

The World Logistics Center is a 41.6 million square foot distribution center project in the City of Moreno Valley. The project is generally bounded by Gilman Springs Road on the east, open space park on the south, SR 60 on the north and Redlands Boulevard on the west. There are a number of existing dry utility systems owned and operated by Moreno Valley Utility (electric), Southern California Edison (electric), Southern California Gas (natural gas) Questar (petroleum products pipelines) Verizon Communications and Time Warner Communications. The following technical report is a broad global dry utility planning summary identifying the issues to be dealt with as part of the project development.

Existing Electric Service Facilities

Electricity – Southern California Edison (SCE)

1. A 115kV transmission pole line along Theodore Street, Eucalyptus Avenue and Gilman Springs Road.
2. A second 115kV transmission pole line along Brodiaea Avenue and Davis Road.
3. Local 12kV distribution facilities are present serving existing residential and commercial development westerly of the World Logistics Center.

Electricity – Moreno Valley Utility (MVU)

1. Serving the existing Skechers facility is a 12kV underground system along Eucalyptus Avenue between Redlands and Theodore Street.
2. The source for all Moreno Valley Electric Utility (MVEU) electric facilities is an SCE served 115kV to 12kV MVU substation known as MOVAL, west of the project on Moreno Beach Drive south of Cottonwood Avenue.

New Electric Distribution Voltage Services for the World Logistics Center (WLC)

The City of Moreno Valley Public Works Department, Electric Utility Division (MVU) is the electric service provider for the project. New electric distribution voltage infrastructure will be underground, engineered and designed by MVU. Construction of new underground electric infrastructure is the joint responsibility of the developer and MVU. The Developer may provide conduit, equipment pads, sub-grade enclosures, protective equipment and retaining walls. MVU is typically responsible for installation of all distribution electric cable, connections, and related electrical equipment.

New Electric Transmission Voltage Services for the WLC

It is expected that during the development of the WLC additional electric distribution capacity will be necessary. This additional distribution capacity will come from the expansion of MVU's existing MOVAL substation and the construction of a new SCE electric transmission line and switchyard and MVU distribution voltage substation within the WLC project boundaries.

Currently two (2) potential electric substation sites within the WLC have been identified; Site A adjacent to SCE transmission lines along Gilman Springs Road and Site B adjacent to SCE transmission lines along Brodiaea Avenue. A typical SCE/MVU substation and related switchyard will require approximately 4.5 acres. SCE is also required to secure California Public Utilities Commission permission (Certificate of

Public Necessity and Convenience) and related environmental permits for transmission line extensions and switchyard facilities. Any new electric transmission construction of more than 2000 feet of overhead pole line construction must comply with CPUC General Order 131D. (Copy attached)

Estimated Project Electric Demand

In order to determine a typical electric profile for the types of uses that are expected within the project area, we analyzed data provided by MVU on twelve similar operations within the utility’s service territory. The sample included retail, medical, paint, home improvement, mail distribution centers and a mattress manufacturing facility. We were able to insert actual data for one of the Retail Distribution Centers. To enhance the reliability of the data analysis, we deleted the highest and lowest demand samples. Based on this analysis the average demand is 1.68 watts per square foot of developed space.

The WLC planning area is proposed to support 41,600,000 square feet of Distribution Center/Warehousing space. The potential electrical demand for this area would be approximately 70 MW summarized as follows:

Land Use Type	Potential Building Sq. Ft.	Demand Factor (w/sq ft)	Expected Peak Demand (kW)	Load Factor	Expected Annual kWh Used
Logistics Warehouse (LD/LL)	41,600,000	1.68	69,888	0.63	385,697,894

Electric Service Capacity

The existing MOVAL Substation is a 28 MW facility with a remaining capacity of 4.5MW. This location also accommodates a 28 MW Back Up system. This capacity will be committed by MVU to new service customers on a first come basis. MVU reports the ability to add 28mW of additional capacity to the existing MOVAL substation equipment and land configuration. We also understand that MVU has enough land adjacent to MOVAL for another 28MW of capacity completing the build out of the MOVAL facility at of 112MW.

However, even with a commitment of all the new MVU electric service capacity (56mW) the estimated WLC project demand of 70mW would exceed all the existing and planned MVU capacity in the area. Furthermore, a commitment of all new capacity to WLC would leave no capability to serve other new customers in the area and would not provide the advantage of reliability with a single source of electric service and an expensive congested distribution route corridor to the WLC project.

Because expansion of the existing MVU electric substation can not completely or perhaps even substantially meet the needs of the WLC project, additional substation capacity will need to be constructed to meet WLC’s electric needs.

Underground Electric Distribution System

The current 12kV circuit serving Skechers could possibly handle up to 3,250,000 square feet of WLC development before a new circuit would be required. A second circuit could possibly service an additional 4,750,000 square feet provided MVU had upgraded the existing MOVAL facility and the capacity was available to WLC. The addition of more circuits from MOVAL would also provide more reliability for the WLC and surrounding area when coordinated with circuitry from a new WLC electric substation.

Since expansion of MOVAL cannot meet all of the estimated project electric needs and the premium cost for additional circuits from MOVAL it may be useful to consider the construction of a new substation early in the development process.

WLC Electric Substation

As identified above in the Electric Transmission section two potential sites for the new MVU substation and SCE switchyard maybe considered. Site “A” adjacent to SCE transmission lines along Gilman Springs Road and Site “B” adjacent to SCE transmission lines along Brodiaea Avenue.

Site A is best situated to accommodate the existing MOVAL Eucalyptus circuits because of a more direct west to east route than Site B. More central proximity to new development and radiation of distribution circuits away for Site A along proposed “F” street, Gilman Springs Road and relatively short route to additional west and east capability of proposed “C” street are an advantage to this site.

Site B is somewhat landlocked with only north south direct access to proposed “D” street and existing Cactus Avenue only goes west into existing developed areas. The close proximity of the existing 20” SCG gas pipeline to the south and east of the site may also limit all new circuits into Street D because of construction of a number of large underground electric facilities and depth constraints crossing the existing gas transmission main.

Natural Gas – Southern California Gas Company (SCG)

Large natural gas transmission mains cross much of the WLC from Redlands Boulevard to and along Alessandro Street which will present development grading and infrastructure improvement challenges. Unlike electric transmission facilities we are not aware of specific CEQA requirements like GO 131D, but these facilities are covered by stringent State of California, CPUC and operating company safety standards. In addition a substantial portion of these systems crossing the WLC are covered by easements that may add more restrictions to developing in and around these lines.

Because of the size and character of these natural gas and fuel products transmission lines, construction of project improvements above, below and adjacent to these lines will be limited. The following is a summary of line sizes and general locations:

- ▶ A 30” high pressure transmission pipeline in private property along the north side of Cottonwood Avenue from Redlands to Theodore Street, crossing private property from Theodore to Alessandro at Virginia Street, then easterly in Alessandro exiting the street position

at a point approximately 2500 feet west of Gilman Springs Road and crossing private property to Gilman Springs Road.

- ▶ A 30” high pressure transmission pipeline in private property along the south side of Broadiaea Avenue then in private property to proposed Street G.
- ▶ A 36” high pressure transmission pipeline in private property parallel to and south of the 30” transmission pipeline along G Street from Virginia Street to Gilman Springs Road.
- ▶ 16”, 30” and 36” parallel high pressure transmission pipelines in private property along Virginia Street from the project boundary to proposed G Street.
- ▶ A “Blow down/Pipe Cleaning facility” on the south east corner of Virginia and proposed G Street.
- ▶ A Flow Metering Station at the southeast corner of Alessandro Boulevard and Virginia Street.
- ▶ Distribution systems at Eucalyptus and Redlands (4 inch) and Gilman Springs Road (8 inch) south of Alessandro.

Natural Gas – San Diego Gas & Electric (SDG&E)

- ▶ SDG&E owns and operates the “Moreno Compressor Station” south of project boundary on the west side of Virginia Street. It is our understanding that consideration of these facilities in the project EIR has taken place.

Fuel Products – Questar

- ▶ A 16” oil pipeline in private property along south side of Alessandro Boulevard between Gilman Springs Road and Theodore Street, continuing south along the east side of Theodore turning west along Maltby Avenue.

As with the Gas transmission lines we are not aware of regulatory or special development CEQA requirements for these types of facilities and related land development.

New Natural Gas Distribution Systems

It is expected that natural gas distribution systems will need to be installed to accommodate gas usage within the project. Currently it is assumed that gas usage will be limited to the office space only. Office space is assumed to be 3% of the total building sf or 0.05 x 41,600,000 sf = 2,080,000 sf.

Land Use Type	Potential Building Sq. Ft.		Natural Gas Consumption Factor (CF/YR/SF)		Natural Gas Consumption (CF/YR)
Office Space	2,080,000		12.00		24,960,000

Voice, Video, and Data

Within the project boundary there are a number of communications facilities and we are not aware of specific regulatory or special CEQA requirements for these types of facilities and related land development. The existing facilities identified as associated with this project as potential sources of future services and or potential construction conflicts are:

1. A Verizon underground system along the north side of Alessandro Boulevard between Gilman Springs Road and Theodore.
2. A Verizon overhead system on the SCE pole line in Theodore Street from Alessandro to Eucalyptus.
3. A Verizon overhead system on the SCE poleline on the east side of Redlands between SR 60 and Broadiaea.
4. A Verizon underground system in a joint trench with MVU on the north side of Eucalyptus between Redlands and Theodore Street.
5. Time Warner Communications overhead and underground systems in Redlands Boulevard and existing adjacent residential development.

Joint Dry Utilities Distribution System Trenches

Configurations of joint dry utility trenches (gas, electric, utility communications systems) are subject to standards developed by each individual utility company. Accordingly, SCG (gas) may not allow installation of gas distribution systems in the same trench with electric and communications dry utilities. The numbers of conduits required by electric, telephone and cable TV companies may not be practical for joint installations in a single trench in some locations.

Gas and petroleum fuel transmission lines are not permitted by State of California safety orders and other practicalities such as large pipe sizes to be in multiple use dry utility trenches.

EXHIBITS

GO 131 D

WLC electric substation locations

GENERAL ORDER NO. 131-D
(Supersedes General Order No. 131-C)

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

**RULES RELATING TO THE PLANNING AND CONSTRUCTION OF ELECTRIC
GENERATION, TRANSMISSION/POWER/DISTRIBUTION LINE FACILITIES
AND SUBSTATIONS LOCATED IN CALIFORNIA.**

Adopted June 8, 1994. Effective July 8, 1994

Decision 94-06-014

Modified August 11, 1995. Effective September 10, 1995.

Decision 95-08-038

SECTION I. GENERAL

Pursuant to the provisions of Sections 451, 701, 702, 761, 762, 768, 770, and 1001 of the Public Utilities Code:

IT IS HEREBY ORDERED that except as specifically provided herein, no electric public utility, now subject, or which hereafter may become subject, to the jurisdiction of this Commission, shall begin construction in this state of any new electric generating plant, or of the modification, alteration, or addition to an existing electric generating plant, or of electric transmission/power/distribution line facilities, or of new, upgraded or modified substations without first complying with the provisions of this General Order.

For purposes of this General Order, a transmission line is a line designed to operate at or above 200 kilovolts (kV). A power line is a line designed to operate between 50 and 200 kV. A distribution line is a line designed to operate under 50 kV.

SECTION II. PURPOSE OF THIS GENERAL ORDER

The Commission has adopted these revisions to this General Order to be responsive to:

- the requirements of the California Environmental Quality Act (CEQA) (Public Resources (Pub. Res.) Code § 21000 et seq.);
- the need for public notice and the opportunity for affected parties to be heard by the Commission
- the obligations of the utilities to serve their customers in a timely and efficient manner; and
- the need to replace the present complaint treatment of under-200-kV projects with a new streamlined review mechanism.

SECTION III. NEED FOR COMMISSION AUTHORIZATION

For purposes of this General Order, construction does not include any installation of environmental monitoring equipment, or any soil or geological investigation, or work to determine feasibility of the use of the particular site for the proposed facilities, which do not result in a serious or major disturbance to an environmental resource.

A. Certificate of Public Convenience and Necessity (CPCN)

No electric public utility shall begin construction in this state of any new electric generating plant having in aggregate a net capacity available at the busbar in excess of 50 megawatts (MW), or of the modification, alteration, or addition to an existing electric generating plant that results in a 50 MW or more net increase in the electric generating capacity available at the busbar of the existing plant, or of major electric transmission line facilities which are designed for immediate or eventual operation at 200 kV or more (except for the replacement of existing power line facilities or supporting structures with equivalent facilities or structures, the minor relocation of existing power line facilities, the conversion of existing overhead lines to underground, or the placing of new or additional conductors, insulators, or their accessories on or replacement of supporting structures already built) without this Commission's having first found that said facilities are necessary to promote the safety, health, comfort, and convenience of the public, and that they are required by the public convenience and necessity.

