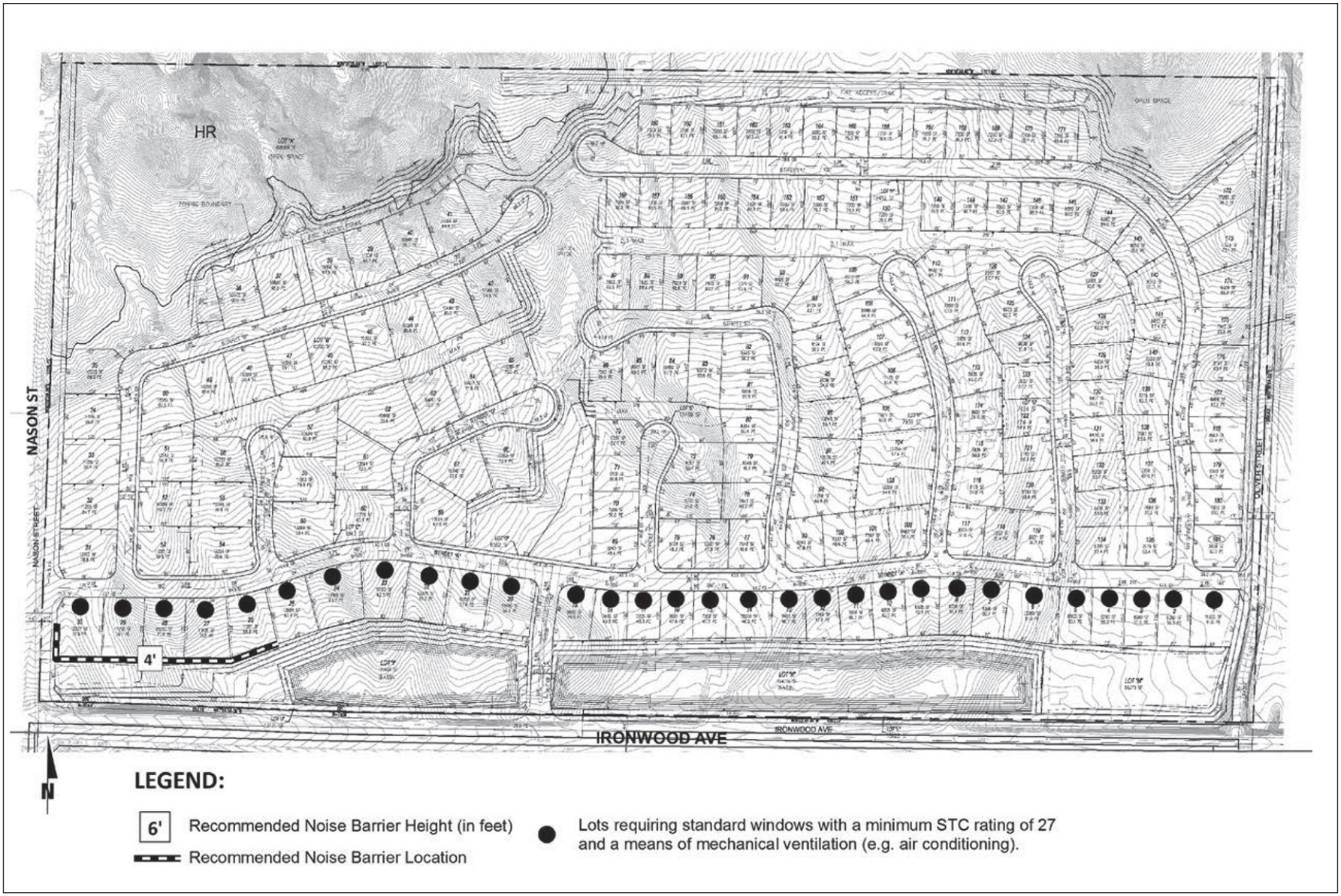
[a] No exterior noise mitigation required to meet the City of Moreno Valley exterior noise standards.

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

On-Site Interior Noise Analysis

The interior noise level is the difference between the predicted exterior noise level at the building façade and the noise reduction of the structure. Typical building construction would provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA NR with "windows closed." However, sound leaks, cracks and openings within the window assembly could greatly diminish its effectiveness in reducing noise. Several methods are used to improve interior NR, including weather-stripped solid core exterior doors; upgraded dual glazed windows; mechanical ventilation/air conditions; and exterior wall/roof assembles free of cut outs or openings.

To ensure the interior noise levels comply with the City of Moreno Valley 45 dBA CNEL interior noise standards, future noise levels were calculated at the first and second floor building facades. As such, a NR of up to 21.4 dBA and a windows closed condition requiring a means of mechanical ventilation (e.g. air conditions) are required for lots adjacent to Ironwood Avenue (MM NOISE-7). **Table XII-19**, *First Floor Interior Noise Impacts (CNEL)*, indicates that the future unmitigated noise levels at the first floor building façade are expected to range from 60.1 to 64.3 dBA CNEL. The first floor interior noise level analysis indicates the City of Moreno Valley 45 dBA CNEL interior noise level standards for the residential land uses could be satisfied using standard windows with a minimum sound transmission class (STC) rating of 27 for all lots adjacent to Ironwood Avenue. **Table XII-20**, *Second Floor Interior Noise Impacts (CNEL)*, indicates that the future unmitigated noise levels at the second floor building façade are expected to range from 63.0 to 66.4 dBA CNEL.



SOURCE: Urban Crossroads, 2015

Ironwood Village Project

Figure XII-3

Summary of Recommendations

ESA PCR

TABLE XII-19
FIRST FLOOR INTERIOR NOISE IMPACTS (CNEL)

Lot Number	Noise Level at Façade[a]	Required Interior Noise Reduction[b]	Estimated Interior Noise Reduction[c]	Upgraded Windows[d]	Interior Noise Level[e]
1	64.1	19.1	25.0	No	39.1
5	64.1	19.1	25.0	No	39.1
12	64.1	19.1	25.0	No	39.1
19	64.1	19.1	25.0	No	39.1
20	64.0	19.0	25.0	No	39.0
23	63.0	18.0	25.0	No	38.0
25	64.3	19.3	25.0	No	39.3
27	60.2	15.2	25.0	No	35.2
30	60.1	15.1	25.0	No	35.1

[a] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[b] Noise reduction required to satisfy the 45 dBA CNEL interior noise standards.
[c] A minimum 25 dBA noise reduction is assumed with standard building construction.
[d] Does the required interior noise reduction trigger upgraded with a minimum STC rating of greater than 27?
[e] Estimated interior noise level with minimum STC rating for all windows.

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

TABLE XII-20
SECOND FLOOR INTERIOR NOISE IMPACTS (CNEL)

Lot Number	Noise Level at Façade[a]	Required Interior Noise Reduction[b]	Estimated Interior Noise Reduction[c]	Upgraded Windows[d]	Interior Noise Level[e]
1	64.1	19.1	25.0	No	39.1
5	64.1	19.1	25.0	No	39.1
12	64.1	19.1	25.0	No	39.1
19	64.1	19.1	25.0	No	39.1
20	64.0	19.0	25.0	No	39.0
23	63.0	18.0	25.0	No	38.0
25	64.3	19.3	25.0	No	39.3
27	66.2	21.2	25.0	No	41.2
30	66.4	21.4	25.0	No	41.4

[a] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[b] Noise reduction required to satisfy the 45 dBA CNEL interior noise standards.
[c] A minimum 25 dBA noise reduction is assumed with standard building construction.
[d] Does the required interior noise reduction trigger upgraded with a minimum STC rating of greater than 27?
[e] Estimated interior noise level with minimum STC rating for all windows.

SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

The second floor interior noise level analysis shows that the City of Moreno Valley 45 dBA CNEL interior noise level standards for residential land use can be satisfied using standard windows with a minimum STC rating of 27 for all lots adjacent to Ironwood Avenue. The interior noise analysis indicates that with the recommended interior noise mitigation measures listed below, the Project would satisfy the City of Moreno Valley 45 dBA CNEL interior noise level standards for the Project. As such, with incorporation of MM NOISE-7, a less than significant impact to on-site interior noise would occur

Mitigation Measures

MM NOISE-6: Exterior Noise Mitigation: The Project applicant shall construct 4-foot high noise barriers for the outdoor living areas (backyards) of residential lots 26 to 30. The recommended noise control barriers shall be constructed so that the top of each wall extends to the recommended height above the pad elevation of the lit it is shielding. When the road is elevated above the pad elevation, the barrier shall extend to the recommended height above the highest point between the residential home and the road. The barriers shall provide a weight of at least 4 pounds per square foot of face area with no decorative cutouts or line-of-sight openings between shielded areas and the roadways. The noise barrier shall be constructed using one of the following materials: masonry block; stucco veneer over wood framing (or foam core), or 1-inch thick tongue and groove wood of sufficient weight per square foot; glass (1/4-inch thick), or other transparent material with sufficient weight per square feet; earthen berm; or any combination of these construction materials. The barrier must present a solid face from top to bottom. Unnecessary openings or decorative cutouts shall not be made. All gaps (except for weep holes) shall be filled with grout or caulking.

MM NOISE-7: Interior Noise Mitigation: The Project applicant shall provide the following or equivalent measures:

Windows: All windows and sliding glass doors shall be well fitted with well weather-stripped assemblies and a minimum STC rating of 27.

Doors: All exterior doors shall be well weather-stripped solid core assemblies at least 1 ¾-inch thick.

Roof: Roof sheathing of wood construction shall be well fitted or caulked plywood of at ½-inch thick. Ceilings shall be well fitted, well-sealed gypsum board of at least ½-inch thick.

Attic: Attic vents shall be oriented away from Ironwood Avenue. If such an orientation cannot be avoided, then an acoustical baffle shall be placed in the attic space behind the vents. Insulation with at least a rating of R-19 shall be used in the attic space.

Ventilation: When any habitable room is in use, arrangements shall be such that circulated air is received when any exterior door(s) or window(s) are closed. A forced air circulation system (e.g. air conditions) or active ventilation system (e.g. fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.

b) Exposure of people to or generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact.

Construction activity can result in varying degrees of ground vibration depending on the equipment and methods use, 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 use of heavy construction equipment and trucks would most likely cause vibration impacts. 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. It is not expected that heavy equipment such as large bulldozers would operate in a distance close enough to residences to cause a vibration impact. 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 eliminate the problem.

As discussed above, ground-borne vibration levels resulting from construction activities occurring within the Project were estimated by data published by the FTA. Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site including grading. Using the vibration source level of construction equipment and vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. **Table XII-21**, *Construction Equipment Vibration Levels*, presents the expected Project-related vibration levels at each of the nine sensitive receiver locations.

TABLE XII-21
CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Noise Receiver[a]	Distance To Construction Activity (Feet)	Receiver Vibration Levels (VdB)[b]					Potential Significant[c]
		Small Bulldozer	Jackhammer	Loaded Trucks	Large Bulldozer	Peak Vibration	
R1	140'	35.6	56.6	63.6	64.6	64.6	No
R2	186'	31.9	52.9	59.9	60.9	60.9	No
R3	308'	25.3	46.3	53.3	54.3	54.3	No
R4	269'	27.0	48.0	55.0	56.0	56.0	No
R5	241'	28.5	49.5	56.5	57.5	57.5	No
R6	245'	28.3	49.3	56.3	57.3	57.3	No
R7	327'	24.5	45.5	52.5	53.5	53.5	No
R8	316'	24.9	45.9	52.9	53.9	53.9	No
R9	1,469'	4.9	25.9	32.9	33.9	33.9	No

a Noise receiver locations are shown on Exhibit 10-A.
b Based on the Vibration Source Levels of Construction Equipment included on Table 6-6.
c Does the Peak Vibration exceed the FTA maximum acceptable vibration standard of 80 (VdB)?

SOURCE: SOURCE: Ironwood Residential (TTM No. 37001), Noise Impact Analysis, City of Moreno Valley, prepared by Urban Crossroads, dated August 31, 2015.

Based on the reference vibration levels provided by the FTA, a large bulldozer represents the peak source of vibration with a reference velocity of 87 VdB at a distance of 25 feet. At distances ranging from 140 to 1,469 feet from the Project site, construction vibration velocity levels are expected to approach 64.6 VdB, as shown on Table XII-21. Based on the FTA vibration standards, the Project site would not include or require equipment, facilities, or activities that would result in a barely perceptible human response (annoyance) for infrequent events.

Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period, but would occur rather only during the times that heavy construction equipment is operating simultaneously at a distance of 100 feet from the Project site perimeter. Moreover, construction at the Project site would be restricted to daytime hours consistent with City requirements; thereby eliminating potential vibration impacts during the sensitive nighttime hours. The results of this analysis indicate that the vibration impacts due to Project construction would be less than significant.

Post-construction on-site activities would be limited to residential uses that would not generate excessive groundborne noise or vibration. As such, ground-borne vibration and noise levels associated with Project would be less than significant.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less Than Significant Impact. The existing noise environment in the Project area is dominated by traffic noise from nearby roadways and nearby residential activities. Long-term operation of the Project would not have a significant effect on the community noise environment in proximity to the Project site. Noise sources that would have potential noise impacts include off-site vehicle traffic, on-site parking lots, walking trails, the proposed park, and mechanical equipment (i.e., air-conditioning). Motor vehicle travel on local roadways attributable to the Project, as discussed in Response XII.a, would have a less than significant impact on community noise levels. Noise levels associated with on-site operations are also considered less than significant as discussed in Response XII.a. As such, noise impacts in this regard would be less than significant.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less Than Significant Impact. The Project would result in a temporary increase in ambient noise near the Project site during the construction period. Construction noise impacts are discussed in Response XII.a. Noise generated by on-site construction activities would have a less than significant impact on surrounding uses.

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?

No Impact. As discussed under Responses VIII.e and f, the Project site is not located within an airport land use plan or within two miles of a public or private airport. The nearest airport is the March Inland Port, a joint-use military and public airport, located approximately 5.15 miles

southwest of the Project site. Therefore, construction or operation of the Project would not expose people to excessive airport related noise levels. As such, no impacts would occur.

f) For a project within the vicinity of a private airstrip, heliport or helistop, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The Project site is not located within the vicinity of a private airstrip, heliport or helistop. Therefore, the Project would not expose people residing or working in the Project area to excessive noise levels from such uses. No impact would occur in this regard.

XIII. 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 roads or other infrastructure)?

Less Than Significant Impact. The Project would introduce up to 181 single-family residential units that would generate a new residential population of up to approximately 708 persons.[17] The estimated 708 persons increase in the City's population would represent 0.35 percent increase to the existing population (202,976 persons) in the City.[18] Therefore, the new residents would not result in a substantial increase in the local population.

According to the Southern California Association of Governments (SCAG), the City's forecast population and household growth of 67,800 persons and 21,700 households is predicted between 2008 and 2035.[19] The estimated 708 Project generated increase in population and the proposed 181 single-family residential units are within SCAG's growth forecast. The City of Moreno Valley Housing Element 2014-2021 indicated the total housing growth need for the City during this planning period is 6,169 units.[20] The 6,169 units represents the City's share of the Regional Housing Needs Assessment (RHNA) approved by SCAG as a response to State mandated housing planning. As such, the 181 single-family residential units would contribute towards the

[17] 181 residential units X 3.91 persons = 708 residents (per the average household size of 3.91 persons/household for the City of Moreno Valley, U.S. Census Bureau, 2010 Census, http://www.census.gov/quickfacts/Table/PST045215/0649270,00, accessed May 2016.)

[18] U.S. Census Bureau, 2010 Census, population estimates as of July 1, 2014, http://www.census.gov/quickfacts/Table/PST045215/0649270,00, accessed May 2016.

[19] 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy, Table 18, Proposed 2012-2035 RTP/SCS Growth Forecast, page 35, prepared by Southern California Association of Governments, adopted April 2012, http://rtpscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP_GrowthForecast.pdf, accessed May 2016 and the Culver City October 2013-2021 Housing Element, https://www.culvercity.org/~/media/Files/Planning/GeneralPlan/2013-2021_HousingElement.ashx, accessed May 2016.

[20] City of Moreno Valley Housing Element 2014-2021, dated February 11, 2014, http://www.moreno-valley.ca.us/city_hall/general-plan/06gpfinal/gp/8-housing.pdf, accessed May 2016.