B. Permit to Construct

No electric public utility shall begin construction in this state of any electric power line facilities or substations which are designed for immediate or eventual operation at any voltage between 50 kV or 200 kV or new or upgraded substations with high side voltage exceeding 50 kV without this Commission's having first authorized the construction of said facilities by issuance of a permit to construct in accordance with the provisions of Sections IX.B, X, and XI.B of this General Order. An upgraded substation is one in which there is an increase in substation land area beyond the existing utility-owned property or an increase in the voltage rating of the substation above 50 kV. Activities which increase the voltage of a substation to the voltage for which the substation has been previously rated are deemed to be substation modification projects and not substation upgrade projects.

1. Compliance with Section IX.B is not required for:

- a. power line facilities or substations with an in-service date occurring before January 1, 1996, which have been reported to the Commission in accordance with the Commission's decision adopting GO 131-D.
- b. the replacement of existing power line facilities or supporting structures with equivalent facilities or structures.
- c. the minor relocation of existing power line facilities up to 2,000 feet in length, or the intersetting of additional support structures between existing support structures.
- d. the conversion of existing overhead lines to underground.
- e. the placing of new or additional conductors, insulators, or their accessories on supporting structures already built.
- f. power lines or substations to be relocated or constructed which have undergone environmental review pursuant to CEQA as part of a larger project, and for which the final CEQA document (Environmental Impact Report (EIR) or Negative Declaration) finds no significant unavoidable environmental impacts caused by the proposed line or substation.

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- g. power line facilities or substations to be located in an existing franchise, road-widening setback easement, or public utility easement; or in a utility corridor designated, precisely mapped and officially adopted pursuant to law by federal, state, or local agencies for which a final Negative Declaration or EIR finds no significant unavoidable environmental impacts.
- h. the construction of projects that are statutorily or categorically exempt pursuant to § 15260 et seq. of the Guidelines adopted to implement the CEQA, 14 Code of California Regulations § 15000 et seq. (CEQA Guidelines).

However, notice of the proposed construction of such facilities must be made in compliance with Section XI.B herein, except that such notice is not required for the construction of projects that are statutorily or categorically exempt pursuant to CEQA Guidelines. If a protest of the construction of facilities claimed by the utility to be exempt from compliance with Section IX.B is timely filed pursuant to Section XIII, construction may not commence until the Executive Director or Commission has issued a final determination.

- 2. The foregoing exemptions shall not apply when any of the conditions specified in CEQA Guidelines § 15300.2 exist:
 - a. there is reasonable possibility that the activity may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped and officially adopted pursuant to law by federal, state, or local agencies; or
 - b. the cumulative impact of successive projects of the same type in the same place, over time, is significant; or
 - c. there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.

C. Electric Distribution Lines and Other Substations

The construction of electric distribution (under 50 kV) line facilities, or substations with a high side voltage under 50 kV, or substation modification projects which increase the voltage of an existing substation to the voltage for which the substation has been previously rated within the existing substation boundaries, does not require the issuance of a CPCN or permit by this Commission nor discretionary permits or approvals by local governments. However, to ensure safety and compliance with local building standards, the utility must first communicate with, and obtain the input of, local authorities regarding land use matters and obtain any non-discretionary local permits required for the construction and operation of these projects.

SECTION IV. UTILITY REPORT OF LOADS AND RESOURCES

Every electric public utility required to submit a report of loads and resources to the California Energy Commission (CEC) in accordance with Section 25300 et seq. of the Public Resources Code shall also furnish six copies of its report to the Public Utilities Commission.

SECTION V. UTILITY REPORT OF PLANNED TRANSMISSION/ POWER LINE, AND SUBSTATION FACILITIES

Every electric public utility shall annually, on or before March 1, furnish to the Commission Advisory and Compliance Division (CACD) for its review three (3) copies¹ of a fifteen-year 15 forecast of planned transmission facilities of 200 kV or greater and a five-year (5) forecast of planned power line facilities and substations of between 50 kV and 200 kV.

A. The report shall include:

1. A list of transmission, power lines, and substations, arranged in chronological order by the planned service date, for which a CPCN or a permit to construct has been received, but which have not yet been placed in service.
2. A list of planned transmission, power lines, and substations of 50 kV or greater or planning corridors, arranged in chronological order by the planned service date, on which proposed route or corridor reviews are being undertaken with governmental agencies or for which applications have already been filed.
3. A list of planned transmission, power lines, and substations of 50 kV or greater or planning corridors, arranged in chronological order by the planned service date, on which planning corridor or route reviews have not started, which will be needed during the forecast periods.

B. For each transmission or power line route, substation, or planning corridor included in the above lists, the following information, if available, shall be included in the report:

1. Planned operating date.
2. Transmission or power line name.
3. The terminal points (substation name and location).
4. Number of circuits.
5. Voltage — kV.
6. Normal and emergency continuous operating ratings — MVA.
7. Length in feet or miles.
8. Estimated cost in dollars as of the year the report is filed.
9. Cities and counties involved.
10. Other comments.

SECTION VI. UTILITY REPORT OF INFORMATION REGARDING FINANCING OF NEW ELECTRIC GENERATING AND TRANSMISSION CAPACITY

Every electric public utility shall biennially, on or before June 1 of every odd numbered year, furnish a report to the Commission of the financial information designated in Appendix A hereto; provided however, that no public utility shall be required to submit such financial information if such utility does not plan for a fifteen-year (15) period commencing with the year in which the financial information is to be filed to (1) construct within the State of California any new electric

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¹One copy to be stored in the CACD Annual Reports Section.

generating plant having in the aggregate a net capacity in excess of 50 MW, or (2) modify, alter, or add to any existing electric generating plant that results in a 50 MW, or more, net increase in the electric generating capacity of an existing plant within the State of California, or (3) construct in California any electric transmission line facilities which are designed for immediate or eventual operation at any voltage in excess of 200 kV (except for the replacement or minor relocation of existing transmission line facilities, or the placing of additional conductors, insulators or their accessories on, or replacement of, supporting structures already built).

SECTION VII. ELECTRIC GENERATING AND RELATED TRANSMISSION FACILITIES SUBJECT TO THE WARREN-ALQUIST ENERGY RESOURCES CONSERVATION AND DEVELOPMENT ACT

If an electric public utility proposes to construct electric generating and related transmission facilities which are subject to the power plant siting jurisdiction of the CEC as set forth in Section 25500 et seq. of the Public Resources Code, it shall comply with the following procedure:

- A. In accordance with Public Resources Code Section 25519(c) and Public Utilities Code Section 1001, the CEQA, and this Commission's Rules of Procedure No. 17.1 do not apply to any application filed pursuant to this section.
- B. Upon acceptance of an electric utility's Notice of Intent (NOI) filing by the CEC, the utility shall mail six copies of the NOI to the Executive Director of this Commission.
- C. When an electric utility files with the CEC an application for a certificate to construct (AFC) an electric generating facility pursuant to Section 25519 of the Public Resources Code and any AFC regulations of the CEC, it shall mail six copies of the AFC, including six copies of the CEC's Final Report in the NOI proceeding for the facility, to the Executive Director of this Commission.
- D. No later than 30 days after acceptance for filing of the AFC referred to above in Subsection C, the utility shall file with this Commission an application for a CPCN. The application shall comply with this Commission's Rules of Practice and Procedure, specifically Rules 2 through 8, 15, and 16, and shall include the data and information set forth in Appendix B hereto. In complying with this provision, the utility may include portions of the CEC's Final Report in its NOI proceeding by attaching such portions as an appendix to its application filed with this Commission. The utility may also include portions of the AFC filed with the CEC by reference. A copy of the application shall be mailed to the CEC and to every person, corporation, organization, or public agency that has intervened in the CEC's AFC proceeding.
- E. No later than 30 days after the filing of the application, the Commission staff shall review it and notify the utility in writing of any deficiencies in the information and data submitted in the application. The utility shall correct any deficiencies within 60 days thereafter, or explain in writing to the Commission staff why it is unable to do so. It shall include in any such letter an estimate of when it will be able to correct the deficiencies. Upon correction of any deficiencies in the application, any public hearings which are necessary may be held on the application while the utility's AFC application is under process.

before the CEC. The Commission may issue an interim decision on the application before the issuance by the CEC of a final decision in the AFC proceeding. However, any such interim decision shall not be final and shall be subject to review after the CEC issues its final decision in the AFC proceeding as prescribed in Public Resources Code Sections 25522 and 25530.

- F. No later than 30 days after issuance of a certificate by the CEC in a final decision in the utility's AFC proceeding in accordance with Public Resources Code Sections 25209, 25522, and 25530 the Commission shall issue a decision on the application for a CPCN from this Commission, unless a later date for issuance of the decision is mutually agreed to by the Commission and the applicant, or is necessitated by conditions under Paragraph G.
- G. In the event that the CEC's certificate in the AFC proceedings sets forth requirements or conditions for the construction of the proposed electric generating facility which were not adequately considered in the proceeding before the Commission, and which will have a significant impact on the economic and financial feasibility of the project, or the rates of the utility, or on utility system reliability, the utility, or Commission staff, or any party, may request that the Commission hold a public hearing on such implications. Any such hearing, if granted, shall be initiated no later than 30 days after the filing of any such request. It is the intent of this Commission that a final decision shall be issued within 90 days after conclusion of the hearing, if held.
- H. In the event that judicial review of the CEC's issuance of a certificate in the AFC proceeding is sought in any court, the utility shall immediately notify this Commission and include a copy of the court filing.

SECTION VIII. ELECTRIC GENERATING FACILITIES NOT SUBJECT TO THE WARREN-ALQUIST ENERGY RESOURCES CONSERVATION AND DEVELOPMENT ACT

An electric public utility proposing to construct in this state new generation facilities in excess of 50 MW net capacity, available at the busbar or proposing to modify an existing generation facility in this state in order to increase the total generating capacity of the facility by 50 MW or more net capacity available at the busbar, shall file for a CPCN not less than 12 months prior to the date of a required decision by the Commission unless the Commission authorizes a shorter period for exceptional circumstances.

- A. An application for a CPCN shall comply with this Commission's Rules of Practice and Procedure, specifically Rules 2 through 8, 15, and 16. In addition, it shall include or have attached to it the following:
 - 1. The information and data set forth in Appendix B.
 - 2. A statement of the reasons why and facts showing that the completion and operation of the proposed facility is necessary to promote the safety, health, comfort, and convenience of the public.
 - 3. Safety and reliability information, including planned provisions for emergency operations and shutdowns.
 - 4. A schedule showing the program for design, material acquisition, construction, and testing and operating dates.

5. Available site information, including maps and description, present, proposed, and ultimate development; and, as appropriate, geological, aesthetic, ecological, tsunami, seismic, water supply, population, and load center data, locations and comparative availability of alternate sites, and justification for adoption of the site selected.
 6. Design information, including description of facilities, plan efficiencies, electrical connections to system, and description of control systems, including air quality control systems.
 7. A Proponent's Environment Assessment (PEA) on the environmental impact of the proposed facility and its operation so as to permit compliance with the requirements of CEQA and this Commission's Rule of Practice and Procedure 17.1 and 17.3. If a PEA is filed, it may include the data described in Items 1 through 6, above.
- B. No later than 30 days after the filing of the application, the Commission staff shall review it and notify the utility of any deficiencies in the information and data submitted in the application. The utility shall correct any deficiencies within 60 days thereafter or explain in writing to the Commission staff why it is unable to do so. It shall include in any such letter an estimate of when it will be able to correct the deficiencies. Upon correction of any deficiencies in the application, the commission staff shall determine whether CEQA applies, and if so, whether a Negative Declaration or an EIR has been or will be prepared, and the process required by CEQA and Commission Rule 17.1 will be followed in addition to the Commission's standard decision-making process for applications. The Commission shall issue a decision within the time limits prescribed by Government Code Section 65920 et seq. (the Permit Streamlining Act).

SECTION IX. TRANSMISSION LINE, POWER LINE, AND SUBSTATION FACILITIES

A. Transmission Line Facilities of 200 kV and Over

An electric public utility desiring to build transmission line facilities in this state for immediate or eventual operation in excess of 200 kV shall file for a CPCN not less than 12 months prior to the date of a required decision by the Commission unless the Commission authorizes a shorter period because of exceptional circumstances

1. An application for a CPCN shall comply with this Commission's Rules of Practice and Procedure 2 through 8, 15, and 16 and shall also include the following:
 - a. A detailed description of the proposed transmission facilities, including the proposed transmission line route and alternative routes, if any; proposed transmission equipment; such as tower design and appearance, heights, conductor sizes, voltages, capacities, substations, switchyards, etc.; and a proposed schedule for certification, construction, and commencement of operation of the facilities.