RHNA of the City. Furthermore, the Project would be located in an area already served by existing infrastructure and anticipated within applicable City infrastructure plans (i.e., roadways, utility lines, etc.). As such, the Project would not induce substantial population growth in the area either directly or indirectly and impacts would be less than significant.

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?

No Impact (b-c). The Project site consists of one single-family residential designated parcel (APN 473-160-004-5). There is no street address associated with the property, which is currently vacant land, though several unimproved trails/dirt roads traverse the property. As such, Project implementation would not displace existing housing or people. Therefore, no impact would occur to existing housing or local populations such that construction of replacement housing would be necessary.

XIV. Public Services

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the need for new or physically altered governmental facilities, 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:

a. Fire protection.

Less Than Significant Impact With Mitigation Incorporated. Fire protection for the City and the Project site is provided by the Moreno Valley Fire Department (MVFD), which is a part of the California Department of Forestry and Fire Protection (CAL FIRE)/Riverside County Fire Department's (RCFD) regional fire protection organization. The MVFD is the primary response for fires, emergency medical services, hazardous materials, incidents, traffic accidents, terrorist acts, catastrophic weather events, and technical rescues for the City. The MVFD also provides a full range of fire prevention services including public education, code enforcement, plan check and inspection services for new and existing construction, and fire investigation.[21]

The MVFD consists of the fire operations division, fire prevention bureau, and the Office of Emergency Management (OEM) allowing for a well-coordinated response to both natural and man-made disaster. The fire operations division is the largest division within the MVFD which includes 72 sworn personnel and two non-sworn personnel. The main mission of the fire operations division is to respond to emergency calls for service from the community and provide quality emergency services while protecting the life and property of the residents of the City.

[21] City of Moreno Valley Fire Department Website, http://www.moreno-valley.ca.us/city_hall/departments/fire/index-fire.shtml, accessed July 2016.

Further support activities conducted by the fire operations division include fire company annual business/commercial fire inspections; development and management of the MVFD budget; coordinating and responding to non-emergency requests for MVFD services from both the City Council Office as well as the public; long range planning for the MVFD; and applying for assistance to firefighters grant and other grant opportunities. The City's Fire Marshal, under direction of the City's Fire Chief, manages the fire prevention bureau. The fire prevention bureau is the second largest division of the MVFD which includes five non-sworn personnel and six non-sworn part time personnel. The bureau also has five defunded positions due to budget constraints. The fire prevention bureau conducts fire and life safety inspections as well as plan reviews for new construction, existing building, and special events. The bureau also oversees the City's hazard abatement program and the multi-family residential inspection program to ensure multi-housing units receive state mandated annual inspections. The MVFD's OEM is responsible for minimizing the impact of natural and man-made disaster by establishing readiness through City-wide prevention, preparedness, response, recover and mitigation. This includes coordinating and conducting drills for the City's Emergency Operations Center (EOC) as well as providing a wide variety of training to both employees including community emergency response team (CERT) training, terrorism awareness training, and emergency preparedness training. As part of the MVFD as well as the RCFD, it is critical that the City's OEM collaborates projects, emergency management grants, emergency management exercises, and the management of declared local disasters with the RCFD Office of Emergency Services.[22] **Table XIV-1**, *MVFD Fire Stations*, provides information on the location, type of equipment, and the approximate distance/direction from the Project site for the City's seven fire stations. As shown in Table XIV-1, the nearest MVFD fire stations are Fire Station 58 and Fire Station 99, located approximately 0.80 miles southeast and 1.50 miles south of the Project site, respectively.

Construction activities associated with the Project may temporarily increase the demand for fire protection and emergency medical services, and may cause the occasional exposure of combustible materials, such as wood, plastics, sawdust, covering and coatings, to heat sources including machinery and equipment sparking, exposed electrical lines, welding activities, and chemical reactions in combustible materials and coatings. However, in compliance with the requirements of the California Occupational Safety and Health Administration (OSHA), all construction managers and personnel would be trained in fire prevention and emergency response. Further, fire suppression equipment specific to construction would be maintained on the Project site. As applicable, construction activities would be required to comply with the 2013 CBC; the 2013 California Fire Code (CFD); and Title 8, Buildings and Construction, Chapter 8.36, International Fire Code (herein referred to as the City's "Fire Code"), of the MVMC.

[22] Moreno Valley Fire Department Strategic Plan 2012-2022, prepared by Moreno Valley Fire Department, dated December 2011, http://www.moreno-valley.ca.us/city_hall/departments/fire/pdfs/fireStrat-plan0612.pdf, accessed July 2016.

TABLE XIV-1
MVFD FIRE STATIONS

Fire Station	Address	Daily Personnel/Apparatus Equipment	Approximate Distance/Direction from Project site[a]
Fire Station 58 (Moreno Beach)	28040 Eucalyptus Avenue	3 firefighters/1 engine, 1 rescue engine	0.80 miles southeast
Fire Station 99 (Morrison Park)	13400 Morrison Street	3 firefighters, 1 battalion chief/1 engine, 1 staff vehicle	1.50 miles south
Fire Station 2 (Sunnymead)	24935 Hemlock Avenue	7 firefighters/1 engine, 1 aerial ladder truck, 1 urban search & rescue trailer, 1 rescue squad	2.10 miles west
Fire Station 48 (Sunnymead Ranch)	10511 Village Road	3 firefighters/1 engine	3.75 miles northwest
Fire Station 65 (Kennedy Park)	15111 Indian Avenue	3 firefighters/1 engine, 1 reserve engine	4.00 miles southwest
Fire Station 91 (College Park)	16110 Lasselle Street	7 firefighters/1 engine, 1 rescue squad	4.11 miles south
Fire Station 6 (Towngate)	22250 Eucalyptus Avenue	3 firefighters/1 engine, 1 reserve aerial ladder truck, 1 reserve engine	4.88 miles west

[a] Approximate distance/direction from Project site in miles is a straight line distance, not a drive distance.

Sources: City of Moreno Valley Fire Department Website, Fire Station Locations, http://www.moreno-valley.ca.us/city_hall/departments/fire/fire-locs.shtml, accessed July 2016 and Abdul R. Ahmad, Fire Chief, Moreno Valley Fire Department, Letter Correspondence, dated July 25, 2016.

Construction activities may involve temporary lane closures of right-of-way frontage improvements and utility construction. Construction-related traffic could result in increased travel time due to flagging or stopping of traffic to accommodate trucks entering and existing the Project site during construction. As such, construction activities could increase response times for emergency vehicles to local business and/or residences within the Project vicinity, due to travel time delays to through traffic. However, the impacts of such construction activity would be temporary and on an intermittent basis. Further, a Construction Traffic Management Plan for the Project would be prepared in order to minimize disruptions to through traffic flow, maintain emergency vehicle access to the Project site and neighboring land uses, and schedule worker and construction equipment delivery to avoid peak traffic hours (MM PS-1). As a component of the Construction Traffic Management Plan, the times of day and locations of all temporary lane closures would be coordinated so that they do not occur during peak periods of traffic congestion, to the extent feasible. Truck routes for material and equipment deliveries, as well as for soil export and disposal, would require approval by the City's Department of Public Works prior to construction activities. The Construction Traffic Management Plan would be prepared for review and approval by the Department of Public Works prior to commencement of any construction activity. These practices, as well as techniques typically employed by emergency vehicles to clear or circumvent traffic, are expected to limit the potential for significant delays in emergency response times during Project construction. Therefore, impacts regarding emergency response times and emergency access during construction would be less than significant with the incorporation of the Project's Construction Traffic Management Plan (MM PS-1).

Overall, with compliance to applicable MVFD requirements and implementation of the prescribed mitigation measure, and due to the temporary nature of the necessary construction activities, construction impacts on fire protection and emergency medical services would be less than significant.

Operational activities associated with the Project would increase demand for fire protection and emergency medical services. As discussed in Section VIII, *Population and Housing*, the estimated 708 increase in population generated by the Project would represent a 0.35 percent increase in the existing population in the City. The estimated Project generated increase in population and the proposed 181 single-family residential units are within SCAG's growth forecast. According to the MVFD, the proposed structures within the Project site are considered to be in both the high fire risk category and non-fire high risk category. As mentioned above, the nearest MVFD fire station is Fire Station 58 located approximately 0.80 miles southeast of the Project site, or approximately two miles utilizing existing roads. Further, the MVFD participates in the regionalized cooperative fire protection delivery system of CAL FIRE/RCFD. This system provides assurances that the nearest and most appropriate resources are dispatched to all requests for fire protection and emergency medical services regardless of the jurisdiction. The MVFD's goal is for an engine company to arrive on scene within four minutes of travel time to fire incidents and emergency medical aid calls 90 percent of the time.[23] A complete first alarm fire assignment is to arrive on scene within eight minutes of travel time 90 percent of the time.[24] The estimated travel time from Fire Station 58 is approximately five minutes for the first arriving engine for any emergency incidents and a six minute response time for the first arriving aerial ladder truck company.[25] Emergency vehicles and fire access to the Project site is currently and would continue to be provided via Ironwood Avenue, Nason Street, and Oliver Street. The primary driveway for the Project site would be located on Ironwood Avenue about mid-block between Nason Street and Oliver Street, immediately opposite from and north of Lantz Lane. Secondary site access would be provided by driveways on both Nason Street and Oliver Street just north of Ironwood Avenue. According to the MVFD, the Department would be able to mitigate an emergency requiring the specialized services of either a fire engine or an aerial ladder truck with its current equipment and three nearest fire stations (i.e., Fire Stations 58, 99, and 2) in a timely manner.[26] The Project would not impact the MVFD fire protection services and service levels would be sufficient without the addition of equipment and/or fire station locations.[27] The Project would be designed, constructed and maintained in accordance with MVFD's development and construction requirements to minimize the risks associated with fires. Based on the considerations above, the increase in population from the Project would not be substantial enough to significantly impact fire and emergency services on a daily or annual basis. No new fire protection facilities would be necessary as a result of Project implementation.

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23 Abdul R. Ahmad, Fire Chief, Moreno Valley Fire Department, Letter Correspondence, dated July 25, 2016.
24 Ibid.
25 Ibid.
26 Ibid.
27 Ibid.

The Project site is susceptible to wildland fire hazards and is located in a VHFHSZ. Section VIII, *Hazards and Hazardous Materials*, Response VIII.h, above, discusses the potential for impacts associated with wildland fires. As discussed in Response VIII.h, any significant risk of loss, injury or death involving wildland fires, would be minimized to the maximum extent feasible through implementation of a Project-specific Fuel Modification Plan that would be subject to review and approval by the MVFD. As importantly, because the existing site is not currently maintained as a fuel modification area and consists of uncontrolled vegetation, existing single-family residences to the south and west of the Project site would gain increased protection from the spread of fire. As such, the Project would reduce the threat of wildland fires to people and structures in the Project vicinity and thus, lessen the potential demand for fire services needed in the event of a wildland fire.

Another important component of ensuring fire protection services is the availability of adequate firefighting water flow. Fire flow requirements are closely related to land use. The quantity of water necessary for fire protection varies with the type of development, life hazard, occupancy, and the degree of fire hazards. The ability of the water service provider to provide water supply to the Project is discussed in Section XVII, *Utilities and Service Systems*, below. As discussed therein, adequate water supply would be available to serve the Project site, including minimum fire flow requirements.

Overall, given the Project's conformance to expected growth scenarios for the City, the existing number of MVFD staff, and the Project's planned on-site fire protection design features consistent with applicable regulatory requirements of the CBC, CFD, the MVMC, and the MVFD, the Project is not expected to be beyond the scope of available fire services. Accordingly, the MVFD's response times would not be substantially changed such that response time objectives are compromised in any significant manner. Further, no new or expanded fire facilities would be constructed as a result of the Project. Nonetheless, to further ensure impacts to fire protection services and facilities would be less than significant, the Project applicant shall comply with Title 3, Revenue and Finance, Chapter 3.38, Residential Development Impact Fees, Section 3.38.060, Fire Facilities Residential Development Impact Fees, of the MVMC. Compliance would offset the incremental cost of the increased demand to maintain adequate fire protection facilities and equipment, and/or personnel, resulting from the Project by payment of development fees per the MVMC. As such, impacts to fire protection services and facilities would be less than significant.

Mitigation Measures

> **MM PS-1: Construction Traffic Management Plan -** A Construction Traffic Management Plan shall be developed by the Project contractor in consultation with the Project's traffic and/or civil engineer and approved by the City of Moreno Valley Department of Public Works prior to issuance of any Project demolition, grading or excavation permit. The Construction Traffic Management Plan shall also be reviewed and approved by the MVFD. The City of Moreno Valley Department of Public Works reserves the right to reject any engineer at any time and to require that the Plan be prepared by a different engineer. The construction management plan shall include, at a minimum, the following.

- The name and telephone number of a contact person who can be reached 24 hours a day regarding construction traffic complaints or emergency situations;
- An up-to-date list of local police, fire, and emergency response organizations and procedures for the continuous coordination of construction activity, potential delays, and any alerts related to unanticipated road conditions or delays, with local police, fire, and emergency response agencies. Coordination shall include the assessment of any alternative access routes that might be required through the site, and maps showing access to and within the site and to adjacent properties;
- Procedures for the training and certification of the flag persons used in implementation of the Construction Traffic Management Plan;
- The location, times, and estimated duration of any roadway closures, traffic detours, use of protective devices, warning signs, and staging or queuing areas;
- Identify the locations of the off-site truck parking and staging and provide measures to ensure that trucks use the specified haul route, and do not travel through nearby residential neighborhoods or schools;
- Schedule vehicle movements to ensure that there are no vehicles waiting off-site and impeding public traffic flow on surrounding streets;
- Establish requirements for loading/unloading and storage of materials on the Project site;
- During construction activities when construction worker parking cannot be accommodated on the Project site, a Construction Worker Parking Plan shall be prepared which identifies alternate parking location(s) for construction workers and the method of transportation to and from the Project site (if beyond walking distance) for approval by the City of Moreno Valley. The Construction Worker Parking Plan shall prohibit construction worker parking on residential streets and prohibit on-street parking, except as approved by the City.

b. Police protection.

Less Than Significant Impact With Mitigation Incorporated. Police protection for the City and the Project site is provided by the City of Moreno Valley Police Department (MVPD), which contracts with the Riverside County Sheriff's Department (RCSD). The MVPD serves a population of approximately 207,000 persons. Currently, the MVPD consists of 199 full time employees which includes 150 sworn officers and 49 non-sworn (i.e., front office staff, support personnel). The MVPD station is located 22850 Calle San Juan de Los Lagos, approximately 4.7 miles southwest of the Project site. At this time, there are no planned improvements for the MVPD facilities. As the City contracts their police protections services with the RCSD, the City has access to all of the RCSD services which include dispatch, a specials weapons and tactics (SWAT) team, a bomb squad, a dive team, off-highway enforcement team, and a helicopter. [28]

[28] Deputy M. Reilly #4695, Community Services Unit, Moreno Valley Police Department, letter correspondence, dated June 7, 2016.

During construction, equipment and building materials could be temporarily stored on-site, which could result in theft, graffiti, and vandalism. However, the Project site is located in area with moderate vehicular activity from Ironwood Avenue. In addition, the construction site would be fenced along the perimeter, with the height and fence materials subject to review and approval by the City's Department of Public Works. Temporary lane closures may be required for right-of-way frontage improvements and utility construction. However, these closures would be temporary in nature and in the event of partial lane closures, both directions of travel on area roadways and access to the Project site would be maintained. Emergency vehicle drivers have a variety of options for advoiding traffic, such as using their sirens to clear a path of travel or driving in lanes of opposing traffic. Further, as discussed above, a Construction Traffic Management Plan for the Project would be prepared in order to minimize disruptions to through traffic flow, maintain emergency vehicle access to the Project site and neighboring land uses, and schedule worker and construction equipment delivery to avoid peak traffic hours (MM PS-1). Given the visibility of the Project site from adjacent roadways and surrounding properties, existing police presence in the City, maintained emergency access, construction fencing, and incorporation of MM PS-1, the Project is not expected to increase demand on existing police services to a meaningful extent. Therefore, the Project would have a less than significant temporary impact on police protection during the construction phases.

Operational activities associated with the Project would increase demand for police protection services. As discussed above, the estimated 708 increase in population generated by the Project would represent a 0.35 percent increase in the existing population in the City. The estimated Project generated increase in population and the proposed 181 single-family residential units are within SCAG's growth forecast.

With development on the site, patrol routes in the area would be slightly modified to include the site, as necessary. To ensure that police protection considerations are incorporated into the Project design, prior to the issuance of a building permit for the Project, the MVPD would be provided the opportunity to review and comment upon building plans in order to facilitate opportunities for improved emergency access and response; ensure the consideration of design strategies that facilitate public safety and police surveillance; and other specific design recommendations to enhance public safety and reduce potential demands upon police protection services. Upon initial review of the Project Description, the MVPD has provided the following recommendations: address numbers on all buildings/residences shall be placed in the most visible location on the building and illuminated as well as painted on the curb in front of each residence; the parking lots, walking trails, street and buildings shall have appropriate lighting and shadows casted by landscaping and trees shall be minimized on walkways and public areas; a City wide camera system shall be installed at the corner of Nason Street and Ironwood Avenue; if one or more community mailbox areas are proposed, these areas shall have appropriate lighting and be located in a highly visible public location and designed to resist mail theft; and speed

bumps, dips, or similar traffic calming measures shall be constructed on the long south main street.[29]

Overall, given the Project's conformance to expected growth scenarios for the City, the existing number of police staff, and incorporation of the MVPD's recommendations, the Project is not expected to be beyond the scope of available police services. Accordingly, the MVPD's response times would not be substantially changed such that response time objectives are compromised in any significant manner. Further, according to the MVPD, Project implementation would not require the physical expansion of an existing police station or new police station, or additional staffing to the police protection facilities serving the Project site.[30] Nonetheless, to further ensure impacts to police protection services and facilities would be less than significant, the Project applicant shall comply with Title 3, Revenue and Finance, Chapter 3.38, Residential Development Impact Fees, Section 3.38.070, Police Facilities Residential Development Impact Fees, of the MVMC. Compliance would offset the incremental cost of the increased demand to maintain adequate police protection facilities and equipment, and/or personnel, resulting from the Project by payment of development fees per the MVMC. As such, impacts to police protection services and facilities would be less than significant.

Mitigation Measures

Refer to MM PS-1.

c. Schools.

Less Than Significant Impact. The Project would be served by the Moreno Valley Unified School District (MVUSD). The MVUSD includes 23 elementary schools, 6 middle schools, 4 high schools, and 9 specialized schools. The Project site is located within the attendance boundaries of the Cloverdale Elementary School, Palm Middle School, and Valley View High School. The Cloverdale Elementary School, transitional kindergarten through fifth grade (TK-5), is located at 12050 Kitching Street, approximately 1.5 miles west of the Project site. Cloverdale Elementary School currently has 12 portable classrooms and 22 permanent classrooms with an existing enrollment of 770 students and a projected enrollment of 800 students with a design capacity of 850 students during the school year 2019/2020 (Project buildout year 2020). The Palm Middle School, (grades 6-8), is located at 11900 Swanson Avenue, approximately 1.25 miles west of the Project site. Palm Middle School currently has 5 portable classrooms and 51 permanent classrooms with an existing enrollment of 1,243 students and a projected enrollment of 1,300 students with a design capacity of 1,465 students during the school year 2019/2020. The Valley View High School, (grades 9-12), is located at 13135 Nason Street, approximately 1.2 miles south of the Project site. Valley View High School currently has 27 portables classrooms and 73 permanent classrooms with an existing enrollment of 2,636 students and a projected enrollment of 2,636 students with a design capacity of 2,638 students during the school year 2019/2020. The MVUSD is in the process of construction an additional high school which would

[29] Deputy M. Reilly #4695, Community Services Unit, Moreno Valley Police Department, letter correspondence, dated June 7, 2016.
[30] Ibid.

serve the Project area. The land has been purchased and due diligence is currently being performed. The MVUSD's goal is to have the new high school ready for occupancy by year 2020, with a capacity of 2,400 students. Initial enrollment would be grade 9 only; second year grades 9 and 10; third year grades 9-11; and forth year grades 9-12.[31]

The MVUSD created and adopted the 2013/2014 Facilities Master Plan which identified improvements, dependent upon available funding, for schools within the MVUSD including the Cloverdale Elementary School, Palm Middle School, and Valley View High School. Improvements for the Cloverdale Elementary School include the following: removal of all 12 portable classrooms and one portable restroom building; construction of a 2-story permanent classroom building (10 classrooms and restrooms) to replace the 12 portable classrooms and one portable restroom building; addition of staff toilets to Classroom Building C and D; and 21st century technology upgrades. Improvements for the Palm Middle School include the following: parking expansion and reconfiguration; separate bus and parent drop off; replacement of drinking fountains; upgrade exterior fencing and gates; new enclosed gymnasium to replace existing pavilion; food service and locker room transformation; and classroom building transformation including science classrooms (interior finishes, ceilings and energy efficient lighting). Improvements for the Valley View High School including the following: classroom buildings transformation including science and special education (SDC Therapy) classrooms; new defined and secured point of entry; transformation of gymnasium, locker rooms and weight rooms; food service area transformation; new girls' softball field; new lunch shelter; new guard shack at main parking lot entrance; removal of portable classrooms after construction of the new high school (high school No. 5); new culinary arts program; and 21st century upgrades.[32]

Project operation would incrementally increase demand for school services. The estimated 708 increase in population generated by the Project would represent a 0.35 percent increase in the existing population in the City. The Project is estimated to generate 55 elementary school students, 27 middle school students, and 36 high school students for a total of 118 students.[33] Project impacts related to schools would be addressed through payment of required Senate Bill 50 (SB 50) development fees pursuant to Section 65995 of the California Government Code. In accordance with SB 50, the payment of these fees are deemed to provide full and complete mitigation for impacts to school facilities. Therefore, impacts to school services and facilities would be less than significant.

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31 Sergio San Martin, Director, Facilities Planning and Development, MVUSD, letter correspondence dated May 18, 2016.

32 Sergio San Martin, Director, Facilities Planning and Development, MVUSD, letter correspondence dated May 18, 2016.

33 Student generation rates sourced from the Fee Justification Report for New Residential & Commercial/Industrial Development, dated April 21, 2016. Elementary: 0.3019 X 181 single-family units = 55 elementary school students. Middle: 0.1500 X 181 single-family units = 27 middle school students. High School: 0.1973 X 181 single-family units = 36 high school students. 55 + 27 + 36 = 118 total students. .Sergio San Martin, Director, Facilities Planning and Development, MVUSD, letter correspondence dated May 18, 2016.

d. Parks.

Less Than Significant Impact. The Moreno Valley Parks and Community Services Department (Parks Department) manages and provides maintenance services for the City's parks and facilities and provides a wide range of recreation activities, programs and services throughout the community. The City has two golf courses including the 27-hole Moreno Valley Ranch Golf Club. The City is the home to the 8,000-acre Lake Perris State Park. The State Park offers boating, fishing and camping facilities. The City's park system includes 32 parks and/or joint-use facilities (531.66 maintained acres) and includes a 9-hole executive golf course, 24 multi-use sports fields, 11 tennis courts, nine basketball courts, 28 play apparatus, and three recreation centers.[34] At this time, there are no planned improvements to the parks and recreational facilities in the service area of the Project site.[35]

The Project site is located within the vicinity of six park facilities. **Table XIV-2**, *City of Moreno Valley Parks Facilities Located in the Vicinity of the Project Site*, provides information on the park/facility, location, size, park amenities/activities, and the approximate distance/direction from the Project site.

The proposed Ironwood Village Park, which would be a private facility for exclusive use by Ironwood Village residents, would be located centrally within the Project site allowing residents to walk to the park safely using the Project-wide interconnected trails system. The park may include, but is not limited to, the following features and amenities: bench seating, an open play area, Bocce ball courts, picnic area and a tot lot "children's play equipment". The actual park amenities would be decided at time of buildout by the developer with approval from the City of Moreno Valley. Please refer to **Figure A-6**, *Conceptual Park Plan*, in the Project Description, for a conceptual illustration of the proposed on-site park.

The Project would include multi-use trails that would interconnect the Project neighborhoods to the interior open spaces and on-site park, as well as to the future City of Moreno Valley's off-site trails system, as illustrated in **Figure A-7**, *Trail Connection Map*, of the Project Description. There would be "nodes of interest" located along the central trail that leads from north to south to and from the proposed Ironwood Village Park. There would also be trail connections onto the central trail from trails leading off the adjacent cul-de-sacs. The central trail would provide areas to rest and enjoy the outdoors within walking distance of on-site residents' homes. Trails would provide connections through the central open space area and would branch off east and west along the north-south-oriented open space area, with additional trails connecting to neighborhood streets, as well as other off-site trails. All the trails would loop throughout the Project, which would allow pedestrian connections to the park and the proposed City Trails to the north, east and west of the Project site. The trails would be built per City of Moreno Valley Standards.

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[34] The City of Moreno Valley Website, Parks and Community Services, http://www.moreno-valley.ca.us/resident_services/park_rec/index_park-rec.shtml?tab=3#Tab-mv, accessed June 8, 2016.

[35] Tony Hetherman, Parks Projects Coordinator, Parks & Community Services, City of Moreno Valley, phone correspondence on June 8, 2016.

TABLE XIV-2
CITY OF MORENO VALLEY PARK FACILITIES LOCATED IN THE VICINITY OF THE PROJECT SITE

Park/Facility/Type	Location	Size (acres)	Parks Amenities/Activities	Approximate Distance/Direction from Project site[a]
Rock Ridge Park (Mini Neighborhood Park)	27119 Waterford Way	1.93	Barbeques, picnic tables, security lighting, tot lot	1.00 miles south
Cold Creek Trailhead (Trailhead)	Nason Street and Dracaea Avenue	0.64	Multi-purpose trail, off-street parking, picnic tables, security lighting	1.25 miles south
Morrison Park (Community Park)	26667 Dracaea Avenue	14.01	Barbeques, off-street parking, picnic tables, restrooms, security lighting, soccer field, snack bar, four-lighted softball/baseball fields	1.38 miles northeast
Weston Park (Neighborhood Park)	13170 Lasselle Street	4.14	Barbeques, multi-use athletic fields, picnic tables, restrooms, security lighting, softball/baseball fields, tot lot	1.50 miles southwest
Cottonwood Equestrian Staging Area (Trailhead)	28590 Cottonwood Avenue	0.40	Multi-purpose trail, picnic tables, security lighting	2.15 miles southeast
Moreno Valley Equestrian Park & Nature Center including Hound Town Dog Park (Specialty Park)	11150 Redlands Boulevard	45.00	Dog park, horse area, multi-purpose trails, off-street parking	2.30 miles northeast

[a] Approximate distance/direction from Project site in miles is a straight line distance, not a drive distance.

SOURCE: City of Moreno Valley Website, Explore our Parks, http://www.moreno-valley.ca.us/resident_services/park_rec/pdfs/prks_map.pdf, accessed June 8, 2016.
City of Moreno Valley Parks, Recreation and Open Space Comprehensive Master Plan, Table 3.1, Moreno Valley Parks, dated September 2010.
Tony Hetherman, Parks Projects Coordinator, Parks & Community Services, City of Moreno Valley, phone correspondence on June 8, 2016.

According to the Parks Department, Project implementation would not require the physical expansion of an existing park or new park facilities serving the Project site.[36] Nonetheless, to further ensure impacts to parks would be less than significant, the Project applicant would be responsible for meeting the parkland dedication or fee requirements as required by the Quimby Act and Title 3, Revenue and Finance, Chapter 3.38, Residential Development Impact Fees, Section 3.38.080, Park Improvements Residential Development Impact Fees, Section 3.38.090, Community/Recreation Center Residential Development Impact Fees, and Chapter 3.40, Dedication of Land for Park Facilities and Payment of in-lieu fees, of the MVMC. Compliance would offset the incremental cost of the increased demand to maintain adequate park facilities and equipment, resulting from the Project by parkland dedication or payment of development fees per the MVMC. As such, impacts to parks services and facilities would be less than significant.

[36] Tony Hetherman, Parks Projects Coordinator, Parks & Community Services, City of Moreno Valley, phone correspondence on June 8, 2016.

e. Other public facilities.

Less Than Significant Impact. The Moreno Valley Public Library (MVPL) provides library services to the City and the Project site. The MVPL is located at 25480 Alessandro Boulevard, approximately 2.5 miles southwest of the Project site. The 15,000 square-foot Library includes a collection size of 82,405 items. The MVPL includes 23 full-time employees with an average of 32 volunteers per month.[37]

To address potential impacts to libraries, the Project applicant shall comply with Title 3, Revenue and Finance, Chapter 3.38, Residential Development Impact Fees, Section 3.38.100, Library Facilities and Materials Residential Development Impact Fees, of the MVMC. Compliance would offset the incremental cost of the increased demand to maintain adequate library facilities and materials, and/or personnel, resulting from the Project by payment of development fees per the MVMC. Further, according to the MVPL, Project implementation would not require the physical expansion of an existing library or a new library serving the Project site.[38] As such, impacts to library services and facilities would be less than significant.

The Project residents would utilize and, to some extent, impact the maintenance of public facilities, including roads. However, implementation of the Project would result in an inconsequential increase of 708 persons (0.35 percent population increase) in the type or frequency of uses of area governmental services and roadways. Therefore, development of the Project would not significantly increase the use of government services beyond current levels. Construction activities would result in a temporary increased use of the surrounding roads. However, the use of such facilities would not require maintenance of such facilities beyond normal requirements. The Project applicant would need to pay all City and/or County impact fees, as applicable, including the City of Moreno Valley Development Impact Fee (DIF) and the Transportation Uniform Mitigation Fee (TUMF) as described in Section XVI, *Transportation/Traffic*, below. Overall, less than significant impacts to governmental services, including roads, would occur.

XV. Recreation

a. Would the project 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. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Less Than Significant Impact (a-b). As described under Response XIV.d, operational activities associated with the Project would increase demand for parks services. However, the Project would include the Ironwood Village Park, multi-use trails that would interconnect the Project

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37 Terrie Stevens, Administrative Services Director, Administrative Services, City of Moreno Valley, email correspondence on July 18, 2016.

38 Ibid.

neighborhoods to the interior open spaces and on-site park, as well as to the future City of Moreno Valley's off-site trails system. As such, the demand or use of nearby park facilities may be reduced at times by the Project. Nonetheless, to offset the Project's demand on park facilities and services, the Project applicant would be responsible for meeting the parkland dedication or fee requirements pursuant to the Quimby Act and Title 3, Revenue and Finance, Chapter 3.38, Residential Development Impact Fees, Section 3.38.080, Park Improvements Residential Development Impact Fees, Section 3.38.090, Community/Recreation Center Residential Development Impact Fees, and Chapter 3.40, Dedication of Land for Park Facilities and Payment of in-lieu fees, of the MVMC. Therefore, with the proposed park, trails, and open space features and parkland dedication or payment of development fees, the Project would not substantially deteriorate, or accelerate the deterioration of recreational facilities or resources. Impacts would be less than significant in this regard.

XVI. Transportation/Traffic

The following discussion, is based, in part, on the Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley *(herein referred to as the "Traffic Impact Analysis"), prepared by Urban Crossroads, dated March 9, 2016. The Traffic Impact Analysis was conducted using procedures and criteria adopted by the City's Traffic Study Guidelines, and addressed the Project's trip generation and potential impacts to the surrounding roadway network. The Traffic Impact Analysis evaluates six Project scenarios: Existing (2015), Existing With Project (2015), Opening Year Cumulative Without Project (2020), Opening Year Cumulative With Project (2020), Horizon Year Without Project (2035), and Horizon Year With Project (2035). Future conditions take into account the potential development of 252 related projects in the general Project vicinity, as identified by the City. The Traffic Impact Analysis is provided in Appendix J.*

Would the Project:

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?

Less Than Significant Impact With Mitigation Incorporated. Seven (7) study area intersections were selected for evaluation in consultation with the City's Traffic Engineering Division based on the City's traffic impact analysis methodology that requires analysis of intersection locations with 50 or more peak hour project trips; refer to **Table XVI-1**, *Study Area Intersections* and **Figure XVI-1**, *Intersection Location Map*.