- b. A map of suitable scale of the proposed routing showing details of the right-of-way in the vicinity of settled areas, parks, recreational areas, scenic areas, and existing electrical transmission lines within one mile of the proposed route.
 - c. A statement of facts and reasons why the public convenience and necessity require the construction and operation of the proposed transmission facilities.
 - d. A detailed statement of the estimated cost of the proposed facilities.
 - e. Reasons for adoption of the route selected, including comparison with alternative routes, including the advantages and disadvantages of each.
 - f. A schedule showing the program of right-of-way acquisition and construction.
 - g. A listing of the governmental agencies with which proposed route reviews have been undertaken, including a written agency response to applicant's written request for a brief position statement by that agency. (Such listing shall include The Native American Heritage Commission, which shall constitute notice on California Indian Reservation Tribal governments.) In the absence of a written agency position statement, the utility may submit a statement of its understanding of the position of such agencies.
 - h. A PEA or equivalent information on the environmental impact of the project in accordance with the provisions of CEQA and this Commission's Rule of Practice and Procedure, Rules 17.1 and 17.3. If a PEA is filed, it may include the data described in Items a through g above.
2. No later than 30 days after the filing of the application the Commission staff shall review it and notify the utility in writing of any deficiencies in the information and data submitted in the application. The utility shall correct any deficiencies within 60 days thereafter, or explain in writing to the Commission staff why it is unable to do so. It shall include in any such letter an estimate of when it will be able to correct the deficiencies. Upon correction of any deficiencies in the application, the Commission staff shall determine whether CEQA applies, and if so, whether a Negative Declaration or an EIR has been or will be prepared, and the process required by CEQA and Commission Rules of Practice and Procedure 17.1 will be followed in addition to the Commission's standard decision-making process for applications. The Commission shall issue a decision within the time limits prescribed by Government Code Sections 65920 et seq. (the Permit Streamlining Act).
- B. Power Line Facilities Between 50 kV and 200 kV and Substations Designed to Operate Over 50 kV Which Are Not Included in Subsection A of this Section.

Unless exempt as specified in Section III herein, or already included in an application before this Commission for a CPCN, an electric public utility desiring to build power line or substation facilities in this state for immediate or eventual operation between 50 kV and 200 kV or substations for immediate or

eventual operation over 50 kV, shall file for a permit to construct not less than nine (9) months prior to the date of a required decision by the Commission unless the Commission authorizes a shorter period because of exceptional circumstances. An application for a permit to construct shall comply with the Commission's Rules of Practice and Procedure No. 2 through 8 and 15 through 17.

1. The application for a permit to construct shall also include the following:
 - a. A description of the proposed power line or substation facilities, including the proposed power line route; proposed power line equipment, such as tower design and appearance, heights, conductor sizes, voltages, capacities, substations, switchyards, etc., and a proposed schedule for authorization, construction, and commencement of operation of the facilities.
 - b. A map of the proposed power line routing or substation location showing populated areas, parks, recreational areas, scenic areas, and existing electrical transmission or power lines within 300 feet of the proposed route or substation.
 - c. Reasons for adoption of the power line route or substation location selected, including comparison with alternative routes or locations, including the advantages and disadvantages of each.
 - d. A listing of the governmental agencies with which proposed power line route or substation location reviews have been undertaken, including a written agency response to applicant's written request for a brief position statement by that agency. (Such listing shall include The Native American Heritage Commission, which shall constitute notice on California Indian Reservation Tribal governments.) In the absence of a written agency position statement, the utility may submit a statement of its understanding of the position of such agencies.
 - e. A PEA or equivalent information on the environmental impact of the project in accordance with the provisions of CEQA and this Commission's Rules of Practice and Procedure 17.1 and 17.3. If a PEA is filed, it may include the data described in Items a through d above.
 - f. The above information requirements notwithstanding, an application for a permit to construct need not include either a detailed analysis of purpose and necessity, a detailed estimate of cost and economic analysis, a detailed schedule, or a detailed description of construction methods beyond that required for CEQA compliance.
2. No later than 30 days after the filing of the application for a permit to construct, the CACD shall review it and notify the utility in writing of any deficiencies in the information and data submitted in the application. Thereafter, within 30 days, the utility shall correct any deficiencies or explain in writing to the CACD when it will be able to correct the deficiencies or why it is unable to do so. Upon correction of any deficiencies in the application, the CACD shall determine whether CEQA applies, and if so, whether a Negative Declaration or an EIR must be prepared, and the process required by CEQA and the Commission's Rules of Practice and Procedure 17.1 will be followed.

3. If the Commission finds that a project properly qualifies for an exemption from CEQA, the Commission will grant the permit to construct.
4. If the CACD determines, after completing its initial study, that the project would not have a significant adverse impact on the environment, the CACD will prepare a Negative Declaration. If the initial study identifies potential significant effects, but the utility revises its proposal to avoid those effects, then the Commission could adopt a Mitigated Negative Declaration. In either case, the Commission will grant the permit to construct.
5. If the initial study identifies potentially significant environmental effects, the CACD will prepare an EIR. The severity and nature of the effects, the feasibility of mitigation, the existence and feasibility of alternatives to the project, and the benefits of the project would all be considered by the Commission in deciding whether to grant or deny the permit to construct. The Commission intends to issue a permit to construct or disapprove the project within eight months of accepting the application as complete. This time limit may be extended if necessary to comply with the requirements of CEQA, but may not exceed the time limits specified in CEQA (for the preparation of an EIR).
6. If no protests or requests for hearing are received (pursuant to Section XII), a CACD Examiner shall be assigned and the Commission shall issue an ex parte decision on the application within the time limits prescribed by Government Code Section 65920 et seq. (the Permit Streamlining Act). If a protest or request for hearing is received, the matter shall be assigned to an administrative law judge, and the Commission shall issue a decision on the application within the time limits prescribed by the Permit Streamlining Act.

SECTION X. POTENTIAL EXPOSURE TO ELECTRIC AND MAGNETIC FIELDS (EMF)

A. Application for CPCN or Permit to Construct

Applications for a CPCN or Permit to Construct shall describe the measures taken or proposed by the utility to reduce the potential exposure to electric and magnetic fields generated by the proposed facilities, in compliance with Commission order. This information may be included in the PEA required by Rules of Practice and Procedure 17.1.

B. EMF Technical Assistance

The EMF education program administered by the California Department of Health Services for regulated electric utility facilities, established in Investigation (I) 91-01-012, is available to provide independent information about EMF to local government, other state agencies, and the public to assist in their consideration of the potential impacts of facilities proposed by electric utilities hereunder. Local government and the public should first contact their public health department.

SECTION XI. NOTICE

A. Applications for a CPCN or Permit to Construct

Notice of the filing of each application for a CPCN for facilities subject to the provisions of Sections VII, VIII, and IX.A of this General Order and of the filing of each application for a permit to construct for facilities subject to Section IX.B of this General Order, shall be given by the electric public utility within ten days of filing the application:

1. By direct mail to:

- a. The planning commission and the legislative body for each county or city in which the proposed facility would be located, the CEC, the State Department of Transportation and its Division of Aeronautics, the Secretary of the Resources Agency, the Department of Fish and Game, the Department of Health Services, the State Water Resources Control Board, the Air Resources Board, and other interested parties having requested such notification. The utility shall also give notice to the following agencies and subdivisions in whose jurisdiction the proposed facility would be located: the Air Pollution Control District, the California Regional Water Quality Control Board, the State Department of Transportation's District Office, and any other State or Federal agency which would have jurisdiction over the proposed construction; and
- b. All owners of land on which the proposed facility would be located and owners of property within 300 feet of the right-of-way as determined by the most recent local assessor's parcel roll available to the utility at the time notice is sent; and

2. By advertisement, not less than once a week, two weeks successively, in a newspaper or newspapers of general circulation in the county or counties in which the proposed facilities will be located, the first publication to be not later than ten days after filing of the application; and

3. By posting a notice on-site and off-site where the project would be located.

A copy of the notice shall be delivered to the CPUC Public Advisor and the CACD on the same day it is mailed. A declaration of mailing and posting as required by this subsection shall be filed with the Commission within five (5) days of completion.

Three copies of each application for electric generation facilities shall be served on the Executive Director of the Energy Commission. If applicable, three copies shall be served on the Executive Director of the Coastal Commission. If applicable, three copies shall be served on the Executive Director of the S.F. Bay Conservation and Development Commission. Upon request by any public agency, the applicant shall provide at least one copy of its application to said public agency. A copy of the application shall be kept available for public inspection at the utility's office(s) in the county or counties in which the proposed facility would be located.

B. Power Line Facilities Between 50 kV and 200 kV and Substations Designed to Operate Over 50 kV Which Are Not Included in Subsection A of this Section

The utility shall give notice of the construction of any power line facilities or substations between 50 kV and 200 kV deemed exempt pursuant to Section III herein, not less than 30 days before the date when construction is intended to begin by:

1. Direct mail to the planning director for each county or city in which the proposed facility would be located and the Executive Director of the Energy Commission; and
2. Advertisement, not less than once a week, two weeks successively, in a newspaper or newspapers of general circulation in the county or counties in which the proposed facility would be located, the first publication to be not later than 45 days before the date when construction is intended to begin; and
3. By posting a notice on-site and off-site where the project would be located.
4. Filing an informational advice letter with the CACD in accordance with General Order 96-A, which includes a copy and distribution list of the notices required by items 1-3 herein. On the same day, a copy of the advice letter must be delivered to the CPUC Public Advisor.

C. Contents of Notices

Each utility shall consult with the CACD and CPUC Public Advisor to develop and approve a standard for the notice required by subsections A and B, which shall contain, at a minimum, the following information:

1. The Application Number assigned by the CPUC or the Advice Letter Number assigned by the utility; and
2. A concise description of the proposed construction and facilities, its purpose and its location in terms clearly understandable to the average reader; and
3. A summary of the measures taken or proposed by the utility to reduce the potential exposure to electric and magnetic fields generated by the proposed facilities, in compliance with Commission order; and
4. Instructions on obtaining or reviewing a copy of the application, including the Proponent's Environmental Assessment or available equivalent, from the utility; and
5. The applicable procedure for protesting the application or advice letter, as defined in Sections XII and XIII, including the grounds for protest, when the protest period expires, delivery addresses for the CPUC Docket Office, CACD, and the applicant and how to contact the CPUC Public Advisor for assistance in filing a protest.

SECTION XII. PROTEST AND REQUEST FOR PUBLIC HEARINGS

Pursuant to the Commission Rules of Practice and Procedure, Article 2.5, those to whom notice has been sent under Section XI.A hereof and any other person

entitled under the Commission's Rules of Procedure to participate in a proceeding for a CPCN or a permit to construct may, within 30 days after the notice was mailed or published, object to the granting in whole or in part of the authority sought by the utility and request that the Commission hold hearings on the application. Any such protest shall be filed in accordance with Article 2.5. If the Commission, as a result of its preliminary investigation after such requests, determines that public hearings should be held, notice shall be sent to each person who is entitled to notice or who has requested a hearing.

The Commission's Public Advisor shall provide information to assist the public in submitting such protests.

SECTION XIII. PROTEST TO REQUIRE THE UTILITY TO FILE FOR PERMIT TO CONSTRUCT

Those to whom notice has been given under Section XI.B hereof and any other person or entity entitled to participate in a proceeding for a permit to construct may, within 20 days after the notice was mailed and published, contest any intended construction for which exemption is claimed by the utility from the requirements of Section III.B if such persons or entities have valid reason to believe that any of the conditions described in Section III.B.2 exist or the utility has incorrectly applied an exemption as defined in Section III herein. The protest shall be filed with the CACD, specifying the relevant utility advice letter number, in accordance with General Order 96-A, Section III.H. On the same date a protest is filed with the Commission, the protestant shall serve a copy on the subject utility by mail. The utility shall respond within five business days of receipt and serve copies of its response on each protestant and the CACD. Construction shall not commence until the Executive Director has issued an Executive Resolution.

Within 30 days after the utility has submitted its response, the Executive Director, after consulting with CACD, shall issue an Executive Resolution on whether: the utility is to file an application for a permit to construct, or the protest is dismissed for failure to state a valid reason. Also, the Executive Director shall state the reasons for granting or denying the protest and provide a copy of each Executive Resolution to the Commission's Public Advisor.

The Commission's Public Advisor shall provide information to assist the public in submitting such protests.

SECTION XIV. COMPLAINTS AND PREEMPTION OF LOCAL AUTHORITY

A. Complaints may be filed with the Commission for resolution of any alleged violations of this General Order pursuant to the Commission's Rules of Practice and Procedure 9 through 13.1. A complaint which does not allege that the matter has first been brought to the staff for informal resolution may be referred to the staff to attempt to resolve the matter informally (Rules of Practice and Procedure No. 10).