TABLE XVI-1
STUDY AREA INTERSECTIONS

ID	Intersection Location	Jurisdiction
1	Nason Street/Street "A" – Future Intersection	Moreno Valley
2	Nason Street/Ironwood Avenue	Moreno Valley
3	Nason Street/SR-60 Westbound Ramps	Moreno Valley, Caltrans
4	Nason Street/SR-60 Eastbound Ramps	Moreno Valley, Caltrans
5	Street "B"/Lantz Lane/Ironwood Avenue	Moreno Valley
6	Oliver Street/Street "C"	Moreno Valley
7	Oliver Street/Ironwood Avenue	Moreno Valley

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, *prepared by Urban Crossroads, dated March 9, 2016.*

Ten (10) study area roadways were selected for evaluation based on a review of the key roadway segments in which the Project is anticipated to contribute 50 or more peak hour trips; refer to **Table XVI-2**, *Study Area Roadways* and Figure XVI-1.

Level of Service Methodology

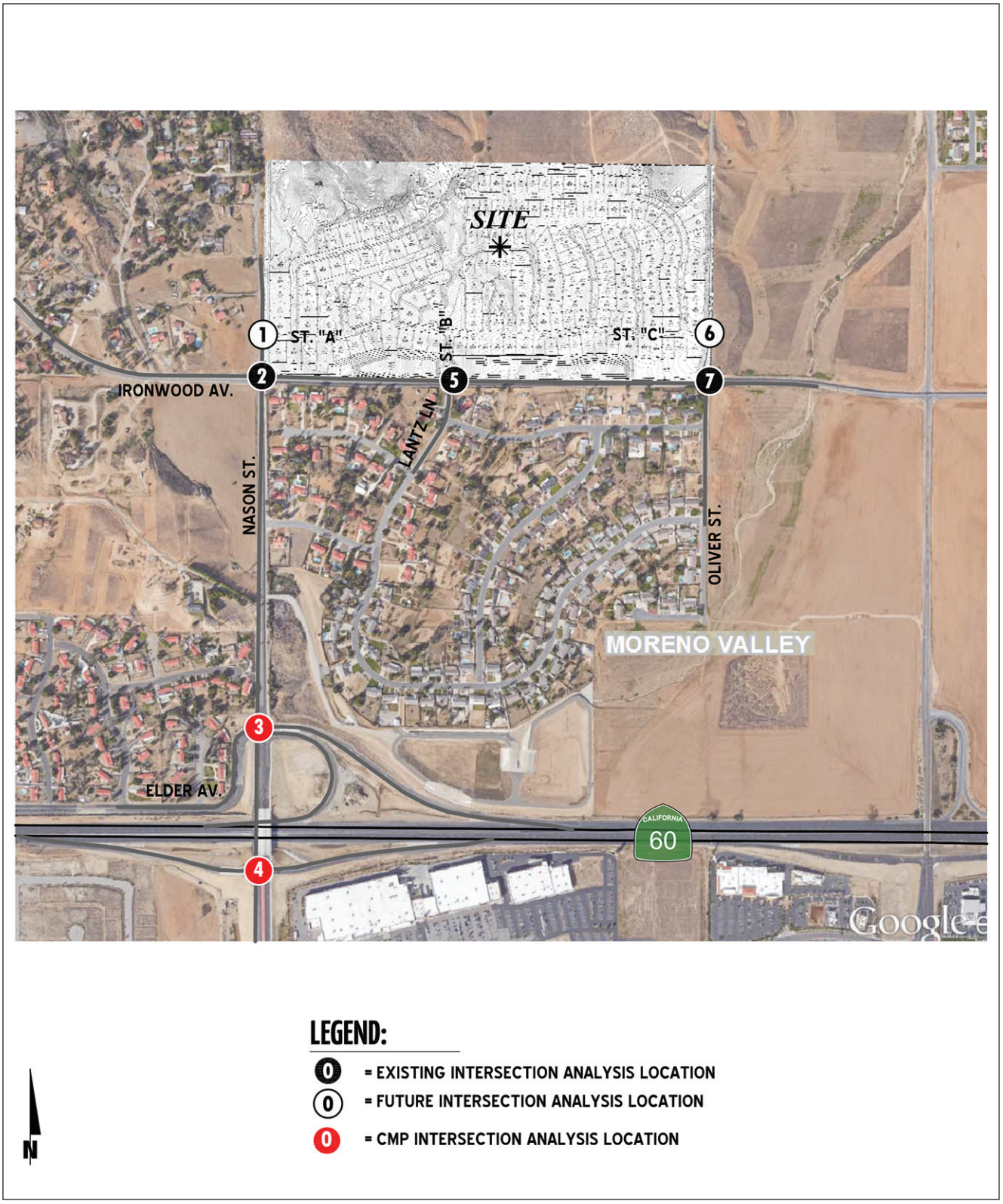
Traffic operations of roadway facilities are described using the term "level of service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS "A", representing completely 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.

Intersection Capacity Analysis Methodology

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) 2010 methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control.

Signalized Intersections

The City requires signalized intersection operations analysis based on the methodology described in Chapter 18 and Chapter 31 of the HCM 2010. Intersections 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 XVI-3**, *Signalized Intersection LOS Thresholds*.



SOURCE: Urban Crossroads, 2015

Ironwood Village Project
Figure XVI-1
Location Map

ESA PCR

TABLE XVI-2
STUDY AREA ROADWAYS

ID	Intersection Location	Jurisdiction
1	Nason Street, Street "A" to Ironwood Avenue	Moreno Valley
2	Nason Street, South of Ironwood Avenue	Moreno Valley
3	Nason Street, North of SR-60 Westbound Ramps	Moreno Valley
4	Nason Street, SR-60 Westbound Ramps to SR-60 Eastbound Ramps	Moreno Valley
5	Nason Street South of SR-60 Eastbound Ramps	Moreno Valley
6	Ironwood Avenue, West of Nason Street	Moreno Valley
7	Ironwood Avenue, Nason Street to Lantz Lane	Moreno Valley
8	Ironwood Avenue, Lantz Lane to Olive Street	Moreno Valley
9	Ironwood Avenue, East of Oliver Street	Moreno Valley
10	Oliver Street, Street "C" and Ironwood Avenue	Moreno Valley

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, *prepared by Urban Crossroads, dated March 9, 2016.*

TABLE XVI-3
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
Operations 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 2010, Chapter 18; Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, *prepared by Urban Crossroads, dated March 9, 2016.*

Unsignalized Intersections

The City requires the operations of unsignalized intersections to be evaluated using the methodology described in Chapters 19, 20, and 32 of the HCM 2010. The LOS rating is based on the weighted average control delay expressed in seconds per vehicle; refer to **Table XVI-4**, *Unsignalized Intersection LOS Thresholds.* At two-way or side-street stop-controlled intersections, the LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major street approaches or for the intersection as a whole. For all-way stop controlled intersections, LOS is based solely on control delay for assessment of LOS at the approach and intersection levels.

TABLE XVI-4
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 2010, Chapter 19, 20, and 32; Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, *prepared by Urban Crossroads, dated March 9, 2016.*

Roadway Segment Capacity Analysis Methodology

Roadway segment operations have been evaluated using the City's daily roadway capacity values provided in the *City of Moreno Valley Transportation Engineering Division Traffic Impact Analysis (TIA) Preparation Guide* (2007). Per the City's traffic impact analysis guidelines, roadway segments within the study area should maintain the LOS capacities illustrated in **Figure XVI-2**, *City of Moreno Valley Level of Service (LOS) Standards*. **Table XVI-5**, *Roadway Segment Capacity LOS Thresholds*, summarizes the daily roadway capacities for each type of roadway. 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. 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 XVI-5
ROADWAY SEGMENT CAPACITY LOS THRESHOLDS

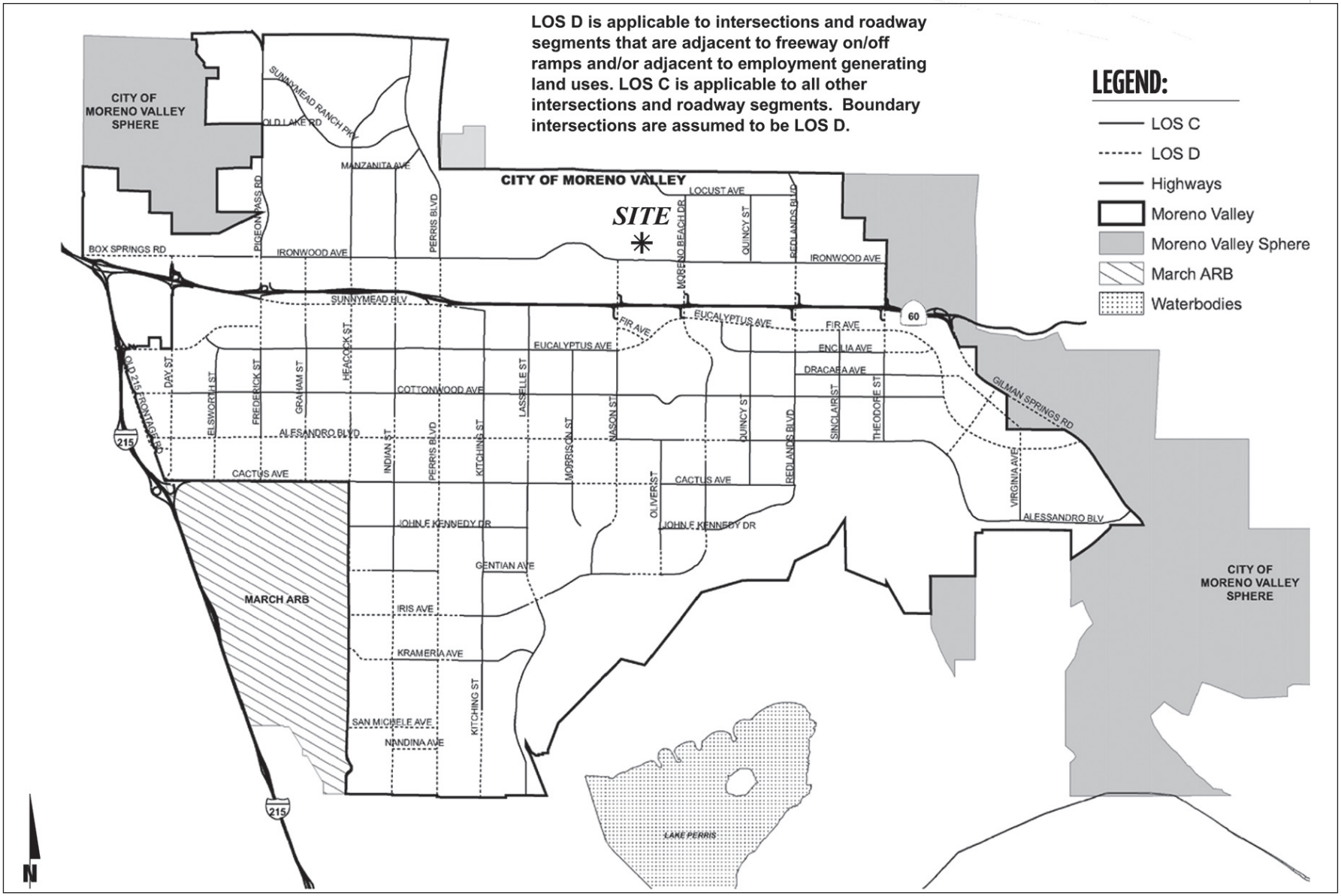
	Level of Service Capacity[a]				
Receptor Location	**A**	**B**	**C**	**D**	**E**
Six Lane Divided Arterial	33,900	39,400	45,000	50,600	56,300
Four Lane Divided Arterial	22,500	26,300	30,000	33,800	37,500
Four Lane Undivided Arterial	15,000	17,500	20,000	22,500	25,000
Two Lane Industrial Collector	7,500	8,800	10,000	11,300	12,500
Two Lane Undivided Residential	N/A	N/A	N/A	N/A	2,000

[a] These maximum roadway capacities have been extracted from the City of Moreno Valley's Transportation Division's TIA Preparation Guidelines (August 2007). These roadways 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.

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, *prepared by Urban Crossroads, dated March 9, 2016.*

Traffic Signal Warrant Analysis Methodology

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. The Traffic Impact Analysis uses the signal warrant criteria presented in the latest edition of the Federal Highway Administration's (FHWA) *Manual on Uniform Traffic Control Devices (MUTCD)*, as amended by the *MUTCD 2012 California Supplement*, for all study area intersections. The signal warrant criteria for Existing conditions are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. Both the FHWA's *MUTCD* and the *MUTCD 2012 California Supplement* indicate that the installation of a traffic signal should be considered if one or more of the signal warrants are met. Specifically, the Traffic Impact Analysis utilized the peak hour volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing traffic conditions. Warrant 3 criteria are basically identical for both the FHWA's *MUTCD* and the *MUTCD 2012 California Supplement*. Warrant 3 is appropriate to use for the Traffic Impact Analysis as it provides specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). For the purposes of the Traffic Impact Analysis, the speed limit was the basis for determining whether urban or rural warrants were used for a given intersection. Future unsignalized intersections have been assessed regarding the potential need for new traffic signals based on the future average daily traffic (ADT) volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets. Traffic signal warrant analyses were performed for the following unsignalized study area intersections as identified in **Table XVI-6**, *Traffic Signal Warrant Analysis Locations.*



SOURCE: Urban Crossroads, 2015

Ironwood Village Project

Figure XVI-2

City of Moreno Valley Level of Service (LOS) Standards

ESA PCR

TABLE XVI-6
TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction
1	Nason Street/Street "A"	Moreno Valley
5	Street "B"/Ironwood Avenue	Moreno Valley
6	Oliver Street/Street "C"	Moreno Valley
7	Oliver Street/Ironwood Avenue	Moreno Valley

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, *prepared by Urban Crossroads, dated March 9, 2016.*

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.

LOS Criteria

The definition of an intersection deficiency in the City is based on the City's General Plan Circulation Element. The City's General Plan states that target LOS "C" or LOS "D" be maintained along City roads (including intersections) wherever possible. Figure XVI-2 depicts the level of service standards within the City. A summary of the jurisdiction, LOS methodology and acceptable LOS for all study area intersection is described in **Table XVI-7**, *Summary of LOS Criteria and For Study Area Intersections*.

TABLE XVI-7
SUMMARY OF LOS CRITERIA AND FOR STUDY AREA INTERSECTIONS

#	Intersection	Traffic Control[1]	Jurisdiction	LOS Methodology[2]	Acceptable LOS
1	Nason Street/Street "A"	CSS	Moreno Valley	HCM 2010	C
2	Nason Street/Ironwood Avenue	TS	Moreno Valley	HCM 2010	D
3	Nason Street/SR-60 WB Ramps	TS	Moreno Valley	HCM 2010	D
4	Nason Street/SR-60 EB Ramps	TS	Moreno Valley	HCM 2010	D
5	Lantz Lane/Ironwood Avenue	CSS	Moreno Valley	HCM 2010	C
6	Oliver Street/Street "C"	CSS	Moreno Valley	HCM 2010	C
7	Oliver Street/Ironwood Avenue	CSS	Moreno Valley	HCM 2010	C

[a] CSS = cross-street stop; TS = traffic signal.
[2b]HCM 2010 = Highway Capacity Manual 2010 Methodology.

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, *prepared by Urban Crossroads, dated March 9, 2016.*

Local and Regional Funding Mechanisms

Transportation improvements throughout the City are funded through a combination of project mitigation, fair share contributions or development impact fee programs, such as Transportation Uniform Mitigation Fee (TUMF) program or the County's Development Impact Fee (DIF) program. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors.

Transportation Uniform Mitigation Fee (TUMF) Program

The Western Riverside Council of Governments (WRCOG) is responsible for establishing and updating 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 programs. Fees are based upon projected land uses and a related transportation needs to address growth based upon a 2009 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 serves the function for the proposed Project. Fees submitted to the County are passed on the WRCOG as the ultimate program administrator.

TUMF guidelines empower a local zone committee to prioritize and arbitrate certain projects. The Project is located within the Central Zone. This zone has developed a 5-year capital improvements program to prioritize public construction of certain roads. TUMF is focused on improvements necessitated by regional growth. The SR-60/Nason Street interchange, Nason Street, and Ironwood Avenue are designated TUMF roadways/facilities within the Project's study area.

City of Moreno Valley Development Impact Fee (DIF) Program

The City has created its own local 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.