B. This General Order clarifies that local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject

to the Commission's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters. In instances where the public utilities and local agencies are unable to resolve their differences, the Commission shall set a hearing no later than 30 days after the utility or local agency has notified the Commission of the inability to reach agreement on land use matters.

- C. Public agencies and other interested parties may contest the construction of under-50-kV distribution lines and electric facilities by filing a complaint with the Commission pursuant to the Commission's Rules of Practice and Procedure 9 through 13.1.

SECTION XV. STATE AGENCY REVIEW OF ELECTRIC GENERATING AND RELATED TRANSMISSION FACILITIES NOT SUBJECT TO THE WARREN-ALQUIST ENERGY RESOURCES CONSERVATION AND DEVELOPMENT ACT

Nothing in this order shall be construed to preempt or otherwise limit the jurisdiction of state agencies other than this Commission to exercise the full range of their jurisdiction under state or federal law over facilities subject to this order.

A coastal development permit shall be obtained from the Coastal Commission for development of facilities subject to this order in the coastal zone.

SECTION IXV. CEQA COMPLIANCE

Construction of facilities for which a CPCN or permit to construct is required pursuant to this General Order shall not commence without either a finding that it can be seen with certainty that there is no possibility that the construction of those facilities may have a significant effect on the environment or that the project is otherwise exempt from CEQA, or the adoption of a final EIR or Negative Declaration. Where authority must be granted for a project by this Commission, applicant shall comply with Rule 17.1 of our Rules of Practice and Procedure:

Special Procedure for Implementation of the CEQA of 1970 (Preparation of EIRs). This latter requirement does not apply to applications covering generating and related transmission facilities for which a certificate authorizing construction of the facilities has been or will also be issued by the CEC. For all issues relating to the siting, design, and construction of electric generating plant or transmission lines as defined in Sections VIII and IX.A herein or electric power lines or substations as defined in Section IX.B herein, the Commission will be the Lead Agency under CEQA, unless a different designation has been negotiated between the Commission and another state agency consistent with CEQA Guidelines § 15051(d).

**PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

By **WESLEY M. FRANKLIN**
Acting
Executive Director

August 11, 1995

G.O. 131-D

Appendix A - General Order No. 131-D

**INFORMATION TO BE INCLUDED IN THE UTILITY
REPORT REGARDING FINANCING OF NEW ELECTRIC
GENERATING CAPACITY AND TRANSMISSION LINE PROJECTS**

- I. A statement, detailing the economic assumptions used to project all construction expenditures and annual operating costs, including the methodology, assumptions, and sources and authorities associated therewith for a fifteen-year (15) period commencing with the year in which the report is filed, for each of the following:
 - A. Operating Revenues
 1. Electric
 2. Gas, if applicable
 3. Miscellaneous
 4. Total
 - B. Operating Expenses
 1. Cost of Electric Energy
 2. Cost of Gas sold, if applicable
 3. Transmission and Distribution
 4. Maintenance
 5. Depreciation
 6. Taxes on Income
 7. Property and Other Taxes
 8. Other
 9. Total
 - C. Operating Income
 - D. Other Income and Deductions
 1. Allowance for Equity Funds Used During Construction
 2. Gains on Bonds Purchased for Sinking Fund
 3. Subsidiary Income
 4. Other — Net
 5. Total
 - E. Income Before Interest Charges
 - F. Interest Charges
 1. Short-term
 2. Long-term
 3. Less Allowance for Borrowed Funds Used During Construction
 4. Total
 - G. Net Income
 - H. Preferred Dividend Requirement

- I. Earnings Available for Common Stock
- J. Average Number of Shares of Common Stock Outstanding (Thousands)
- K. Earnings Per Share of Common Stock
- L. Dividends Per Share of Common Stock
 - 1. Declared Basis
 - 2. Paid Basis
- II. An estimate for each of the following capital requirements items for each year for a fifteen-year period commencing with the year in which the report is filed:
 - A. Construction expenditures by year broken down by:
 - 1. Generation projects over \$100 million, including those, if any, located out-of-state
 - a. Busbar, including switchyard, expenditures
 - 2. All other generation projects, including those, if any, located out-of-state
 - a. Busbar, including switchyard, expenditures
 - b. Associated transmission expenditures
 - 3. Non-generation transmission expenditures
 - 4. Distribution expenditures
 - 5. Other expenditures

Breakdown of each item in 1 above into the following elements:

Directs	(M&S + Labor)	Indirects	AFDC	Total
\$	\$	\$	\$	\$

- B. Bond retirements, sinking fund retirements, etc.
- C. Investments in subsidiary companies
- III. An estimate for each of the following items for each year for a fifteen-year period commencing with the year in which the report is filed:
 - A. Capital balances as of January 1
 - B. Capital ratios as of January 1
 - C. Imbedded costs of debt and preferred stock
 - D. Debt, preferred and common stock issues:
 - 1. Amount (\$ and shares)
 - 2. Yield and cost of each issue

- E. Income tax information
 - 1. Tax operating expense
 - 2. State tax depreciation
 - 3. Federal tax depreciation
 - 4. ITC or other credits available and used
 - F. Short-term debt balances
 - G. Annual equivalent rate used to compute the Allowance for Funds Used During Construction
- IV. Data showing the estimated Results of Operation for electric utility operations for each year for a fifteen-year (15) period, commencing with the year in which the report is filed, in the formal set forth below:
- A. Kilowatt-hour Sales
 - 1. Total
 - 2. Residential
 - B. Average Price (\$/kWh)
 - C. Number of Residential Customers
 - D. Gross Revenue - Total
 - 1. Base Rates
 - 2. ECAC Rates
 - 3. ECAC Rate Increases
 - 4. Non-ECAC Rate Increases
 - 5. Misc. Operating Revenues
 - E. Operating Expenses - Total
 - 1. Production - Fuel and Purchased Power - Total
 - a. Oil
 - b. Gas
 - c. Nuclear
 - d. Coal
 - e. Geothermal
 - f. Combined Cycle
 - g. Purchased Power
 - h. Other (explain)
 - 2. Production O&M (non-fuel)
 - 3. Transmission
 - 4. Distribution
 - 5. Customer Accounts
 - 6. A&G
 - 7. Depreciation & Amortization

- 8. Taxes -- Total
 - a. State Income
 - b. Federal Income
 - c. Ad Valorem
 - d. Other
- 9. Other (explain)
- F. Net Operating Income
- G. Rate Base (Weighted Average)
- H. Rate of Return
- I. Net-to-Gross Multiplier
- V. For those electric utilities which also operate other public utility departments, such as natural gas, steam, and water service, an estimate of the following financial information by department for each year for a fifteen-year (15) period, commencing with the year in which the report is filed. Any separate utility operation that contributes to less than one (1) percent of the utility's total gross operating revenues may be excluded.
 - A. Gross Revenue
 - B. Operating Expenses
 - C. Net Operating Income
 - D. Rate Base (Weighted Average)
 - E. Rate of Return
- VI. The following variable will be provided by the staff of the Public Utilities Commission for use by the utility in generating certain financial information required by Appendix A:
 - A. Return on Common Equity
 - B. Dividend Yield
 - C. Market to Book Ratio
 - D. Cost of Long-Term Debt (including incremental cost)
 - E. Cost of Preferred Stock (including incremental cost)
 - F. Common Stock Price
 - G. Annual equivalent rate used to compute the Allowance for Funds Used During Construction

These variable will be furnished 60 days before the annual utility report is due and will be developed by the staff based on its independent expertise.

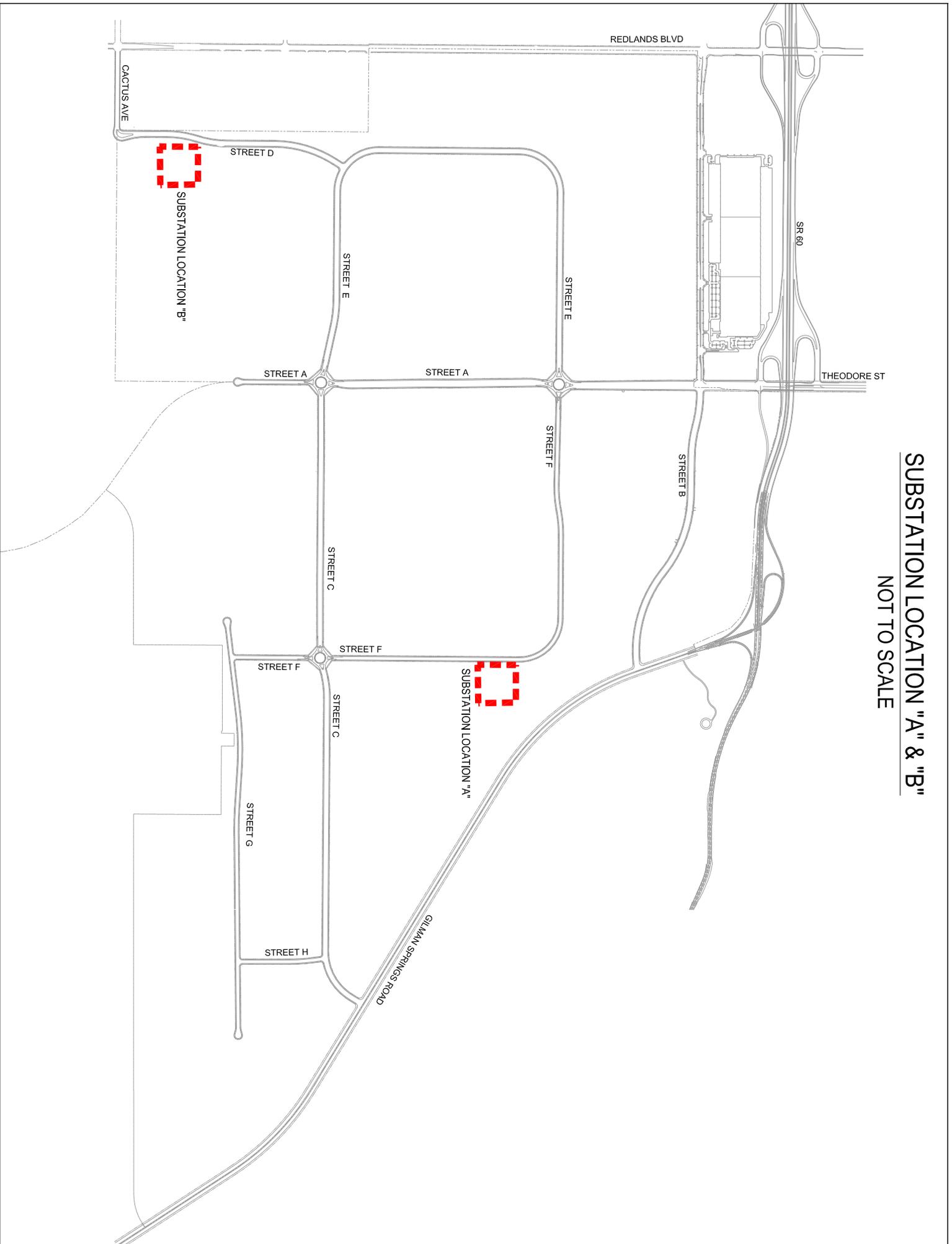
Appendix B - General Order No. 131-D

**INFORMATION TO BE INCLUDED IN AN APPLICATION
FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND
NECESSITY FOR ELECTRIC GENERATING FACILITIES**

- I. A detailed description of the proposed generating facility and related facilities and the manner in which the same will be constructed, including the type, size, fuel capabilities, and capacity of the generating facilities.
- II. A map of suitable scale showing the location of the proposed power plant and related facilities, and a description of the location of the proposed power plant and related facilities.
- III. A listing of federal, state, regional, county, district, or municipal agencies from which approvals either have been obtained or will be required covering various aspects of the proposed facility, including any franchises and health and safety permits and the planned schedule for obtaining those approvals not yet received.
- IV. Load and resource data setting forth recorded and estimated loads (energy and demands), available capacity and energy, and margins for 5 years actual and 20 years estimated on the same basis, as reported to the CEC including a statement of the compatibility of the proposed generating facility with the most recent biennial report issued by the CEC pursuant to Section 25309 of the Public Resources Code.
- V. Existing rated and effective operating capacity of generating plants and the planned additions for a ten-year (10) period.
- VI. Estimated cost information, including plant costs by accounts, all expenses by categories, including fuel costs, plant service life, capacity factor, total generating cost per kWh (1) at plant, and (2) including related transmission, levelized for the economic life of the plant, year by year for the 12 years commencing with the date of commercial operation of the plant, and comparative costs of other alternatives considered on a levelized or year-by-year basis depending upon availability of data. Estimated capital and operating costs of power to be generated by the proposed plant for all competitive fuels which may be lawfully used in the proposed plant. When substantially the same data are prepared for utility planning purposes they may be used to satisfy all or any portion of these requirements.
- VII. For any nuclear plant a statement indicating that the requisite safety and other license approvals have been obtained or will be applied for.
- VIII. Such additional information and data as may be necessary for a full understanding and evaluation of the proposal.