Fair Share Contribution

Project mitigation may include a combination of fee payments to established programs (e.g., TUMF and/or DIF), construction of specific improvements, payment of a fair share contribution toward future development improvements or a combination of these approaches. Improvements constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate (to be determined at the City's discretion). When off-site improvements are identified with a minor share of responsibility assigned to the proposed development, the approving jurisdiction may elect to collect a fair share contribution or require the development to construct improvements.

Existing Traffic Counts

The AM peak hour traffic volumes were determined by counting traffic volumes in the two hour period between 7:00 AM and 9:00 AM on January 29, 2015. Similarly, the PM peak hour traffic volumes were identified by counting traffic volumes in the two hour period between 4:00 PM and 6:00 PM on January 29, 2015. The Thursday, January 29, 2015 count data is representative of typical weekday peak hour traffic conditions in the study area. Exhibit 3-8, Existing (2015) Traffic Volumes, of the Traffic Impact Analysis, displays the Existing ADT, AM and PM peak hour intersection volumes.

Existing Conditions Intersection Operations Analysis

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodology discussed above. The intersection operations analysis results are summarized in **Table XVI-8**, *Intersection Analysis for Existing (2015) Conditions* and illustrated in Exhibit 3-9, Summary of Peak Hour Intersection LOS for Existing (2015) Conditions, of the Traffic Impact Analysis. Table XVI-8 indicates that the existing study area intersections are currently operating at an acceptable LOS during the peak hours, based on applicable jurisdiction's LOS criteria.

TABLE XVI-8
INTERSECTION ANALYSIS FOR EXISTING (2015) CONDITIONS

#	Intersection	Traffic Control [c]	Intersection Approach Lanes [a] Northbound	Southbound	Eastbound	Westbound	Delay (secs.) [b]		Level of Service	
			L T R	L T R	L T R	L T R	AM	PM	AM	PM
1	Nason St. / Street "A"		Future Intersection							
2	Nason St. / Ironwood Av.	TS	0 1 1	0 1 0	1 1 0	1 1 0	18.1	16.7	B	B
3	Nason St. / SR-60 WB Ramps	TS	1 2 1>	1 2 0	1 1 1>	1 1 1>	19.1	20.3	B	C
4	Nason St. / SR-60 EB Ramps	TS	0 2 0	1 2 0	1 1 1	0 0 0	11.9	14.1	B	B
5	Lantz Ln. / Ironwood Av.	CCS	0 1 0	0 0 0	0 1 d	0 1 0	11.6	11.0	B	B
6	Oliver St. / Street "C"		Future intersection							
7	Oliver St. / Ironwood Av	CCS	0 1 0	0 1 0	0 1 d	0 1 0	11.5	11.2	B	B

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[a] 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

[b] Per the 2010 Highway Capacity Manual, 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.

[c] CSS = Cross-street Stop; TS = Traffic Signal

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, prepared by Urban Crossroads, dated March 9, 2016.

Existing Conditions Roadway Segment Capacity Analysis

The City's General Plan Circulation Element provides roadway volume capacity values as described in Table XVI-5, above. The roadway segment capacities are approximate figures only, and are used at the General Plan level to assist in determining the roadway functional classification (i.e., number of through lanes) needed to meet traffic demand. **Table XVI-9**, *Roadway Volume/Capacity Analysis for Existing (2015) Conditions***,** provides a summary of the Existing conditions roadway segment capacity analysis based on the City's General Plan Circulation Element Roadway Segment Capacity (LOS) Thresholds identified in Table XVI-5. As shown in Table XVI-9, all of the study area segments currently operate at acceptable LOS based on the City's planning level daily roadway capacity thresholds.

TABLE XVI-9
ROADWAY VOLUME/CAPACITY ANALYSIS FOR EXISTING (2015) CONDITIONS

#	Roadway	Segment Limits	Roadway Section	LOS Capacity [a]	Existing (2015)	V/C	LOS	Acceptable LOS
1		Street "A" to Ironwood Avenue	2U		N/A			C
2		South of Ironwood Avenue	4D	12,500	4,306	0.34	A	D
3	Nason St	North of SR-60 WB Ramps	4D	37,500	4,760	0.38	A	D
4		SR-60 WB Ramps to SR-60 EB Ramps	4D	37,500	12,687	0.34	A	D
5		South of SR-60 EB Ramps	2U	37,500	17,807	0.47	A	D
6		West of Nason Street	2U	12,500	6,754	0.54	A	C
7	Ironwood	Nason Street to Lantz Lane	2U	12,500	4,568	0.37	A	C
8	Ave	Lantz Lane to Oliver Street	2U	12,500	4,279	0.34	A	C
9		East of Oliver Street	2U	12,500	4,319	0.35	A	C
10	Oliver St	Between Street "C" and Ironwood Avenue			N/A			C

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS). N/A = Not Applicable; Segment does not exist.

[a] These maximum roadway capacities have been extracted from the City of Moreno Valley's Transportation Division's Traffic Impact Analysis
Transportation Division's Traffic Impact Analysis 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 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.

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, prepared by Urban Crossroads, dated March 9, 2016.

Existing Conditions Traffic Signal Warrants Analysis

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. For Existing traffic conditions, no study area intersections appear to currently warrant a traffic signal.

Existing Conditions Off-Ramp Queuing Analysis

A queuing analysis was performed for the off-ramps at the SR-60 Freeway at the Nason Street interchange to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the SR-60 Freeway mainline. Queuing analysis findings are presented in **Table XVI-10**, *Peak Hour Freeway Off-Ramp Queuing Summary for Existing (2015)* Conditions. As shown on Table XVI-10, there are no queuing issues during the peak 95th percentile traffic flows under Existing traffic conditions.

TABLE XVI-10
PEAK HOUR FREEWAY OFF-RAMP QUEUING SUMMARY FOR EXISTING (2015) CONDITIONS

			95th Percentile Queue (Feet) [b]		Acceptable? [a]	
Intersection	**Movement**	**Available Stacking Distance (feet)**	**AM Peak Hour**	**PM Peak Hour**	**AM**	**PM**
Nason St. /SR 60 WB Ramps	WBL	1,370	83	132	YES	YES
	WBT	2,140	21	31	YES	YES
	WBR	190	0	0	YES	YES
Nason St. /SR-60 EB Ramps	EBL	805	27	96	YES	YES
	EBT	1,300	46	66	YES	YES
	EBR	225	45	63	YES	YES

[a] 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.
[b] Maximum queue length for the approach reported.

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, prepared by Urban Crossroads, dated March 9, 2016.

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. Trip generation rates used to estimate Project traffic and a summary of the Project's trip generation are described in **Table XVI-11**, *Project Trip Generation Summary***.** The trip generation rates are based upon data collected by the Institute of Transportation Engineers (ITE) and presented in ITE's most recent edition of *Trip Generation Manual*. The Project is anticipated to generate a net total of approximately 1,723 trip-ends per day with 136 AM peak hour trips and 181 PM peak hour trips.

TABLE XVI-11
PROJECT TRIP GENERATION SUMMARY

			AM Peak Hour			PM Peak Hour			
Land Use	**ITE Code**	**Units [b]**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**Daily**
Project Trip Generation Rates[a]									
Single Family Detached Residential	210	DU	0.19	0.56	0.75	0.63	0.37	1.00	9.52
			AM Peak Hour			**PM Peak Hour**			
Land Use	**Quantity**	**Units [b]**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**Daily**
Project Trip Generation Summary									
Single Family Detached Residential	181	DU	34	102	136	114	67	181	1,723

[a] Source: ITE (Institute of Transportation Engineers) Trip Generation Manual, 9th Edition, 2012.
[b] DU = Dwelling Units

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, prepared by Urban Crossroads, dated March 9, 2016.

Project Trip Distribution

Trip distribution is the process of identifying the probable destinations, directions or traffic routes that would 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 was developed based on anticipated travel patterns to and from the Project site for the traffic associated with the proposed residential uses. The total volume on each roadway was divided by the total site traffic generation to indicate the percentage of Project traffic that would use each component of the regional roadway system in each relevant direction. The Project trip distribution patterns are illustrated on Exhibit 4-1, Project Trip Distribution, of the Traffic Impact Analysis.

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, 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, AM and PM peak hour traffic volumes are illustrated on Exhibit 4-2, Project Only Traffic Volumes, of the Traffic Impact Analysis.

Existing Plus Project Traffic Analysis

The Existing Plus Project analysis determines significant traffic impacts that would occur on the existing roadway system with the addition of Project traffic. The Existing Plus Project analysis is

intended to identify the Project-specific impacts associated solely with the development of the Project based on a comparison of the Existing Plus Project traffic conditions to Existing conditions.

Existing Plus Project Roadway Improvements

The lane configurations and traffic controls assumed to be in place for the Existing Plus Project conditions are consistent with those illustrated on Exhibit 3-1, Existing Number of Through Lanes and Intersection Controls, of the Traffic Impact Analysis, with the exception of Project streets assumed to be constructed by the Project to provide site access. No other off-site improvements are assumed beyond those that currently exist with the exception of the intersections and roadways that would be improved by the Project for access.

Existing Plus Project Traffic Volume Forecasts

This scenario includes Existing traffic volumes plus Project traffic. Exhibit 5-1, Existing Plus Project Traffic Volumes, Exhibit 3-1, Existing Number of Through Lanes and Intersection Controls, of the Traffic Impact Analysis, illustrates the ADT, AM and PM peak hour traffic volumes which can be expected for Existing Plus Project traffic conditions.

Existing Plus Project Intersection Operations Analysis

Existing Plus Project intersection analysis results are summarized in **Table XVI-12**, *Intersection Analysis for Existing Plus Project Conditions.* Table XVI-12 indicates all study area intersections are anticipated to continue to operate at acceptable LOS consistent with Existing traffic conditions. As such, the addition of Project traffic is not anticipated to result in any deficiencies. Consistent with Table XVI-12, a summary of peak hour intersection LOS for Existing Plus Project conditions are illustrated on Exhibit 5-2, Summary of Peak Hour Intersection LOS for Existing Plus Project Conditions, of the Traffic Impact Analysis.

Existing Plus Project Roadway Segment Capacity Analysis

Table XVI-13, *Roadway Volume/Capacity Analysis for Existing Plus Project Conditions*, provides a summary of the Existing Plus Project conditions roadway segment capacity. As shown in Table XVI-13, all the study roadway segments are anticipated to operate at acceptable LOS consistent with Exiting traffic conditions. As such, the addition of Project traffic is not anticipated to result in any deficiencies.

TABLE XVI-12
INTERSECTION ANALYSIS FOR EXISTING PLUS PROJECT CONDITIONS

#	Intersection	Traffic Control [b]	Existing 2015 Delay (secs.) [a]		Existing 2015 Level of Service		Existing Plus Project Delay (secs.) [a]		Existing Plus Project Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Nason St. / Street "A"	**CSS**	Future Intersection				8.9	8.9	A	A
2	Nason St. / Ironwood Av.	TS	18.1	16.7	B	B	20.0	18.7	B	B
3	Nason St. / SR-60 WB Ramps	TS	19.1	20.3	B	C	19.9	20.5	B	C
4	Nason St. / SR-60 EB Ramps	TS	11.9	15.1	B	B	12.3	14.6	B	B
5	Lantz Ln. / Ironwood Av.	CCS	11.6	11.0	B	B	12.2	12.0	B	B
6	Oliver St. / Street "C"	**CSS**	Future intersection				8.9	9.2	A	A
7	Oliver St. / Ironwood Av	CCS	11.5	11.2	B	B	12.0	11.6	B	B

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).
[a] Per the 2010 Highway Capacity Manual, 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.
[b] CSS = Cross-street Stop; TS = Traffic Signal

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, prepared by Urban Crossroads, dated March 9, 2016.

TABLE XVI-13
ROADWAY VOLUME/CAPACITY ANALYSIS FOR EXISTING PLUS PROJECT CONDITIONS`

#	Roadway	Segment Limits	Roadway Section	LOS Capacity [a]	Existing (2015)	V/C	LOS	E+P	V/C	LOS	Acceptable LOS
1		Street "A" to Ironwood Avenue	2U		N/A			637	0.32	A	C
2		South of Ironwood Avenue	4D	12,500	4,306	0.34	A	5,253	0.42	A	D
3	Nason St	North of SR-60 WB Ramps	4D	37,500	4,760	0.38	A	5,707	0.46	A	D
4		SR-60 WB Ramps to SR-60 EB Ramps	4D	37,500	12,687	0.34	A	13,332	0.34	A	D
5		South of SR-60 EB Ramps	2U	37,500	17,807	0.47	A	18,151	0.48	A	D
6		West of Nason Street	2U	12,500	6,754	0.54	A	7,098	0.57	A	C
7	Ironwood	Nason Street to Lantz Lane	2U	12,500	4,568	0.37	A	5,342	0.43	A	C
8	Ave	Lantz Lane to Oliver Street	2U	12,500	4,279	0.34	A	4,537	0.36	A	C
9		East of Oliver Street	2U	12,500	4,319	0.35	A	4,750	0.38	A	C
10	Oliver St	Between Street “C” and Ironwood Avenue			N/A			517	0.26	A	C

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS). N/A = Not Applicable; Segment does not exist.

[a] These maximum roadway capacities have been extracted from the City of Moreno Valley's Transportation Division's Traffic Impact Analysis Transportation Division's Traffic Impact Analysis 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 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.

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, prepared by Urban Crossroads, dated March 9, 2016.

Existing Plus Project Traffic Signal Warrants Analysis

Traffic signal warrants for Existing Plus Project traffic conditions are based on both Existing Plus Project Caltrans planning-level ADT and peak hour volumes. For Existing Plus Project conditions, there are no traffic signals that appear to be warranted.

Existing Plus Project Off-Ramp Queuing Analysis

Table XVI-14, *Peak Hour Freeway Off-Ramp Queuing Summary for Existing Plus Project Conditions*, the Existing Plus Project queuing analysis findings. As shown in Table XVI-14, there are no queuing issues during the peak 95th percentile traffic flows under Existing Plus Project traffic conditions consistent with Existing traffic conditions. As such, the addition of Project traffic is not anticipated to result in any potential off-ramp queues at the SR-60 Freeway and Nason Street.

TABLE XVI-14
PEAK HOUR FREEWAY OFF-RAMP QUEUING SUMMARY FOR EXISTING PLUS PROJECT CONDITIONS

			95th Percentile Queue (Feet) [b]		Acceptable? [a]	
Intersection	**Movement**	**Available Stacking Distance (feet)**	**AM Peak Hour**	**PM Peak Hour**	**AM**	**PM**
Existing (2015) Condition						
Nason St. /SR 60 WB Ramps	WBL	1,370	83	132	YES	YES
	WBT	2,140	21	31	YES	YES
	WBR	190	0	0	YES	YES
Nason St. /SR-60 EB Ramps	EBL	805	27	96	YES	YES
	EBT	1,300	46	66	YES	YES
	EBR	225	45	63	YES	YES
Existing Plus Project Conditions						
Nason St. /SR 60 WB Ramps	WBL	1,370	83	132	YES	YES
	WBT	2,140	21	31	YES	YES
	WBR	190	0	0	YES	YES
Nason St. /SR-60 EB Ramps	EBL	805	35	113	YES	YES
	EBT	1,300	46	64	YES	YES
	EBR	225	45	62	YES	YES

[a] 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.
[b] Maximum queue length for the approach reported.

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, prepared by Urban Crossroads, dated March 9, 2016.

Opening Year Cumulative (2020) Traffic Analysis

To account for background traffic, other known cumulative development projects in the study area were included in addition to 10.41 percent of ambient growth for Opening Year Cumulative (2020) traffic conditions in conjunction with traffic associated with the proposed Project. Although it is unlikely that these cumulative projects would be fully built and occupied by Year 2020, these projects have been included in an effort to conduct a conservative analysis and overstate and opposed to understate potential cumulative traffic impacts.

The currently adopted Southern California Association of Governments (SCAG) 2012 Regional Transportation Plan (RTP) (April 2012) growth forecasts for the unincorporated areas of the City identifies projected growth in population of 187,400 in 2008 to 255,200 in 2035, or a 36.2 percent increase over the 27 year period. The change in population equates to roughly a 1.5 percent growth rate compounded annually. Similarly, growth over the same 27 year period in households is projected to increase by 42.5 percent, or 1.32 percent annual growth rate. Finally, growth in employment over the same 27 year period is projected to increase by 99.5 percent, or a 2.59 percent annual growth rate.