(End of Appendix)

SUBSTATION LOCATION "A" & "B"
NOT TO SCALE



SOLAR POWER OPTIONS

In today's world, a discussion of the merits and actual capabilities of using photovoltaic (PV) systems to offset electric power requirements is warranted. In some smaller venues such as residential use PV arrays can produce sufficient power during peak generating conditions to totally offset power required from the utility company when PV systems are not producing. As long as the utility company can sell additional generated power to other users, this can create a situation where no payment to the electric utility provider is required.

To understand how that would work or benefit the end users within the World Logistics Center planning area, we must consider (a) the generating characteristics of a PV array; (b) how that relates to actual power consumption and power demands; and (c) what ability exists to sell excess power capacity back to MVU during periods of excess production.

PV Generating Characteristics & Power Consumption and Demand

PV arrays can produce power for approximately 12 hours each day. Actual peak production, however, only occurs for approximately two hours between 1:00pm and 3:00pm. During the other 10 hours power generation is ramping up and tapering down as the sun rises and falls in the daylight sky. (See Figure 1.) This characteristic cannot be altered significantly and is important as it relates to normal electrical operation in the building and the utility company's service territory.

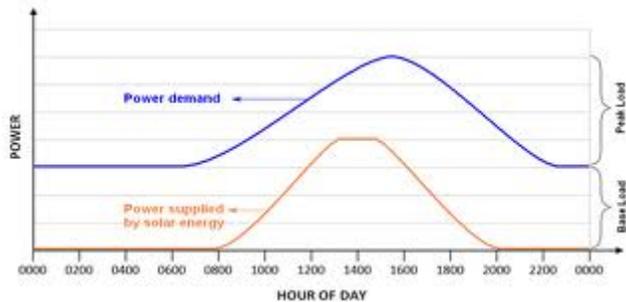


Figure 1 also shows a typical utility demand cycle superimposed over the normal PV generation cycle. The comparison shows that the normal peak electrical requirement is not coincident with the PV array's peak output capabilities.

The total planning area will have approximately 41,600,000 square feet of rooftop. Of that total it is anticipated that approximately 55% or 22,880,000 square feet will be available for PV installation. Depending on the type of PV cells that are used, 205.9 megawatts (mW) of peak output could be produced during the optimum

Figure 1: Typical power production and usage curves not necessarily WLC specifically related to.

production period. It is anticipated that the entire project could have a peak electrical demand requirement of 69.9 mW. The available rooftop space could, therefore meet the electrical cycle demand under optimum conditions.

Electricity consumption, generally measured in kilowatt hours (kWH), is an additional element and must be considered separately from peak demands. Electricity continues to be used during the entire 24 hour day. (Note Base Load on Figure 1.) It is estimated that 375,660,840 kWH of electricity will be consumed by the entire project during a one year period. The total solar output of the proposed PV arrays in the planning area will be less than 302,465,750 kWH of electricity.

Utility Buy/Sell Agreements

The raw numbers presented in the previous section may look appealing, but several technical issues prevent full utilization of a PV system within the planning area. To reach those optimum numbers, it is necessary to be able to get excess production to other customers who would be willing to purchase it, and that requires using the MVU distribution grid. To clarify this statement, PV cells act much like the batteries in a flashlight. The electrical potential is present but no power flows to the light bulb until the switch is turned on. Electric companies do not provide credit for electrical potential, but only on power consumed by a paying customer.

Additionally, it is proposed that all customers of the planning area include their own solar arrays. Since each building will be able to generate more power than they could use, they would, therefore, not be in the market for any additional capacity during peak production periods. Simply stated, there will be no market on the MVU system through their substation to utilize the excess power. The solar arrays would sit idle beyond the immediate needs of each specific building and be unused investment.

MVU has determined that twelve new 12kV distribution circuits will be needed to meet the peak electrical demand. The excess generation capacity of the PV arrays would require at least 8 additional circuits or a total of 20 to get that power output back into the electrical distribution grid. That single issue alone makes full utilization of the PV potential economically unfeasible for both the utility and the project developer.

MVU is prohibited by their operating agreement with Southern California Edison (SCE) from producing excess power and transmitting it into the SCE transmission grid. Changing that agreement would be a long and complicated issue involving the two utilities, the California Independent System Operator, the California Public Utilities Commission, and possibly others.

In conclusion when all project occupants have PV capacity to meet their core electric power needs where does surplus PV generation go when constrained by the need for additional distribution infrastructure support and or prohibited beyond the MVU system? Accordingly PV capability beyond the needs of the building occupant does not seem practical or beneficial.

Actual Benefits of the PV Proposal

Even though the full capabilities of the total project cannot be achieved, there are benefits that could and should be implemented:

- To the extent that the PV arrays can meet the electrical demands during optimum production times, the building's user will not need to utilize utility company provided power. This may not yield an actual financial savings, but would reduce the need to utilize power from non-renewable sources.
- Coordinating the design of the solar arrays with the actual buildings electrical demands would reduce the size of the solar field and rooftop space required and would eliminate construction of superfluous arrays.

Use of remainder available rooftop space for other uses such as solar water heating, solar assisted space heating/cooling could also be environmentally beneficial and might even further reduce project peak electric demands.

Moreno Valley Fire Department Strategic Plan 2012-2022



December 2011



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CHIEF'S MESSAGE



Steve Curley
Fire Chief

As the City's former Fire Chief and current Western Operations Deputy Chief for Riverside County Fire, I am pleased to present the Moreno Valley Fire Department's Strategic Plan 2012-2022. This plan clearly defines the mission and goals of the Moreno Valley Fire Department while providing a guide for continuing the excellent services that we provide to the community for the next ten years.

The Moreno Valley Fire Department has seen an 11.1% increase in emergency calls for service over the last five years and it is anticipated that the total calls for service for 2011 will exceed 14,000 calls. We are expecting to open our seventh fire station, the Morrison Park Fire Station, in the Fall of 2012 to help meet the growing needs of the community. This will also help us continue to meet one of our goals for Fire Operations which is to arrive on scene within 5 minutes of dispatch 90% of the time. The funding for this station was made possible through the issuance of redevelopment agency bonds.

Furthermore, I am excited to announce that in October 2011 we hired four part time Fire Prevention Technicians for the Fire Prevention Bureau for the new Multi-Family Residential Inspection Program. This program will enhance our ability to safe guard the community from fire and environmental hazards by ensuring that each multi-family residential unit is inspected on an annual basis. We are also looking forward to hiring two additional part time Fire Prevention Technicians in 2012 to help ensure that all vacant lots in the City receive an annual hazard abatement inspection. By hiring these six Fire Prevention Technicians, the City's Fire Prevention Bureau will be better able to achieve one of their goals, which is to ensure all business and commercial occupancies receive annual fire and life safety inspections. It also provides the beginning steps to ensuring a second goal is met within the next ten years which is to perform hazard abatement inspections biannually.

Additionally, our Office of Emergency Management (OEM) Program coordinates the City's prevention, preparedness, response, recovery, and mitigation efforts for all natural and man-made disasters. Most recently the City Council adopted a local hazard mitigation plan written by the OEM Program Manager. The goals of the plan are to protect life, property and the environment; provide public awareness; protect the continuity of government; and to improve emergency management, preparedness, collaboration and outreach. The plan contains a profile of the City, a detailed assessment of disasters that could occur in Moreno Valley and the mitigation goals of the City to reduce long-term vulnerabilities. The plan can be found on our City website at www.moval.org.

Finally, once the strategic plan is implemented it will be modified periodically for priority changes, budgetary constraints, and planning refinements. This plan provides an overview of anticipated Fire Department activities as related to the goals contained within this plan. General economic conditions and the capability to fund projects will play a crucial role in determining the actual time that resources are secured and projects completed, however, I strongly feel that the goals, and the strategies to reach those goals, are well within our reach.

EXECUTIVE SUMMARY

The Moreno Valley Fire Department is the primary response agency for fires, emergency medical service, hazardous materials incidents, traffic accidents, terrorist acts, catastrophic weather events, and technical rescues for the City of Moreno Valley. The Fire Department 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. Additionally, the City's Office of Emergency Management is located within the Fire Department allowing for a well-coordinated response to both natural and man-made disasters.

Anticipating the future, in terms of building a flexible organization, is an important facet of this strategic plan. The Fire Department must be able to react to change, resolve problems, and work together with other departments and agencies on issues that might arise. It must assess the needs of the community and develop resources to meet those needs. As such, any strategic plan must be adaptable enough to accommodate the needs of the community as they arise.

This plan identifies five goals for Fire Operations, Fire Prevention, and the Office of Emergency Management for a total of fifteen goals which are listed below. The strategies for accomplishing these goals can be found on pages 14-22.

FIRE OPERATION GOALS

- ◆ **Goal 1:** Financial Management and Accountability
- ◆ **Goal 2:** Arrive On Scene within 5 Minutes of Dispatch 90% of the Time
- ◆ **Goal 3:** Reduce the Risk of Fire to Residents through Prevention Campaigns and Mitigation Efforts
- ◆ **Goal 4:** Maintain a Strong Partnership with Riverside County Fire Department
- ◆ **Goal 5:** Ensure Fire Administration Staffing is Sufficient for the Needs of the Department

FIRE PREVENTION GOALS

- ◆ **Goal 1:** Fiscal Sustainability
- ◆ **Goal 2:** Ensure All Business and Commercial Occupancies Receive Annual Fire and Life Safety Inspections
- ◆ **Goal 3:** Perform Hazard Abatement Inspections Bi-Annually
- ◆ **Goal 4:** Provide Efficient Plan Review
- ◆ **Goal 5:** Evaluate Management Structure and Career Advancement within the Bureau

OFFICE OF EMERGENCY MANAGEMENT

- ◆ **Goal 1:** Provide Training to Employees and Citizens
- ◆ **Goal 2:** Incorporate Federal and State Legal Mandates and Standards into City Emergency Management Strategies
- ◆ **Goal 3:** Continually Improve Emergency Operations Center Functions and

Capabilities Based on a Comprehensive Assessment

- ◆ **Goal 4:** Manage FEMA and State Disaster Recovery Projects to Ensure Timely Completion of Required Documentation
- ◆ **Goal 5:** Maintain Effective Coordination and Partnerships with Local, Regional, and State Agencies

This strategic plan is a living document and will be a continuous work in progress. The plan will guide the Fire Department's development over the next ten years and will inform the public and its Fire Department members of the goals and strategies that the Fire Department has for the future. It will also serve as the foundation document for informing City Council as to the direction the Fire Department is headed in order to ensure the community receives outstanding fire protection services. The Fire Department will review this plan biennially to ensure the goals outlined in this plan are being met.

MISSION STATEMENT AND VALUES

The mission of the Moreno Valley Fire Department is:

The Moreno Valley Fire Department serves the community with pride, integrity, and professionalism while providing quality emergency services to protect and preserve life and property of its citizens when exposed to fires, medical emergencies, natural or man-made disasters, hazardous materials incidents, and rescue emergencies in a safe, efficient and cost effective manner as a result of a cooperative, regionalized fire and rescue delivery system with the Riverside County Fire Department. To minimize the impact of natural or man-made disasters by identifying and mitigating known hazards and to enhance our response to these disasters by providing quality training to the community on disaster preparedness, response, and recovery.

The core values for the Moreno Valley Fire Department are:

Safety – Leadership – Integrity – Competence – Customer Service

ORGANIZATIONAL HISTORY

On December 3, 1984, the City of Moreno Valley officially incorporated as a California general law municipality. The residents of Edgemont, Sunnymead, and Moreno recognized there was a need for managed growth as the population in Moreno Valley had more than doubled from 18,871 residents in 1970 to 49,702 in 1984 and therefore approved the measure to incorporate.

Prior to incorporation, the areas of Edgemont, Sunnymead, and Moreno were serviced by the Riverside County Fire Department which has contracted with the California Department of Forestry and Fire Protection (CAL Fire) since 1921. The initial contracts with CAL Fire augmented the level of wild land fire protection to Riverside County and then evolved as the area grew in population.

Since its incorporation in 1984, the City of Moreno Valley has contracted for fire protection services with the Riverside County Fire Department which contracts with CAL Fire. CAL Fire provides full-service fire protection to many jurisdictions in California through the administration of 145 cooperative fire protection agreements in over 30 counties, including cities, fire districts as well as special districts and service areas. As a full-service fire department CAL Fire responds to wildland fires, structure fires, floods, hazardous material spills, swift water rescues, civil disturbances, earthquakes, and medical emergencies. Local governments, such as Riverside County, are able to utilize this diversity through their agreements with CAL Fire.