Based on a comparison of Existing traffic volumes to the Horizon Year (2035) forecasts, the average growth rate is estimated at approximately 3.17 percent compounded annually between Existing and Horizon Year (2035) traffic conditions. The annual growth rate at each individual intersection is not lower than 2.08 percent compounded annually to as high as 4.20 percent compounded annually over the same time period. Therefore, the annual growth rate utilized for the purposes of this analysis would appear to conservatively approximate the anticipated regional growth in traffic volumes in the City for both Opening Year Cumulative (2020) and Horizon Year (2035) traffic conditions, especially when considered along with the addition of Project-related traffic. As such, the growth in traffic volumes assumed would tend to overstate as opposed to understate the potential impacts to traffic and circulation.

Opening Year Cumulative (2020) Roadway Improvements

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2020) conditions are consistent with those previously shown on Exhibit 3-1, Existing Number of Through Lanes and Intersection Controls, of the Traffic Impact Analysis, with the exception of Project driveways assumed to be constructed by the Project to provide site access. No other off-site improvements are assumed beyond those that currently exist with the exception of the intersections and roadways that would be improved by the Project for access.

Opening Year Cumulative (2020) Without Project Traffic Volume Forecasts

Exhibit 6-1, Opening Year Cumulative (2020) Without Project Traffic Volumes, of the Traffic Impact Analysis, illustrates the ADT, AM and PM peak hour traffic volumes which can be expected for Opening Year (2020) Without Project traffic conditions.

Opening Year Cumulative (2020) With Project Traffic Volume Forecasts

Exhibit 6-2, Opening Year Cumulative (2020) With Project Traffic Volumes, of the Traffic Impact Analysis, illustrates the ADT, AM and PM peak hour traffic volumes which can be expected for Opening Year (2020) With Project traffic conditions.

Opening Year Cumulative (2020) Intersection Operations Analysis

Opening Year Cumulative (2020) intersection analysis results are summarized in **Table XVI-15,** *Intersection Analysis for Opening Year Cumulative (2020) Conditions***.** Table XVI-15 indicates all study area intersections are anticipated to continue to operate at acceptable LOS under both Opening Year Cumulative (2020) Without and Opening Year Cumulative (2020) With Project consistent with Project traffic conditions. A summary of peak hour intersection LOS for Opening Year Cumulative (2020) Without and With Project conditions are illustrated on Exhibit 6-3, Summary of Peak Hour Intersection LOS for Opening Year Cumulative (2020) Without Project Conditions and Exhibit 6-4, Summary of Peak Hour Intersection LOS for Opening Year Cumulative (2020) With Project Conditions, of the Traffic Impact Analysis, respectively.

TABLE XVI-15
INTERSECTION ANALYSIS FOR OPENING YEAR CUMULATIVE (2020) CONDITIONS

#	Intersection	Traffic Control [b]	2020 Without Project				2020 With Project			
			Delay (secs.) [a]		Level of Service		Delay (secs.) [a]		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Nason St. / Street "A"	**CSS**	Future Intersection				8.9	8.9	A	A
2	Nason St. / Ironwood Av.	TS	47.0	28.6	D	C	54.7	32.7	D	C
3	Nason St. / SR-60 WB Ramps	TS	20.2	13.74	C	C	23.6	24.1	C	C
4	Nason St. / SR-60 EB Ramps	TS	22.7	18.7	C	B	26.1	19.4	C	B
5	Lantz Ln. / Ironwood Av.	CCS	13.3	12.8	B	B	14.5	14.5	B	B
6	Oliver St. / Street "C"	**CSS**	Future intersection				8.9	9.2	A	A
7	Oliver St. / Ironwood Av	CCS	13.2	13.0	B	B	13.9	13.6	B	B

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).
[a] Per the 2010 Highway Capacity Manual, 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.
[b] CSS = Cross-street Stop; TS = Traffic Signal

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, prepared by Urban Crossroads, dated March 9, 2016.

Opening Year Cumulative (2020) Roadway Segment Analysis

Table XVI-16, *Roadway Volume/Capacity Analysis for Opening Year Cumulative (2020) Project Conditions,* provides a summary of the Opening Year Cumulative (2020) Project conditions roadway segment capacity. As shown in Table XVI-16, all the study roadway segments are anticipated to operate at acceptable LOS with the exception of the segment of Ironwood Avenue, west of Nason Street.

As noted above under the Roadway Segment Capacity Analysis Methodology, where the ADT-based roadway segment analysis indicates a deficiency (unacceptable LOS), a review of the more detailed peak hour intersection analysis are undertaken. The more detailed peak hour intersection analysis explicitly accounts for factors that affect roadway capacity. As such, roadway segment widening is typically only recommended if the peak hour intersection analysis indicates the need for additional through lanes. The adjacent intersection of Nason Street at Ironwood Avenue is anticipated to operate at acceptable LOS under Opening Year Cumulative (2020) traffic conditions without roadway widening. As such, roadway widening or additional improvements to the eastbound approach at this intersection have not been recommended and impacts are considered less than significant.

Opening Year Cumulative (2020) Traffic Signal Warrants Analysis

Traffic signal warrants for Opening Year Cumulative (2020) traffic conditions are based on both Opening Year Cumulative Caltrans planning-level ADT and peak hour volumes. For Opening Year Cumulative (2020) Without and With Project traffic conditions, there are no study area intersections anticipated to meet traffic signal warrants.

Opening Year Cumulative (2020) Off-Ramp Queuing Analysis

Table XVI-17, *Peak Hour Freeway Off-Ramp Queuing Summary for Opening Year Cumulative (2020) Conditions***,** the Opening Year Cumulative (2020) Project queuing analysis findings. As shown in Table XVI-17, there are no queuing issues during the peak 95th percentile traffic flows under Opening Year Cumulative (2020) With Project traffic conditions and Opening Year Cumulative (2020) Without Project traffic conditions.

TABLE XVI-16
ROADWAY VOLUME/CAPACITY ANALYSIS FOR OPENING YEAR CUMULATIVE (2020) CONDITIONS

#	Roadway	Segment Limits	Roadway Section	LOS Capacity [a]	2020 Without Project	V/C	LOS	2020 With Project	V/C	LOS	Acceptable LOS
1		Street "A" to Ironwood Avenue	**2U**	2,000	N/A			649	0.32	A	C
2		South of Ironwood Avenue	4D	12,500	8,951	0.72	C	9.898	0.79	C	D
3	Nason St	North of SR-60 WB Ramps	4D	37,500	9,452	0.25	A	10,399	0.28	A	D
4		SR-60 WB Ramps to SR-60 EB Ramps	4D	37,500	18,743	0.40	A	19,388	0.52	A	D
5		South of SR-60 EB Ramps	2U	37,500	24,886	0.66	B	25,230	0.67	B	D
6		West of Nason Street	2U	12,500	12,164	0.97	E	12,508	1.00	E	C
7	Ironwood	Nason Street to Lantz Lane	2U	12,500	7,829	0.63	B	8,603	0.69	B	C
8	Ave	Lantz Lane to Oliver Street	2U	12,500	7,394	0.59	A	7,652	0.61	B	C
9		East of Oliver Street	2U	12,500	7,371	0.59	A	7,802	0.62	B	C
10	Oliver St	Between Street “C” and Ironwood Avenue	2U	2,000	N/A			517	0.26	A	C

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS). N/A = Not Applicable; Segment does not exist.

[a] These maximum roadway capacities have been extracted from the City of Moreno Valley's Transportation Division's Traffic Impact Analysis Transportation Division's Traffic Impact Analysis 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 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.

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, prepared by Urban Crossroads, dated March 9, 2016.

TABLE XVI-17
PEAK HOUR FREEWAY OFF-RAMP QUEUING SUMMARY FOR OPENING YEAR CUMULATIVE (2020) CONDITIONS

Intersection	Movement	Available Stacking Distance (feet)	95th Percentile Queue (Feet) [b] AM Peak Hour	PM Peak Hour	Acceptable? [a] AM	PM
Opening Year Cumulative (2020) Without Project						
Nason St. /SR 60 WB Ramps	WBL	1,370	103	254 [c]	YES	YES
	WBT	2,140	22	33	YES	YES
	WBR	190	2	19	YES	YES
Nason St. /SR-60 EB Ramps	EBL	805	30	67	YES	YES
	EBT	1,300	98	45	YES	YES
	EBR	225	97	43	YES	YES
Opening Year Cumulative (2020) With Project						
Nason St. /SR 60 WB Ramps	WBL	1,370	106	254 [c]	YES	YES
	WBT	2,140	22	33	YES	YES
	WBR	190	4	25	YES	YES
Nason St. /SR-60 EB Ramps	EBL	805	37	129	YES	YES
	EBT	1,300	120	137	YES	YES
	EBR	225	118	134	YES	YES

[a] 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.
[b] Maximum queue length for the approach reported.
[c] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, prepared by Urban Crossroads, dated March 9, 2016.

Horizon Year (2035) Traffic Analysis

The Horizon Year (2035) Without Project traffic conditions were derived from the Riverside County Transportation Analysis Model (RivTAM) modified to represent Horizon Year (2035) conditions for the City using accepted procedures for model forecast refinement and smoothing. The traffic forecasts reflect the area-wide growth anticipated between Existing conditions and Horizon Year (2035) conditions. The Horizon Year (2035) With Project traffic forecasts were determined by adding the Project traffic to the Horizon Year (2035) Without Project traffic forecasts from the RivTAM model. The Horizon Year (2035) 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 has, therefore, been reviewed for reasonableness. The reasonableness checks performed include a review of traffic flow conservation in addition to comparison with the Existing and Opening Year (2020)

Cumulative traffic volumes. Where necessary, the Horizon Year (2035) volumes have been adjusted to achieve flow conservation, reasonable growth, and reasonable diversion between parallel routes.

The Horizon Year (2035) Without and With Project traffic conditions analysis would be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the TUMF and DIF programs, or other approved funding mechanisms can accommodate the long-range cumulative traffic at the target LOS identified in the City's General Plan. If the "funded" improvements can provide the target LOS, then the Project's payment into TUMF and/or DIF would be considered as long-range cumulative mitigation through the conditions of approval. Other improvements needed beyond the "funded" improvements (i.e. localized improvements to non-TUMF facilities) are identified as such.

Horizon Year (2035) Roadway Improvements

The lane configurations and traffic controls assumed to be in place for Horizon Year (2035) conditions are consistent with those previously shown on Exhibit 3-1, Existing Number of Through Lanes and Intersection Controls, of the Traffic Impact Analysis, with the exception of Project driveways assumed to be constructed by the Project to provide site access. No other off-site improvements are assumed beyond those that currently exist with the exception of the intersections and roadways that would be improved by the Project for access.

Horizon Year (2035) Without Project Traffic Volume Forecasts

Exhibit 7-1, Horizon Year (2035) Without Project Traffic Volumes, of the Traffic Impact Analysis, illustrates the ADT, AM and PM peak hour traffic volumes which can be expected for Horizon Year (2035) Without Project traffic conditions.

Horizon Year (2035) With Project Traffic Volume Forecasts

Exhibit 7-2, Horizon Year (2035) With Project Traffic Volumes, of the Traffic Impact Analysis, illustrates the ADT, AM and PM peak hour traffic volumes which can be expected for Horizon Year (2035) With Project traffic conditions.

Horizon Year (2035) Intersection Operations Analysis

Horizon Year (2035) intersection analysis results are summarized in **Table XVI-18,** *Intersection Analysis for Horizon Year (2035) Conditions***.** Table XVI-18 indicates all study area intersections are anticipated to continue to operate at acceptable LOS under both Horizon Year (2035) Without and With Project traffic conditions, with the exception of the intersection of Nason Street at Ironwood Avenue. A summary of peak hour intersection LOS Horizon Year (2035) Without and With Project conditions are illustrated on Exhibit 7-3, Summary of Peak Hour Intersection LOS for Horizon Year (2035) Without Project Conditions and Exhibit 7-4, Summary of Peak Hour Intersection LOS for Horizon Year (2035) With Project Conditions, of the Traffic Impact Analysis, respectively.

TABLE XVI-18
INTERSECTION ANALYSIS FOR HORIZON YEAR (2035) CONDITIONS

#	Intersection	Traffic Control [b]	2035 Without Project				2035 With Project			
			Delay (secs.) [a]		Level of Service		Delay (secs.) [a]		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Nason St. / Street "A"	**CSS**	Future Intersection				9.0	9.0	A	A
2	Nason St. / Ironwood Av.	TS	**>200.0**	**141.2**	**F**	**F**	**>200.0**	**>200.0**	**F**	**F**
3	Nason St. / SR-60 WB Ramps	TS	23.9	31.1	C	C	27.5	31.5	C	C
4	Nason St. / SR-60 EB Ramps	TS	27.2	31.0	C	C	28.1	32.1	C	C
5	Lantz Ln. / Ironwood Av.	CCS	14.1	13.5	B	B	14.2	13.6	B	B
6	Oliver St. / Street "C"	**CSS**	Future intersection				8.8	9.1	A	A
7	Oliver St. / Ironwood Av	CCS	13.9	13.8	B	B	14.6	13.8	B	B

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).
[a] Per the 2010 Highway Capacity Manual, 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.
[b] CSS = Cross-street Stop; TS = Traffic Signal

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, prepared by Urban Crossroads, dated March 9, 2016.

Horizon Year (2035) Roadway Segment Analysis

Table XVI-19, *Roadway Volume/Capacity Analysis for Horizon Year (2035) Project Conditions*, provides a summary of the Horizon Year (2035) Project conditions roadway segment capacity. As shown in Table XVI-19, all the study roadway segments are anticipated to operate at acceptable LOS with the exception of the segment of Ironwood Avenue, west of Nason Street.

As noted above under the Roadway Segment Capacity Analysis Methodology, where the ADT-based roadway segment analysis indicates a deficiency (unacceptable LOS), a review of the more detailed peak hour intersection analysis are undertaken. The more detailed peak hour intersection analysis explicitly accounts for factors that affect roadway capacity. As such, roadway segment widening is typically only recommended if the peak hour intersection analysis indicates the need for additional through lanes. The adjacent intersection of Nason Street at Ironwood Avenue is anticipated to operate at acceptable LOS under Horizon Year (2035) traffic conditions with turn lane improvements as identified in **Table XVI-20**, *Intersection Analysis for Horizon Year (2035) Conditions With Improvements*, but without additional through lanes. As such, roadway widening or additional improvements to the eastbound approach at this intersection have not been recommended beyond those needed to address peak hour intersection operational deficiencies and impacts are considered less than significant.

TABLE XVI-19
ROADWAY VOLUME/CAPACITY ANALYSIS FOR HORIZON YEAR (2035) CONDITIONS

#	Roadway	Segment Limits	Roadway Section	LOS Capacity [a]	2035 Without Project	V/C	LOS	2035 With Project	V/C	LOS	Acceptable LOS
1		Street "A" to Ironwood Avenue	**2U**	2,000	N/A			817	0.41	A	C
2		South of Ironwood Avenue	4D	12,500	9,846	0.79	C	10,793	0.86	D	D
3	Nason St	North of SR-60 WB Ramps	4D	37,500	10,398	.28	A	11,345	0.30	A	D
4		SR-60 WB Ramps to SR-60 EB Ramps	4D	37,500	20,617	0.55	A	21,262	0.57	A	D
5		South of SR-60 EB Ramps	2U	37,500	27,375	0.73	C	27,719	0.74	C	D
6		West of Nason Street	2U	12,500	**13,381**	**1.07**	**F**	**13,725**	**1.10**	**F**	C
7	Ironwood	Nason Street to Lantz Lane	2U	12,500	8,612	0.69	B	9,386	0.75	C	C
8	Ave	Lantz Lane to Oliver Street	2U	12,500	8.134	0.65	B	8.392	0.67	B	C
9		East of Oliver Street	2U	12,500	8,101	0.65	B	8,532	0.68	B	C
10	Oliver St	Between Street “C” and Ironwood Avenue	2U	2,000	N/A			517	0.26	A	C

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS). N/A = Not Applicable; Segment does not exist.