The City's Fire Department has grown significantly since 1984, expanding from three fire stations in 1984 to six fire stations in 2002 with a seventh fire station slated to open in the Fall of 2012. The six fire stations currently house a total of six fire engines, two aerial ladder trucks, one brush engine, three reserve fire engines, one reserve fire truck, and two fire rescue squads. The primary fire engines are staffed with one Fire Captain, one Fire Apparatus Engineer, and one Firefighter II Paramedic. The two aerial ladder trucks are staffed with one Fire Captain, one Fire Apparatus Engineer, and two Firefighter II's. Staffing for both the fire engines and trucks is continuous, 24 hours a day, seven days a week. Two Battalion Chiefs supervise 69 firefighting personnel with a Riverside County Fire/CAL Fire Division Chief supervising the two Battalion Chiefs. These two Battalion Chiefs also supervise a reserve firefighters program of up to 50 Reserves and a Fire Explorer Program of up to 25 Explorers.

The Riverside County Fire/CAL Fire Division Chief is also appointed as the City's Fire Chief and oversees the City's Fire Prevention Bureau and Office of Emergency Management. The City's Fire Prevention Bureau provides planning and engineering services to the City; conducts fire and life safety inspections, and oversees the City's hazard abatement program. The Office of Emergency Management program provides a wide variety of training, such as Community Emergency Response Team training and Terrorism Awareness, to both employees and residents. Additionally, this program is tasked with preparing the City for any emergency situation through prevention, mitigation, preparedness, response, and recovery for a variety of natural or man made disasters that may occur in the community.

COOPERATIVE FIRE PROTECTION AGREEMENT

CAL Fire's mission, as directed and authorized by the State Legislature and statutes, is to provide contractual emergency service to local governments throughout California when requested. CAL Fire has provided cooperative fire protection services for over 100 years to various jurisdictions throughout the state including contracts with more than 140 cities, special districts, and counties. Locally CAL Fire, through Riverside County Fire, provides cooperative fire protection services to 21 of the 28 cities in Riverside County as well as to the Rubidoux Community Services District.

Riverside County Fire is a modern, full-service fire protection and emergency management agency that provides comprehensive fire protection services to its contract city partners. As part

of the contract with Riverside County Fire, the City receives the benefit of a cost effective regionalized cooperative fire protection system which includes:

- ◆ Consolidated dispatch center for emergency medical and fire dispatch
- ◆ Regionalized training program
- ◆ Hazardous materials response team
- ◆ Fire arson investigation
- ◆ Immediate use of fire hand crews, bulldozers, and aircraft
- ◆ Public information and education
- ◆ Assistance from the Riverside County Fire Office of Emergency Services

Riverside County Fire is committed to quality fire protection services to its contract partners. The County Fire Department strives to make the most effective use of limited emergency protection resources by efficiently sharing valuable personnel and equipment as part of the Riverside County Fire Department cooperative, integrated, regional fire protection system which includes all the resources from the 21 contract cities and Riverside County.

Through the City's cooperative agreement with Riverside County Fire, the City's Fire Chief is appointed by the Riverside County Fire Chief, John Hawkins. The Fire Chief acts as the City's liaison to Riverside County Fire, relaying information from City Council or the City Manager's Office directly to the Riverside County Fire/CAL Fire Western Deputy Chief who in turn reports to the Riverside County Fire Chief. Furthermore, the City's Fire Chief oversees the City's Fire Prevention Bureau, Office of Emergency Management, and handles all Fire Department related administrative issues.

The City of Moreno Valley is able to determine its staffing levels for various fire apparatus as long as those levels meet the minimum safe and acceptable levels for the Riverside County Fire Department. For example, the City could increase the daily staffing on fire engines from three firefighters to four, however, the City is unable to decrease from three personnel to two due to the minimum standard staffing level that has been established by the Riverside County Fire Department. The City ultimately retains control of the budget for the Fire Department as well as determining fire station locations. The City has worked in conjunction with the Riverside County Fire Strategic Planning Bureau in order to determine fire station locations. A discussion of the methodology for determining fire station locations is located on page 9.

CLIMATE AND TOPOGRAPHY

The City of Moreno Valley encompasses 51.5 square miles and is located in the northwestern portion of Riverside County with a population of 193,365. Moreno Valley is a mixture of residential, commercial, industrial properties with wildland urban interface areas on the north, east, and south sides of the City which includes Box Springs Mountain and San Timoteo Canyon to the north, the "Badlands" to the east, and Lake Perris State Park to the south.

The elevation in Moreno Valley ranges from 1,450 feet in the south to over 2,700 feet in the north. The slopes of the Box Spring Mountain, Reche Canyon, San Timoteo Canyon, the

“Badlands”, and Lake Perris State Park are covered with volatile chaparral fuels and grass ground cover which are susceptible to fires and rapid growth. Once a fire starts, it can spread quickly to the surrounding vegetation and threaten homes located in the wildland urban interface.

Moreno Valley has a semi-arid climate that is similar to the climate found in many Mediterranean regions. The City experiences an average of 10 inches of rainfall a year with minimal threats of frost in the winter months. A majority of the rainfall in Moreno Valley occurs from December to March.

Moreno Valley can also experience strong wind conditions, known as the Santa Ana Winds, from late October through March. These winds can be extremely strong and blow from the north and northeast. These winds will greatly increase the intensity of any wildland fire should a fire occur during Santa Ana Wind conditions.

Summers in Moreno Valley are generally sunny with very warm to hot days. While average temperatures in July and August are in the mid 90’s, it is not unusual to experience numerous days of 100 degree heat prior to a slight cooling off period. Monsoonal moisture can occur during the summer when moist air from the tropical regions of the Pacific and Gulf of Mexico bring higher humidity to the area, causing afternoon and evening thunderstorms.



BUDGET

The City of Moreno Valley continues to reel from the impacts of the Great Recession which is the worst economic crisis faced by this nation since the Great Depression of the 1930’s. City operations rely heavily on revenue that is generated through economic stability, activity, and

growth. During this recession, Moreno Valley's General Fund revenue base has declined from a high of \$97.8 million in Fiscal Year (FY) 2007-08 to a low of \$68.0 million in FY 2010-11. This represents a reduction of \$29.8 million or 30.4% in just three years.

Furthermore, the number of General Fund employees in Moreno Valley has declined from 283 employees in Fiscal Year 2007-08 to a low of 147 in FY 2011-12. Additional staffing reductions are planned for the next two fiscal years which will result in a workforce of 138 employees by FY 2013-14. This represents a 51.2% reduction in general fund employees over the course of five years.

To further exasperate the financial situation in Moreno Valley, the unemployment rate has ranged from 16.3% to a high of 17.6% over the last three years. Most recently, the unemployment rate decreased from 16.9% in August 2011 to 16.1% in September 2011. While the unemployment rate is improving, it is still well above the current nation unemployment average of 9% as reported in October 2011. This means that City residents have less discretionary income available to spend which results in less sales tax revenue for Moreno Valley. As sales tax revenue is second only to property tax revenue for the City's General Fund, any decrease in spending by consumers greatly affects the revenue for Moreno Valley.

Property values have also declined sharply since the beginning of the recession. Home values peaked at an average price of \$400,678 in 2006 and sharply declined to a low of \$137,748, a decrease of 65%. Property values are beginning to recover and as of the second quarter of 2011 the median home price in Moreno Valley was \$266,000.

Similarly, property tax revenue for the City has declined over this period of time causing a major decrease in general fund revenue. A portion of the property tax revenue is designated as a structural fire tax and is utilized to help offset the cost for the City's fire protection services, however, these services have never been fully funded by the structural fire tax revenue. In FY 2007-06 the City collected a high of \$6,858,622 in structural fire tax revenue which funded 54.8% of the fire services contract cost. By FY 2009-10, the revenue had declined to a low of \$4,701,647 and only funded 36.3% of the contract costs. The City has had to cover this decline in revenue with other general fund revenue which has impacted the availability of funds to other City Departments.

While the City Council has tried to keep staffing levels in public safety at the same levels as FY 2007-08, the deep fiscal crisis facing Moreno Valley has forced City Council to decrease the number of public safety employees. As part of a 3-year deficit elimination plan, police department staffing levels are scheduled to be reduced by 12.7% by FY 2013-14 and the fire department was scheduled for a 15.5% reduction in staffing, which included the defunding of a truck company. However, this reduction will only be 8.2% when the Morrison Park Fire Station opens in the Fall of 2012 as the Fire Department will minimally increase staffing by seven firefighter personnel.

There are some signs that the economy in the Inland Empire, including Moreno Valley, is stabilizing. According to the November 2011 Beacon Economics report the combined Riverside and San Bernardino counties are stabilizing and can expect slow growth in employment for at

least the next five years. This strategic plan is formulated with the idea that the economic recovery for Moreno Valley will occur over the course of five to ten years.

ORGANIZATION OF THE MORENO VALLEY FIRE DEPARTMENT

The Moreno Valley Fire Chief oversees the City’s Fire Operations, Fire Prevention, and the Office of Emergency Management programs. The structure of the City of Moreno Valley Fire Department can be seen below.

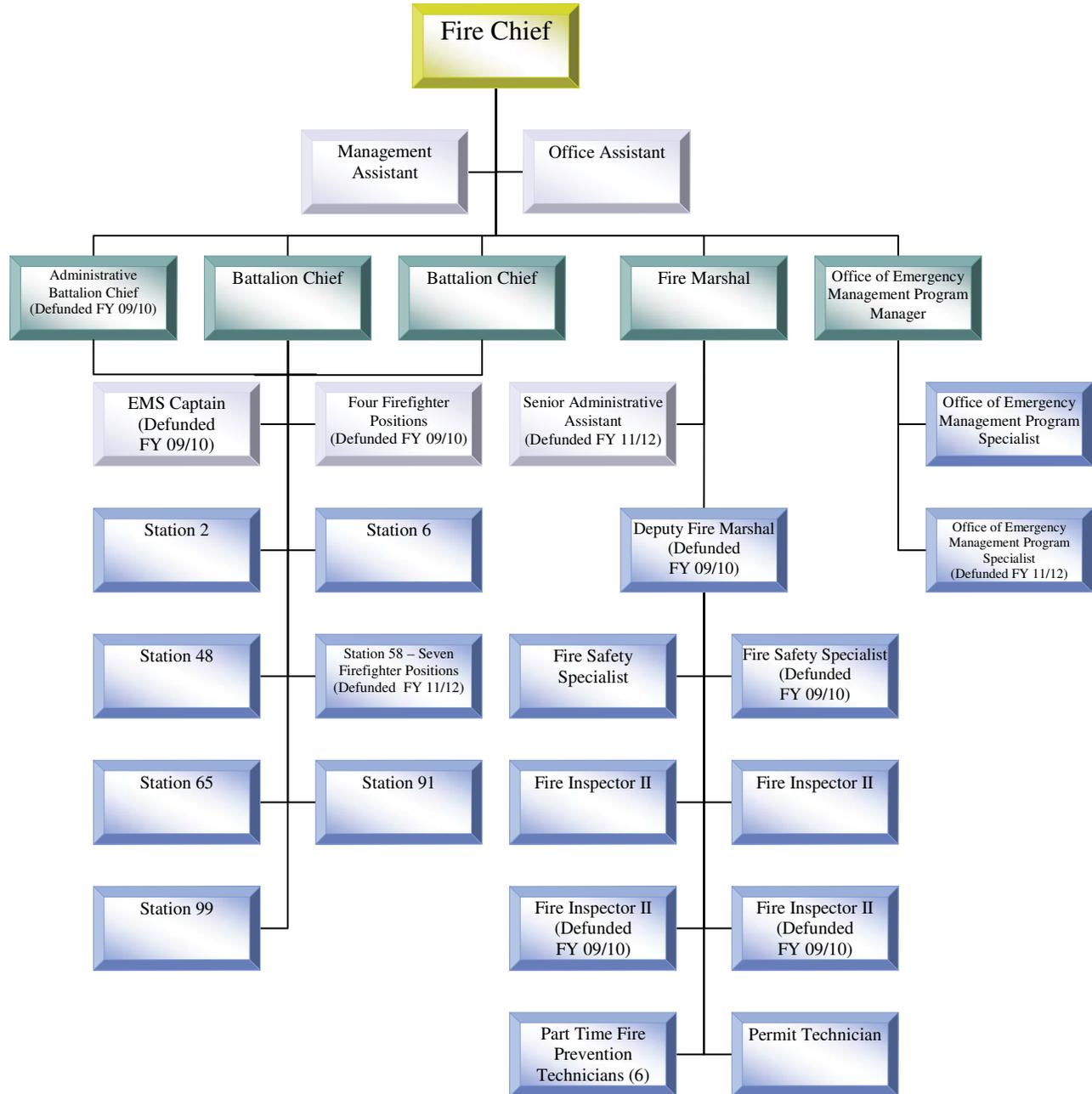


Chart 1: Moreno Valley Fire Department Organizational Chart

The Fire Chief for the Moreno Valley Fire Department is a Division Chief within Riverside County Fire/CAL Fire. Below is an overview of the Riverside County Fire Department organizational chart for Western Operations.