[a] These maximum roadway capacities have been extracted from the City of Moreno Valley's Transportation Division's Traffic Impact Analysis Transportation Division's Traffic Impact Analysis 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 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.

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, prepared by Urban Crossroads, dated March 9, 2016.

TABLE XVI-20
INTERSECTION ANALYSIS FOR HORIZON YEAR (2035) CONDITIONS WITH IMPROVEMENTS

#	Intersection	Traffic Control [c]	Intersection Approach Lanes [a] Northbound	Southbound	Eastbound	Westbound	Delay (secs.) [b]		Level of Service	
			L T R	L T R	L T R	L T R	AM	PM	AM	PM
2	Nason St. / Ironwood Av.									
	Without Project	TS	1 1 1	1 1 0	1 1 1>	1 1 0	30.0	34.3	C	C
	With Project	TS	1 1 1	1 1 0	1 1 0	1 1 0	34.2	36.4	C	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).
[a] 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
[b] Per the 2010 Highway Capacity Manual, 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.
[c] CSS = Cross-street Stop; TS = Traffic Signal

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, prepared by Urban Crossroads, dated March 9, 2016.

Horizon Year (2035) Traffic Signal Warrants Analysis

Traffic signal warrants for Horizon Year (2035) traffic conditions are based on both Horizon Year (2035) Caltrans planning-level ADT and peak hour volumes. For Horizon Year (2035) Without and With Project traffic conditions, there are no study area intersections anticipated to meet traffic signal warrants.

Horizon Year (2035) Off-Ramp Queuing Analysis

Table XVI-21, *Peak Hour Freeway Off-Ramp Queuing Summary for Horizon Year (2035) Conditions*, presents the Horizon Year (2035) Project queuing analysis findings. As shown in Table XVI-21, there are no queuing issues during the peak 95th percentile traffic flows under Horizon Year (2035) With Project traffic conditions and Horizon Year (2035) Without Project traffic conditions.

Recommended Improvements

As discussed in the Traffic Impact Analysis and included below as COA TRAF-1, potential all-way stop locations along Street "A" could be a relatively low cost solution to discourage speeding along this street segment, if speeding becomes an issue after the Project is constructed and occupied and appropriate warrants are met. As these particular street segments are bounded by private residential units on both sides, the use of midblock chokers or street narrowing measures were considered, but have not been recommended as they would reduce the amount of on-street parking in front or nearby the residential units. Potential speed hump locations have been recommended within three locations along Street "A".

TABLE XVI-21
PEAK HOUR FREEWAY OFF-RAMP QUEUING SUMMARY FOR HORIZON YEAR (2035) CONDITIONS

Intersection	Movement	Available Stacking Distance (feet)	95th Percentile Queue (Feet) [b]		Acceptable? [a]	
			AM Peak Hour	PM Peak Hour	AM	PM
Opening Year Cumulative (2035) Without Project						
Nason St. /SR 60 WB Ramps	WBL	1,370	94	308 [c]	YES	YES
	WBT	2,140	16	62	YES	YES
	WBR	190	0	25	YES	YES
Nason St. /SR-60 EB Ramps	EBL	805	42	129	YES	YES
	EBT	1,300	180 [c]	226 [c]	YES	YES
	EBR	225	171 [c]	220 [c]	YES	YES
Opening Year Cumulative (2035) With Project						
Nason St. /SR 60 WB Ramps	WBL	1,370	140	308 [c]	YES	YES
	WBT	2,140	35	62	YES	YES
	WBR	190	6	31	YES	YES
Nason St. /SR-60 EB Ramps	EBL	805	50	152	YES	YES
	EBT	1,300	202 [c]	232 [c]	YES	YES
	EBR	225	187 [c]	226 [c]	YES	YES

[a] 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.
[b] Maximum queue length for the approach reported.
[c] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles

SOURCE: Ironwood Residential (TTM No. 37001) Traffic Impact Analysis City of Moreno Valley, prepared by Urban Crossroads, dated March 9, 2016.

Potential all-way stop locations have also been recommended in three locations along Street "A". Please refer to Exhibit 1-5: Traffic Calming Recommendations, of the Traffic Impact Analysis, for recommended locations of speed humps and all-way stop locations.

Improvement strategies have been recommended at intersections that have been identified as deficient in an effort to reduce each location's peak hour delay and to improve the associated LOS grade to an acceptable LOS (LOS "D" or better). The effectiveness of the recommended improvement strategies discussed below to address Horizon Year (2035) traffic deficiencies is illustrated in Table XVI-20. Further, the Project applicant shall participate in the funding of off-site improvements, including traffic signals that are needed to serve cumulative traffic conditions through the payment of TUMF and City DIF fees (if the improvements are included in the TUMF or DIF programs) or on a fair share basis (if the improvements are not included in the TUMF or

DIF programs). These fees shall be collected by the City, with the proceeds solely used as part of a funding mechanism used to ensure that regional highways and arterial expansions keep pace with the projected population increases (MM TRAF-1). There are no other applicable pre-existing funding programs for the study area aside from TUMF and DIF. As such, incorporation of the recommended improvements and strategies and implementation of MM TRAF-1, a less than significant impact would occur in this regard.

Project Design Features (Conditions of Approval)

> **COA TRAF-1** As recommended by the project's traffic consultant, prior to project occupancy, three potential speed hump locations have been proposed along Street "A". Final speed hump locations to be reviewed and approved by the City's Traffic Engineer. Further, prior to project occupancy, potential all-way stop locations, to be determined if warranted by the City's Traffic Engineer, have also been recommended in three locations along Street "A".

Mitigation Measures

> **MM TRAF-1**: The Project applicant shall participate in the funding of off-site improvements, including traffic signals that are needed to serve cumulative traffic conditions through the payment of TUMF and City DIF fees (if the improvements are included in the TUMF or DIF programs) or on a fair share basis (if the improvements are not included in the TUMF or DIF programs). These fees shall be collected by the City, with the proceeds solely used as part of a funding mechanism used to ensure that regional highways and arterial expansions keep pace with the projected population increases.

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?

Less Than Significant Impact. The CMP is a State-mandated program enacted by the State legislature to address the impacts that urban congestion has on local communities and the region as a whole. The Riverside County Transportation Commission (RCTC) is the designated congestion management agency (CMA) for Riverside County, and holds responsibility for the development and implementation of the Riverside County CMP. New projects located in the City must comply with the requirements set forth in the County's CMP. These requirements include the provision that all freeway segments where a project could add 150 or more trips in each direction during the peak hours be evaluated. The guidelines also require evaluation of all designated CMP intersections where a project could add 50 or more trips during either peak hour.

The CMP intersection analysis locations for the Project include Nason Street and the SR-60 Westbound Ramps (Intersection ID #3) and Nason Street and the SR-60 Eastbound Ramps (Intersection ID #4); refer to Figure XVI-1. The Project would not add 150 or more trips (in either direction) during either the weekday AM or PM peak hours to CMP freeway monitoring locations which is the threshold for preparing a traffic impact assessment, as stated in the CMP manual. The Project would not add 50 or more trips during either the weekday AM or PM peak

hours (i.e., of adjacent street traffic) at CMP monitoring intersections, as stated in the CMP manual as the threshold criteria for a traffic impact assessment. Therefore, no further review of potential impacts to freeway or intersection monitoring locations that are part of the CMP highway system is required. As such, based on the CMP guidelines for intersections and freeways, a less than significant impact would occur for any analysis scenario based on CMP criteria.

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?

No Impact. As discussed under Responses VIII.e and f, the Project site is not located within an airport land use plan or within two miles of a public or private airport. The nearest airport is the March Inland Port, a joint-use military and public airport, located approximately 5.15 miles southwest of the Project site. The Project would not introduce structures substantial enough to interfere with existing flight paths, or result in a measureable increase in airport traffic that would result in substantial safety risks. As such, no impacts would occur.

d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less Than Significant Impact. There are no existing hazardous design features such as sharp curves or dangerous intersections or incompatible uses on-site or within the Project vicinity. Vehicular access to the Project site currently and would continue to be provided via Ironwood Avenue, Nason Street, and Oliver Street. The Project's proposed access is located on Nason Street via Street "A", Ironwood Avenue via Street "B" (northern extension of Lantz Lane), and Oliver Street via Street "C". Ironwood Avenue is an east-west oriented roadway located along the Project's southern boundary. The Project proposes to widen Ironwood Avenue from Nason Street to Oliver Street to its half-section width of as a minor arterial (88-foot right-of-way). Nason Street is a north-south oriented roadway located along the Project's western boundary. The Project proposes to widen Nason Street from the Project's northern boundary to Ironwood Avenue to its half-section width as a collector (66-foot right-of-way). Oliver Street is a north-south oriented roadway located along the Project's eastern boundary. The Project proposes to widen Oliver Street from the Project's northern boundary to Ironwood Avenue to its half-section width as a local road (56-foot right-of-way). On-site traffic signing and striping would be implemented in conjunction with detailed construction plans for the Project site. Sight distance at each Project access point would be reviewed with respect to standard Caltrans and City sight distance standards at the time of preparation of final grading, landscape and street improvement plans. All on-site roadway and site access improvements would be designed in compliance with applicable City standards.

As discussed in Response XVI.a, a queuing analysis was performed of all six Project scenarios for the off-ramps at the SR-60 Freeway at the Nason Street interchange to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the SR-60 Freeway mainline. Further, a traffic signal warrant analysis was performed of all six Project scenarios to quantitatively justify

or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. As discussed therein, there are no queuing issues during the 95th percentile traffic flows and no study area intersections anticipated to meet traffic signal warrants under any of the six Project scenarios. As such, impacts would be less than significant in this regard.

e. Result in inadequate emergency access?

Less Than Significant Impact. The Project site is located in an established rural area that is well served by the surrounding roadway network. While it is expected that the majority of construction activities for the Project would be confined on-site, construction activities may temporarily affect access on portions of adjacent streets during certain periods of the day, including during construction of potential off-site infrastructure upgrades/improvements (i.e., street widening, water and sewer lines) (discussed below in Section 17, *Utilities and Service Systems*). However, through-access for drivers, including emergency personnel, along all roads would still be provided. In these instances, the Project would implement traffic control measures (e.g., construction flagmen, signage, etc.) to maintain flow and access. Furthermore, in accordance with the City, the Project would develop a Construction Management Plan, which includes designation of a haul route, to ensure that adequate emergency access is maintained during construction. Therefore, construction is not expected to result in inadequate emergency access.

Project operation would generate traffic in the Project vicinity and would result in some modifications to access (i.e., street widening, new curb cuts for Project driveways) from the streets that surround the Project site. However, emergency access to the Project site and surrounding area would continue to be provided similar to existing conditions. Emergency vehicles and fire access would be provided from the primary driveway for the Project site located on Ironwood Avenue about mid-block between Nason Street and Oliver Street, immediately opposite from and north of Lantz Lane. Secondary site access would be provided by driveways on both Nason Street and Oliver Street just north of Ironwood Avenue. Future street widening, driveway, and building configurations would comply with applicable fire code requirements for emergency evacuation. Subject to review and approval of Project site access and circulation plans by the MVFD, the Project would not result in inadequate emergency access. Therefore, Project operation would result in a less than significant impact in this regard.

f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Less Than Significant Impact. The Project site is not currently being served by a direct transit line. The Riverside Transit Agency (RTA) has existing bus services running along Nason Street, south of the SR-60 Freeway via Route 210. Transit service is reviewed and updated by the RTA periodically to address ridership, budget and community demand needs. Changes in land uses can affect these period adjustments which may lead to enhanced or reduced service where deemed appropriate. Currently, there are existing Class II bike lanes located on Nason Street south of the SR-60 westbound ramps interchange. A Class I bikeway is proposed along the west side of Nason Street south of Ironwood Avenue and through the SR-60 Freeway interchange.

Class II bikeways are proposed along Elder Avenue while Class III bikeways are proposed along Ironwood Avenue from west of Nason Street to east of Oliver Street. There are no existing pedestrian facilities (sidewalk and crosswalk) along the Project boundaries. Further, there are proposed trails long Ironwood Avenue east of Nason Street and along Oliver Street. Overall, the Project is not expected to interfere with or degrade the performance or safety of public transit, bicycle, or pedestrian facilities, and a less than significant impact would result.

XVII. Utilities and Service Systems

Would the Project:

a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Less Than Significant Impact. Under the NPDES permit system, all existing and future municipal and industrial discharges to surface waters within the City are subject to applicable local, State and/or federal regulations. The Project must comply with all provisions of the NPDES program and other applicable waste discharge requirements (WDRs), as enforced by the RWQCB. Therefore, implementation of the Project would not result in an exceedance of wastewater treatment requirements.

The Eastern Municipal Water District (EMWD) provides wastewater services to the City, including the Project site. The EMWD has four operational RWRFs located throughout the EMWD. Inter-connections between the local collections systems serving each treatment plant allow operational flexibility, improved reliability, and expanded deliveries of recycled water. All of EMWD's RWRF's produce tertiary effluent, suitable for all Department of Health Services permitted uses, including irrigation of food crops and full-body contact. The four RWRFs have a combined capacity of 81,800 acre-feet per year (AFY). In 2015, the EMWD collected and treated a total of 48,665 acre-feet (AF) of wastewater at its four regional water reclamation facilities (RWRFs). The Moreno Valley RWRF with a capacity of 17,900 AFY would treat the Project site. Compliance with applicable WDRs would ensure that Project implementation would not exceed the applicable wastewater treatment requirements of the CRRWQCB with respect to discharges to the sewer system. As such, impacts would be less than significant in this regard.

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?

Wastewater

Less Than Significant Impact. During Project construction, a negligible amount of wastewater would be generated by construction workers. It is anticipated that portable toilets would be provided by a private company and the waste disposed off-site. Wastewater generation from construction activities is not anticipated to cause a measureable increase in wastewater flows at a point where, and at a time when, a sewer's capacity is already constrained or that would cause a sewer's capacity to become constrained. Additionally, construction is not anticipated to generate

wastewater flows that would substantially or incrementally exceed the future scheduled collection of the Moreno Valley RWRF. Therefore, construction impacts to the local wastewater conveyance and treatment system would be less than significant.

Existing sewer lines within the City are maintained by the EMWD. No public sewers exist adjacent to the Project site, and thus the Project proposes the construction of a new off-site sewer main in addition to proposed on-site sewer collection improvements. The on-site sewer system, which would be owned and maintained by EMWD once constructed by the Project, would collect wastewater generated by the proposed residential units, which would be conveyed via a new sewer line extending from the Project site southward along Oliver Street to an existing sewer owned and operated by EMWD located south of the SR-60 freeway near Eucalyptus Avenue. Construction of the Project would include all necessary on and off-site sewer pipe improvements and connections to adequately link the Project to the existing City sewer system (refer to Figure A-11 in Attachment A of this Initial Study for the location of the proposed sewer improvements). The necessary improvements would be verified through the permit approval process of obtaining a sewer capacity and connection permit from the City. Construction-related impacts would be temporary and within the scope of impacts evaluated in this MND. However, the impacts of such construction activity would be temporary and on an intermittent basis. Further, a Construction Management Plan for the Project would be prepared in order to minimize disruptions to through traffic flow, which would consider any off-site utility improvements, as necessary. **[Note to City: Please confirm if such a plan is typically required for similar projects.]**

Implementation of the Project would generate approximately 63,350 gallons per day (gpd) or about 71 AFY of wastewater.[39] The four EMWD RWRFs have a combined capacity of 81,800 AFY. The Moreno Valley RWRF has a capacity of 17,900 AFY. Given the current capacity of the Moreno Valley RWRF, the Project wastewater generation would account for a less than 0.4-percent increase in demand at the Moreno Valley RWFR, and thus there would be ample capacity to treat this increased volume.

Based on the above, and given existing and anticipated future capacity at the wastewater treatment facilities and wastewater generation expected from the Project, impacts regarding wastewater facilities would be less than significant.

Water

Less Than Significant Impact. During construction activities associated with the future development within the Project site, there would be temporary, intermittent demand for water for such activities as soil watering for site preparation, fugitive dust control, concrete preparation, paining, cleanup, and other short-term activities. Construction-related water usage is not

[39] Total wastewater generation based on 181 residential units x 350 gpd/du = 63,350 gpd, and (63,350 gpd x 365 days/year)/(325,851 gallons/AF) = 70.96 AFY. Generation factors based on the Eastern Municipal Water District's *Sanitary Sewer System Planning & Design Guidelines*, dated September 1, 2006. Available at: *http://www.emwd.org/home/showdocument?id=744*. Accessed August 2016.

expected to have an adverse impact on available water supplies or the existing water distribution system, and impacts would be less than significant.