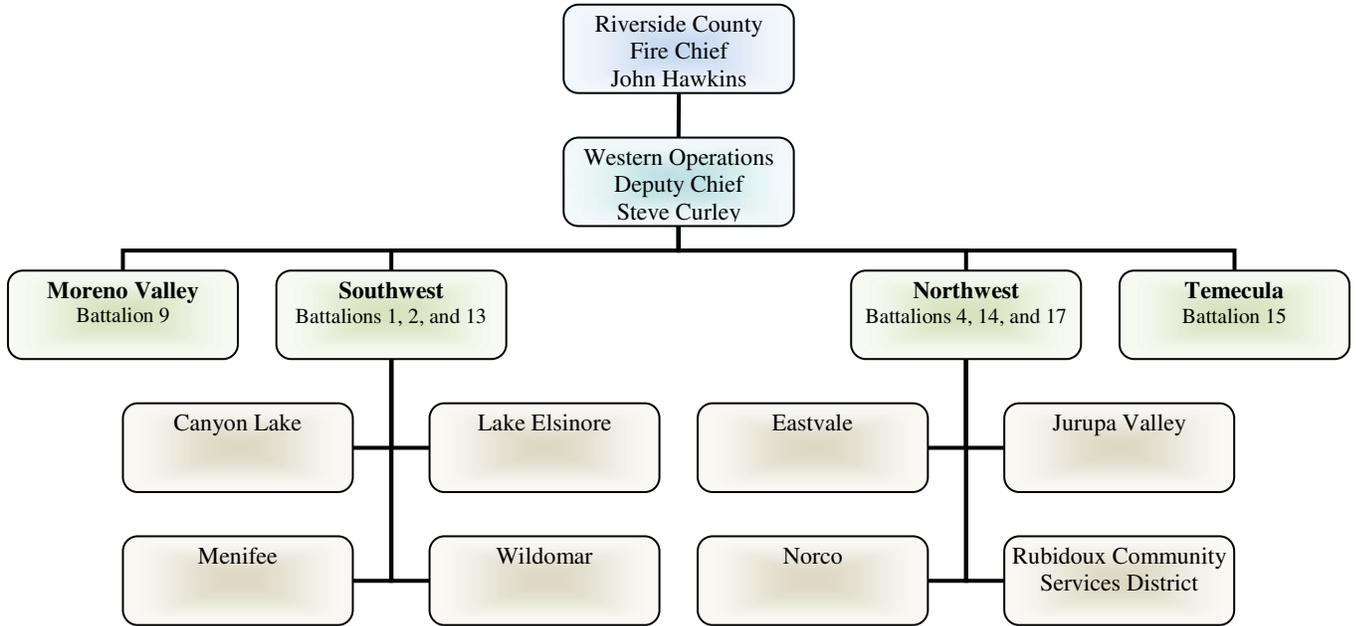


Chart 2: Riverside County Fire Department Organizational Chart Western Operations

FIRE STATION LOCATION METHODOLOGY

The Moreno Valley Fire Department, through their contract with Riverside County Fire, works with the Riverside County Fire Strategic Planning Bureau to determine fire station locations utilizing an established fire station location methodology. The purpose of having an objective fire station location methodology is to ensure that emergency services are delivered efficiently and effectively throughout the City.

The guiding principles for fire station locations are found in the National Fire Protection Association (NFPA) Fire Protection Handbook, Volume II, 20th edition. They include:

- ◆ Consideration of the criteria established by the Insurance Services Offices, Inc. (ISO) regarding the distribution of fire companies within a community
- ◆ Consideration of the NFPA Standard 1710 which calls for an engine company to arrive on scene within 4 minutes of travel time to fire incident and emergency medical aid calls 90% of the time. Additionally, this standard calls for a full first alarm assignment within 8 minutes of travel time 90% of the time
- ◆ Consideration of the proximity of travel time to other fire station protection zones for timely inclusion in the full first alarm assignment
- ◆ Consideration of rapid and safe access to multi-directional major response routes
- ◆ Consideration of appropriate locations, given the land use issues in the surrounding environment

- ◆ Consideration of utility availability, plot size, land availability, and surrounding traffic control issues
- ◆ Consideration of historical and projected call volume (response workload) in the area under consideration using risk versus cost analysis

The process that the City of Moreno Valley utilizes when working with the Riverside County Fire Strategic Planning Bureau for determining future fire station locations include:

1. Identifying the geographic area of concern on a regional map
2. Utilizing computer response mapping software, locate a hypothetical station at or near the center of the geographic area of concern or near a major response route
3. Utilizing a realistic, safe response speed or appropriately varied response speeds, plot color-coded two-minute timed distances on all street and roads emanating from the hypothetical station spreading out from two minutes to ten minutes
4. Determine the number of responders and types of apparatus that would respond from that station for various types of calls and compare with department standards of cover for that type of area and its hazards
5. Evaluate the response time and resources that would be dispatched to fire and emergency medical aid calls for services from other stations to make-up the first alarm assignment standards of cover set by policy for that area
6. Adjust hypothetical station location, if necessary, while maintaining the station location as close to the center of that geographical area as possible to maintain equity of response times
7. Utilization of existing specific plan agreements that identify when a fire station will be built based on the development of a specific area reaching a set number of residential units or commercial/industrial square footage.

FIRE STATION LOCATIONS

The City of Moreno Valley has six fire stations with a seventh currently under construction. The locations for all seven fire stations are listed below. A map is located on the next page that identifies their locations. Additionally, a second map has been included that shows the locations where the City is in the process of acquiring land or has completed land acquisitions for future fire station locations.

**Fire Station 2
(Sunnymead)**
24935 Hemlock Street

**Fire Station 6
(Towngate)**
22250 Eucalyptus Avenue

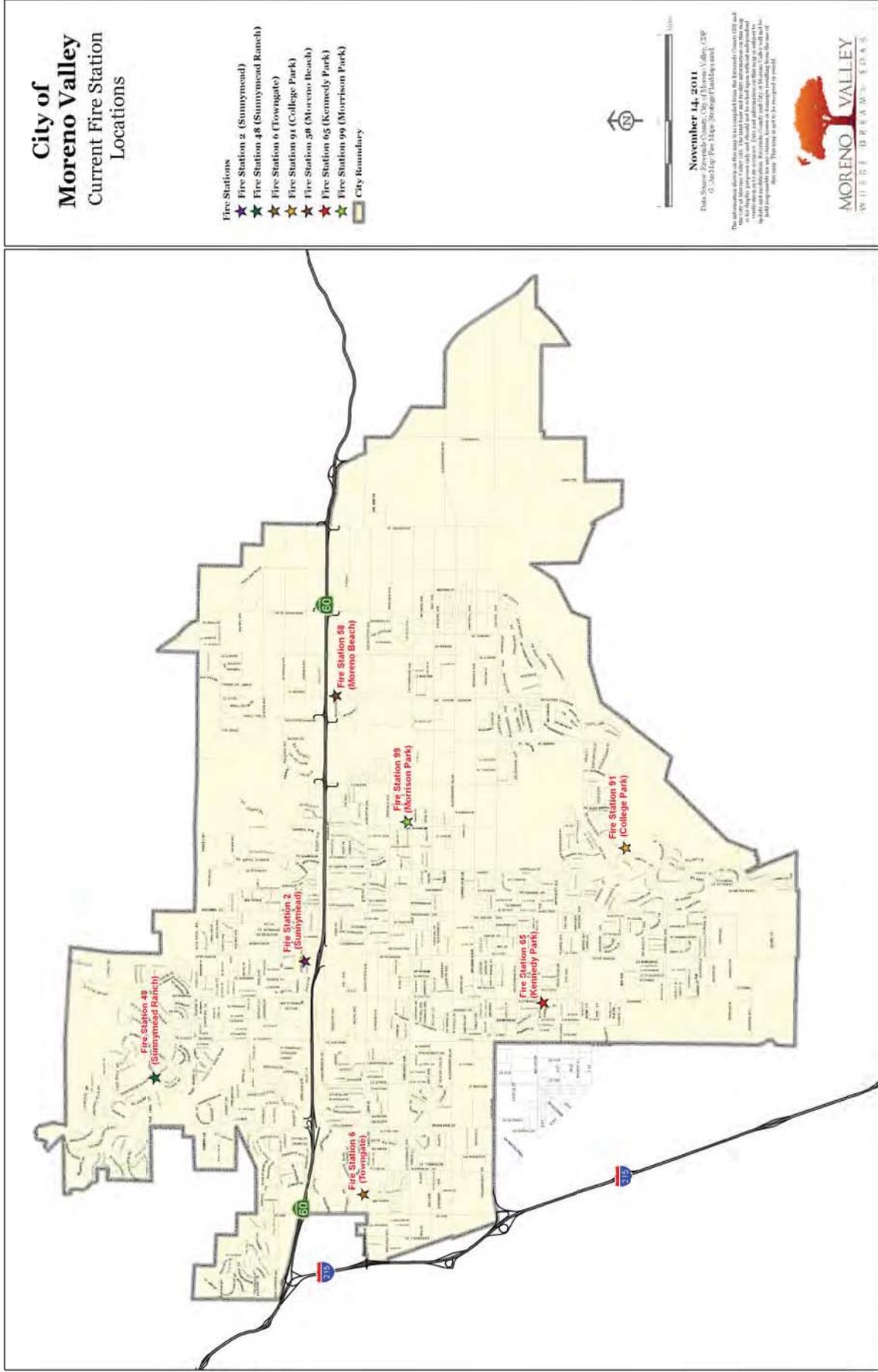
**Fire Station 48
(Sunnymead Ranch)**
10511 Village Road

**Fire Station 58
(Moreno Beach)**
28040 Eucalyptus Avenue

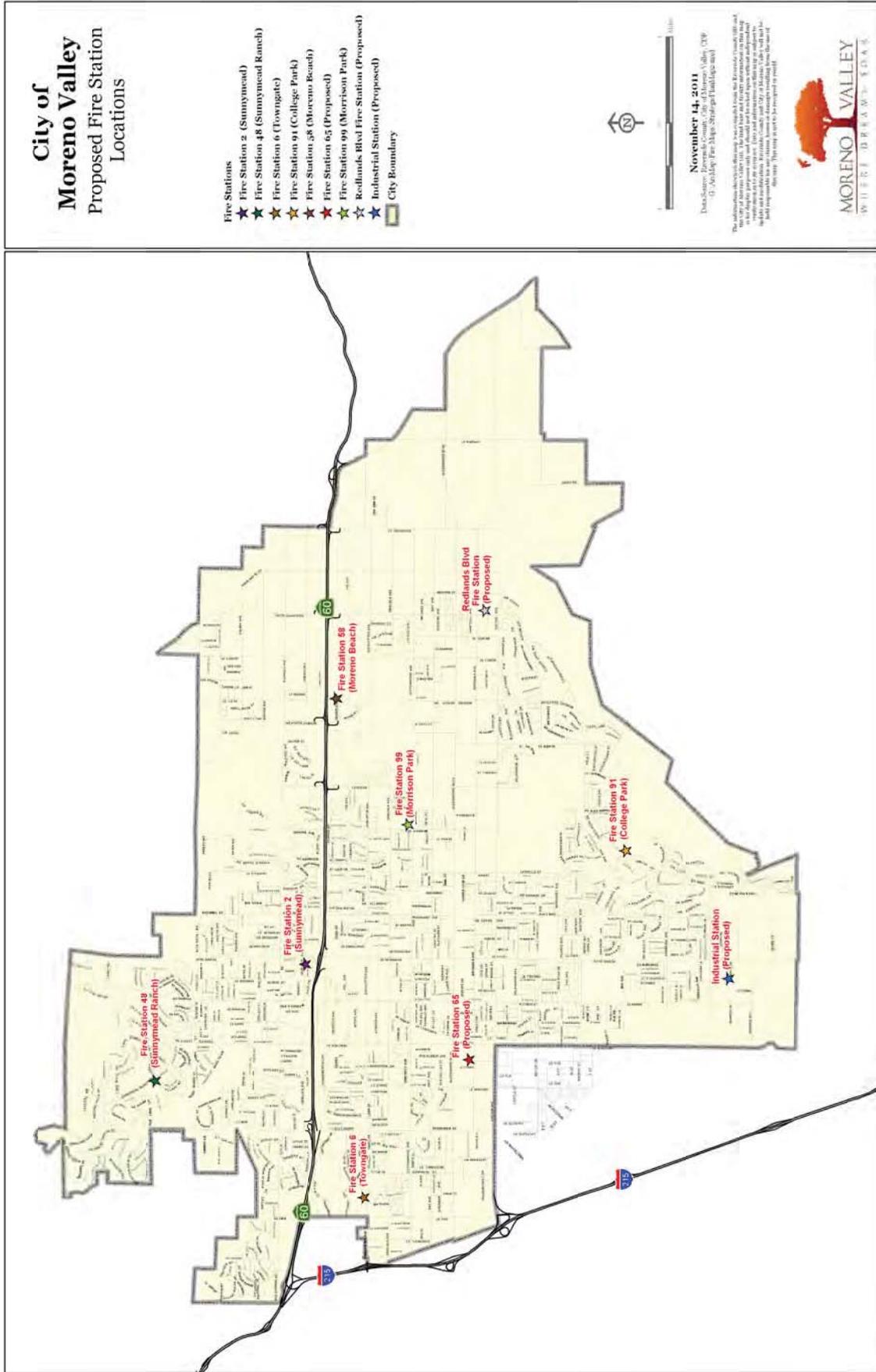
**Fire Station 65
(Kennedy Park)**
15111 Indian Avenue

**Fire Station 91
(College Park)**
16110 Laselle Street

**Fire Station 99 – Fall of 2012
(Morrison Park)**
13400 Morrison Street



Map 1: Current Fire Station Locations



Map 2: Proposed Fire Station Locations with Land Acquisition in Progress or Completed

ANNUAL CALLS FOR SERVICE

Over the last five years the Moreno Valley Fire Department has seen an 11.1% increase in calls for service (Table 1). Through October of 2011, the City has seen a 6% increase over the same period of time for 2010 and it is anticipated that the total calls for service in 2011 will exceed 14,000.