The EMWD provides water and water treatment to the City, including the Project site. Existing water lines within the City adjacent to the Project site include an existing 12-inch water line on Ironwood Avenue, an existing 8-inch water line on Nason Street, and an existing 24-inch water line on Oliver Street. It should be noted that these existing water lines are either not within the current pressure zone of the Project site or are in a restricted zone, and therefore, new off-site water service connections and associated pipelines would be required to be constructed as part of the Project. As such, water service would be provided by an on-site distribution system with supply provided via two new connections to existing EMWD pipelines, one from the southeast near the intersection of Oliver Street and Ironwood Avenue, and the other from the north via a new pipeline connection along Oliver Street at the western terminus of Kalmia Avenue (refer to Figure A-11 in Attachment A of this Initial Study for the locations of the proposed water lines). All connections and water-related infrastructure improvements would be provided by the Project in consultation with the EMWD and the City, as necessary. Further, all water line improvements and connections would be provided in consultation with MVFD to ensure that the minimum fire flow requirements would be provided to serve the proposed development.

The EMWD Urban Water Management Plan (UWMP), 2015 Update (May 2016), provides water demand and water supply projections in five-year increments through 2040, which are based on regional demographic data provided by SCAG, as well as billing data for each major customer class, weather, and conservation. The EMWD local supplies of water include recycled water, potable groundwater, and desalinated groundwater. In addition to local supplies, the EMWD received imported water from the Metropolitan Water District (MWD) by direct delivery as potable water, delivery as raw water and then treated at EMWD's two local filtration plants, or delivery as water for non-potable use and groundwater recharge. The EMWD depends on MWD for approximately half of its retail water supply. According to the UWMP, the EMWD will have sufficient supplies to meet both retail and wholesale demands from 2020 to 2040 under average year conditions, single-dry year conditions, and multiple-dry year conditions.

The Project would result in an estimated water demand of approximately 76,020 gpd, or about 85 AFY when fully occupied.[40] The estimated 85 AFY increase in water demand generated by the Project would constitute approximately less than 0.04-percent of the EMWD year 2020 water supply and water demand of 212,901 AFY. Further, the Project would comply with Title 9, Planning and Zoning, Chapter 9.17, Landscape and Water Efficiency Requirements, of the MVMC. The Project would also comply with the EMWD UWMP recommendations regarding drought management and water conservation. With implementation of water conservation measures per the requirements cited above, the Project's actual water demand would be well below the conservative amount stated above. Based on the above, no additional water treatment

[40] The water demand would be consistent with the estimated wastewater generation of the Project. To be conservative, 20 percent was added (to account for outdoor water use). 65,350 gpd X 1.20 = 76,020 gpd. (76,020 gpd x 365 days/year) = 27,747,300 gallons per year; (27,747,300 gallons per year)/(325,851 gallons per AF) = 85.15 AFY.

facilities are required to meet the water supply demands associated with the Project, and the Project would not require the construction or expansion of water treatment facilities. Therefore, water infrastructure impacts associated with Project operation would be less than significant.

c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less Than Significant Impact. The Project would include a number of stormwater detention basins, as well as other stormwater management features and facilities, in accordance with applicable regulatory requirements as required by City and County. The proposed stormwater basins would be located along the southern edge of the Project site. The basins would not only provide a necessary function of retaining stormwater on-site to prevent run-off, but would also provide a transition and visual buffer to the existing residences south of Ironwood Avenue. The basins help make the transition softer and more visually appealing by having landscaping and open space, instead of walls and roof tops. The basins would be planted as appropriate to the Project site's climate and would incorporate drought-tolerant materials and irrigation systems. Hardscape areas are recommended to be constructed with pervious surfaces where feasible to reduce run off and allow water percolation and minimize stormwater runoff volumes requiring on-site retention. Environmental impacts associated with development of the Project, including on-site drainage facilities, have been evaluated throughout this document. As concluded in this document, all potentially significant impacts associated with development of the Project, including on-site stormwater drainage facilities, would be less than significant. Therefore, impacts would be less than significant in this regard.

d. Have sufficient water supplies available to serve the project from existing entitlements and resource, or are new or expanded entitlements needed?

Less Than Significant Impact. As described in Response XVII.b., above, the Project would fall within the 2015 EMWD UWMP available and projected water supplies. According to the UWMP, the EMWD will have sufficient supplies to meet both retail and wholesale demands from 2020 to 2040 under average year conditions, single-dry year conditions, and multiple-dry year conditions. As a result, the Project is within the capacity of the EMWD to serve the Project as well as existing and planned future water demands of its service area.

Sections 10910-10915 of the State Water Code (Senate Bill [SB] 610) requires the preparation of a water supply assessment (WSA) demonstrating sufficient water supplies for a project that is: 1) a shopping center or business establishment that will employ more than 1,000 persons or have more than 500,000 square feet of floor space; 2) a commercial office building that will employ more than 1,000 persons or have more than 250,000 square feet of space, or 3) any mixed-use project that would demand an amount of water equal to or greater than the amount of water needed to serve a 500 dwelling unit subdivision. In addition, similar to SB 610, SB 221 requires preparation of a Verification of Sufficient Water Supply for all residential subdivisions of 500 dwelling units or more. As discussed under Response XVII, the Project would generate a water demand of approximately 85 AFY (without accounting for water conservation features). With

implementation of water conservation measures per the requirements cited above, the Project's actual water demand would be well below the conservative amount stated above. A typical 500 dwelling unit subdivision would have a water demand of approximately 154 AFY. As the Project does not propose construction of 500 or more dwelling units, and also does not meet the established thresholds regarding preparation of a WSA, no WSA pursuant to SB 610 or Verification of Sufficient Water Supply pursuant to SB 221 are required for this Project. As such, the Project would have a less than significant impact with respect to water entitlements and supply.

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?

Less Than Significant Impact. As indicated in the Response XVII.b, implementation of the Project would generate 63,350 gpd or 71 AFY. The four EMWD RWRFs have a combined capacity of 81,800 AFY. Given the current capacity of the Moreno Valley RWRF of 17,900 AFY, Project wastewater generation would account for a less than 0.4-percent increase in demand at the Moreno Valley RWFR and there would be ample capacity to treat this increase. Therefore, the Project would have a less than significant impact with respect to wastewater treatment capacity.

f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less Than Significant Impact. The City's Public Works Department works with Waste Management of the Inland Empire to collect residential solid waste. Commercial and industrial solid waste is picked up by private haulers. The division also provides a curbside recycling program including paper, cardboard, cans/aluminum, plastic, and glass. The recyclable materials are hauled to private recyclable material companies. The City does not own or operate any landfill facilities, and the majority of its solid waste is disposed at the El Sobrante Landfill as well as the Badlands Landfill and the Lamb Canyon Landfill. The El Sobrante Landfill has a remaining capacity of 145,530,000 tons with a projected closing year of 2045.[41] The Badlands Landfill has a remaining capacity of 15,748,799 cubic yards with a projected closing year of 2022.[42] Lamp Canyon has a remaining capacity of 19,242,950 cubic yards with a projected closing year of 2029.[43]

Based on solid waste generation factors from the California Integrated Waste Management Board (CIWMB), the Project could generate approximately 724 lbs/day 0.362 tons/day or 132 tons/year)

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41 CalRecycle Website, El Sobrante Landfill, http://www.calrecycle.ca.gov/SWFacilities/Directory/33-AA-0217/Detail/, accessed June 2016.
42 CalRecycle Website, Badlands Sanitary Landfill, http://www.calrecycle.ca.gov/SWFacilities/Directory/33-AA-0006/Detail/, accessed June 2016.
43 CalRecycle Website, Lamb Canyon Sanitary Landfill, http://www.calrecycle.ca.gov/SWFacilities/Directory/33-AA-0007/Detail/, accessed June 2016.

of solid waste.[44] The annual amount of solid waste generated by the Project would represent a minor amount of the estimated remaining capacities of the El Sobrante Landfill, Badlands Landfill, and Lamb Canyon Landfill. As such, the solid waste generated by the Project could be accommodated by the County's available regional landfills.

The California Department of Resources and Recycling and Recovery (CalRecycle) is the California State Agency that promotes the importance of reducing waste and oversees California's waste management and recycling efforts. CalRecycle has issued jurisdiction waste diversion rate targets equivalent to 50 percent of the waste stream as expressing in pounds per person per day. Thus, it is important to note that the estimate of solid waste generated by the Project is conservative, in that the amount of solid waste that would need to be landfilled would likely be less than this forecast based on the City's implementation of solid waste diversion targets.

Construction of the Project would result in generation of solid waste such as scrap, lumber, concrete, residual wastes, packing materials, and plastics which could require disposal of construction associated debris at the landfills. It is anticipated that a large amount of the construction debris would be recycled. Disposal and recycling of the construction debris would be required to comply with all federal, State, and local regulations. In addition, the Project would comply with Title 6: Health and Sanitation, Chapter 6.02, Refuse Collection, Transfer, and Disposal, of the MVMC. Therefore, the Project would not cause any significant impacts from conflicting with statutes or regulations related to solid waste.

Based on the above, a less than significant impact regarding solid waste would occur.

g. Comply with federal, state, and local statutes and regulations related to solid waste?

Less Than Significant Impact. All local governments, including the City, are required under Assembly Bill 939 (AB 939), the Integrated Waste Management Act of 1989, to develop source reduction, reuse, recycling, and composting programs to reduce tonnage of solid waste going to landfills. Cities must divert at least 50 percent of their solid waste generation into recycling. If the City's target is exceeded, the City would be required to pay fines or penalties from the State for not complying with AB 939. The waste generated by the Project would be incorporated into the waste stream of the City, and diversion rates would not be substantially altered. The Project does not include any component that would conflict with state laws governing construction or operational solid waste diversion and would comply pursuant to local implementation requirements. Thus, less than significant impacts regarding compliance with AB 939 would occur with Project implementation.

[44] 181 residential units X 4 lbs/unit/day = 724 lbs/day = 0.362 tons/day X 365 days = 132 tons per year. Generation factors provided by the CalRecycle website, refer to Estimated Solid Waste Generation Rates. http://www.calrecycle.ca.gov/WasteChar/WasteGenRates/default.htm, accessed June 2016.

XVIII. Mandatory Findings of Significance

a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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?

Less Than Significant Impact With Mitigation Incorporated. As discussed above in Sections IV, *Biological Resources*, and Section V, *Cultural Resources*, of this Initial Study, implementation of the Project would not result in significant impacts to known or undiscovered biological or cultural resources given implementation of applicable mitigation measures and Project Design Features (including Conditions of Approval). As such, the Project would not have the potential to degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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; therefore, impacts in this regard would be less than significant with mitigation.

b. Does the project have impacts which are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less Than Significant Impact With Mitigation Incorporated. Cumulative impacts are defined as the direct and indirect effects of a proposed Project which, when considered alone, would not be deemed a substantial impact, but when considered in addition to the impacts of related projects in the area, would be considered significant. "Related projects" refers to past, present, and reasonably foreseeable probable future projects, which would have similar impacts to the proposed Project. CEQA deems a cumulative impact analysis to be adequate if a list of "related projects" is included in the CEQA document or the proposed project is consistent with an adopted general, specific, master, or comparable programmatic plan [Section 15130(b)(1)(B)]. CEQA also states that no further cumulative impact analysis is necessary for impacts of a proposed project consistent with an adopted general, specific, master, or comparable programmatic plan [Section 15130(d)].

The approach for the analysis of cumulative impacts varies for various environmental issues depending on the potential for additive effects from other development in the area, the physical extent and intensity of such effects, and the nature of the resources affected. The project would generally result in nominal environmental impacts, as discussed in the analysis of impacts presented above for each environmental topic. Construction-related impacts related to noise and pollutant emissions would be at less than significant levels and therefore would not contribute substantially to any other concurrent construction programs that may be occurring in the vicinity. The project's contribution to long-term, cumulative impacts would not be substantial with

implementation of the City's existing policies, programs, conditions of approval, regulatory requirements, and/or mitigation measures. Particularly, the project is subject to development impact fees and property taxes to offset project-related impacts to public services and utility systems, such as fire protection services, traffic control and roadways, storm drain facilities, and other public facilities and equipment. Where impacts have been identified, mitigation measures have been crafted and will be made a part of the Project's conditions of approval. Further, consistent with CEQA, since the Project would not result in significant and unavoidable impacts, it would not result in impacts that are cumulative considerable.

With regard to cumulative biological resources impacts, the Western Riverside MSHCP identifies areas for long-term conservation and management. As such, cumulative impacts of proposed projects within authorized take lands are minimized through the conservation of land. Cumulative impacts to the biological resources listed below for the study area are considered to be less than significant based on compliance with the Western Riverside County MSHCP, and regulations for jurisdictional waters. This includes implementation of the mitigation measures and conditions of approval outlined above in Section IV of this Initial Study. Since the study area was determined not to function as a regional wildlife movement corridor, this biological resource is not included below.

- Special-status plant species (Parry's spineflower and white-bracted spineflower);
- Burrowing owl;
- Migratory and/or nesting birds; and
- Drainage features (including USACE, RWQCB and CDFW jurisdictional features and MSHCP Riparian/Riverine areas).

The proposed mitigation would result in a minimum no-net-loss of the biological function and value of these resources, and the conditions of approval would ensure compliance with existing regulations (such as the Western Riverside County MSHCP) and regulations for jurisdictional drainages. Therefore, with the proposed mitigation and conditions of approval, impacts would not be considered cumulatively significant. A summary is provided below.

<u>Special-Status Plant Species:</u> Mitigation is proposed and includes a spring focused survey prior to ground disturbance to determine the presence/absence of Parry's spineflower and white-bracted spineflower within the off-site eastern manufactured slope area. If either or both of these species are observed, collection of seed and planting within an on-site or off-site mitigation site is required. The mitigation site is required to be preserved as open space in perpetuity. With this mitigation measure, any impacts to Parry's spineflower and white-bracted spineflower would not be considered cumulatively significant.

<u>Special-Status Wildlife Species:</u> Mitigation is proposed if burrowing owls are observed on the study area in the future, which would avoid direct impacts in compliance with the Western Riverside County MSHCP. Mitigation is also proposed to avoid direct impacts to raptors and migratory bird species through compliance with the MBTA. With these mitigation measures, any impacts would not be considered cumulatively significant.

Jurisdictional Drainages: Impacts to jurisdictional features would be subject to permitting with the regulatory agencies, including USACE, RWQCB and/or CDFW, including compensatory mitigation. With the proposed compliance of existing regulations through the permitting process, impacts would not be considered cumulatively significant.

Riparian/Riverine Areas: Impacts to MSHCP Riparian/Riverine areas would be subject to approval of a DBESP by the City of Moreno Valley and Wildlife Agencies, as required in Section 6.1.2 of the Western Riverside County MSHCP. With the approval and implementation of the DBESP impacts would not be considered cumulatively significant. Mitigation is proposed as compensation for impacts to jurisdictional drainages through the regulatory process as described above.

Based on the discussion above, the City hereby finds that with mitigation measures incorporated the contribution of the Project to cumulative impacts would be less than significant.

c. Does the project have environmental effects which cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant Impact With Mitigation Incorporated. Based on the analysis of the Project's impacts provided above in Sections I through XVII of this Initial Study, there is no indication that this Project could result in substantial adverse effects on human beings. While there would be a variety of effects during construction related to traffic, noise and air quality, these impacts would be less than significant based on compliance with applicable regulatory requirements and established impact thresholds, as well as the prescribed mitigation measures, where applicable. Long-term effects would include increased vehicular traffic, traffic-related noise, periodic on-site operational noise, various changes to on-site drainage, and changing of the visual character of the site, with a majority of these impacts affecting adjacent roadway segments and intersections in the immediate area. The analysis herein concludes that direct and indirect environmental effects will at most require mitigation to reduce to less than significant levels. Generally, environmental effects will result in less than significant impacts. Based on the analysis in this Initial Study, the City finds that direct and indirect impacts to human beings will be less than significant with mitigation incorporated, as necessary.

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