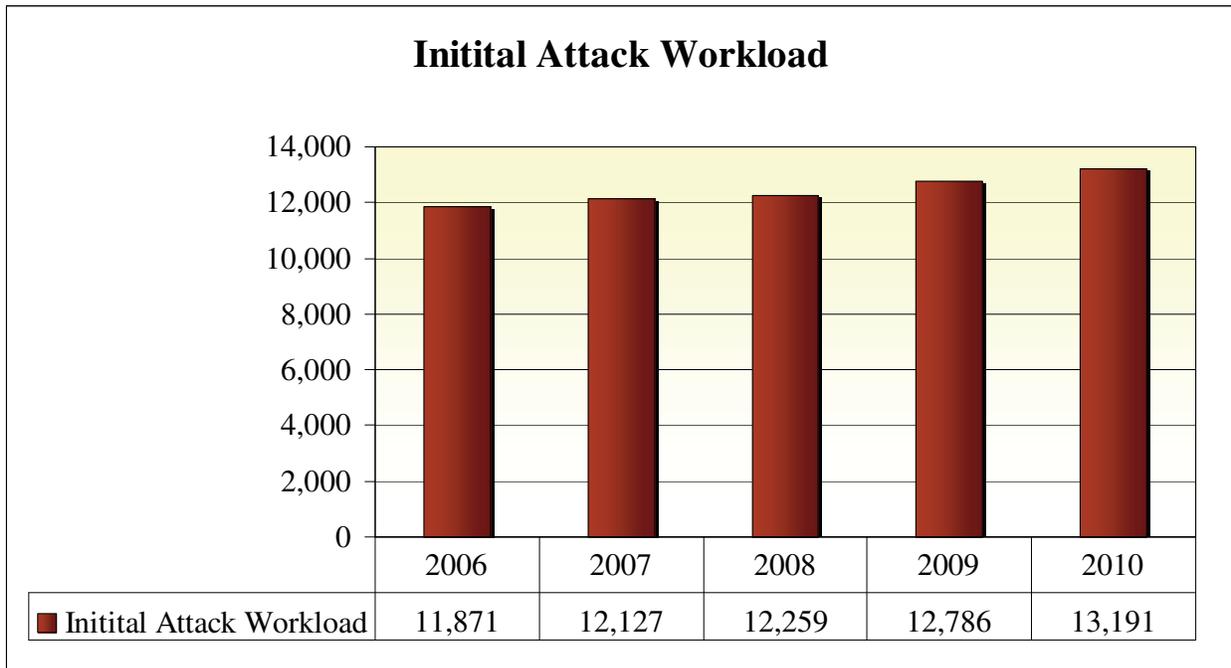


Table 1: Five Year History of Initial Attack Workload

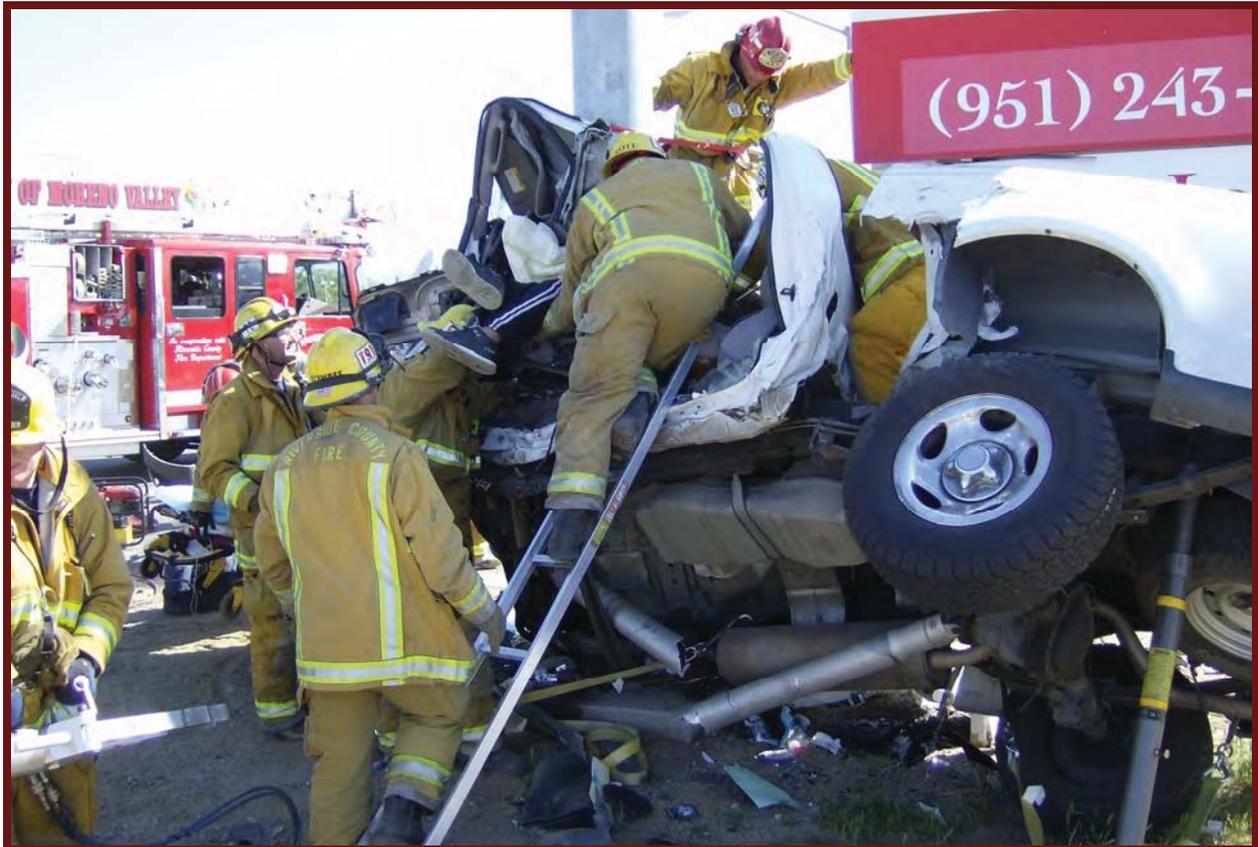
ORGANIZATIONAL GOALS AND OBJECTIVES

The strategic plan for the Moreno Valley Fire Department establishes goals and objectives for Fire Operations, Fire Prevention, and the Office of Emergency Management. The Fire Chief directly oversees each division and these divisions have their own set of goals and objectives outlined below.

FIRE OPERATIONS

Fire Operations is the largest division within the Moreno Valley Fire Department, consisting of 72 sworn staff and 2 non sworn staff as of December 2011. The main mission of Fire Operations is to respond to emergency calls for service from the community and provide quality emergency services while protecting the life and property of the citizens of Moreno Valley. Although responding to emergencies is the primary mission of Fire Operations, there are several support activities conducted by both the sworn and non sworn staff that are vital to the operation of the division including:

- ◆ Fire company annual business/commercial fire inspections
- ◆ Development and management of the Department budget
- ◆ Coordinating and responding to non emergency requests for Fire Department services from both the City Council Office as well as the public
- ◆ Long range planning for the Fire Department
- ◆ Applying for Assistance to Firefighters grant and other grant opportunities



Goal 1: Financial Management and Accountability

Over the last several fiscal years the City of Moreno Valley has seen a reduction of \$29.8 million in General Fund revenue. As public safety is funded out of the City's General Fund, staffing reductions have been made to both the Police Department and Fire Department by City Council. As the economy slowly begins to recover in Moreno Valley it is critical that the Fire Department continues to provide the best possible service to the community while maintaining a fiscally conservative mindset.

Strategies

1. Annually review the Fire Department false alarm fee to ensure all costs are being recovered for responses to commercial and residential fire alarm calls

- a. This fee has not increased since the ordinance was initially established in 1997. Currently the fee is set at \$100 per residential fire false alarm and \$200 for a commercial fire false alarm
 - b. Propose a fee increase in FY 2012-13 to cover actual costs utilizing the Riverside County Fire model
2. Provide a five year forecast for expenditures and revenues for the Fire Department based on the current economic climate
3. Be an active, cooperative partner with Riverside County Fire/CAL Fire Cost Recovery Unit for recovering the costs associated with hazardous materials spills, negligent fire starts, and traffic accidents with an identified negligent driver
4. Review and revise staffing assumptions to provide the maximum coverage for all fire apparatus while minimizing the overall contract costs to the City
5. Apply for Assistance to Firefighters Grants for staffing, equipment, and fire safety items

Goal 2: Arrive On Scene within 5 Minutes of Dispatch 90% of the Time

The Moreno Valley Fire Department strives to meet the National Fire Protection Association (NFPA) 1710 guideline for fire department responses which allows firefighters one minute to don their turnouts once an emergency call for service is received from dispatch and four minutes of drive time. A fire department is to meet this 5 minute response standard 90% of the time (see Figure 1 on page 16). By maintaining this standard response time, the Moreno Valley Fire Department can minimize deaths and injuries associated with fires; minimize the direct and indirect losses due to fires; and minimize deaths for people experiencing sudden illness, accidents, or injuries.

Response times in Moreno Valley, until January of 2008, were tracked manually by fire station personnel and were reported to fire administration. Overall, response time statistics varied from 85% to 99% compliance with this goal depending on the time of year and the fire station. The manual process of tracking response times was discontinued when Riverside County Fire began a transition process in 2008 to track response times utilizing mobile data computers. This has been part of the Public Safety Enterprise Communication Project, also known as PSEC, which should be completed in early 2012. PSEC will enhance communication capabilities, data transmissions, and radio interoperability for both Riverside County Fire and the Riverside County Sheriff's Department. Information on response times will once again be available to the City when the system becomes fully operational.

Strategies

1. Review response times on a monthly basis beginning in 2012 to ensure this goal is being met
2. Evaluate current and future fire station locations with Riverside County Strategic Planning to ensure proper locations are selected for new fire stations so the NFPA 1710 response time standard can be met

3. Review staffing assumptions to ensure the appropriate amount of equipment is adequately staffed to respond to emergency calls for service, including a potential shift to paramedic rescue squads as discussed on page 29.
4. Support Riverside County Fire’s efforts as they perform system upgrades to an emergency fire dispatch system that will allow them to dispatch and/or reroute the closest available unit for an emergency call for service
5. Support the City’s Public Works Department with traffic mitigation efforts during peak hours of travel



Figure 1: NFPA Response Timeline Recommendations for Career Firefighters

Goal 3: Reduce the Risk of Fire to Residents through Prevention Campaigns and Mitigation Efforts

The best method for reducing fire fatalities and property loss is through fire prevention and public education initiatives. Public fire safety education initiatives play a major role in the prevention of fires. Public fire safety education through educational programs for schools, businesses, and civic associations have significantly reduced the numbers of fires in the community and have reduced the number of deaths and injuries associated with home fires.

Strategies

1. Coordinate with Riverside County Fire Department's Public Information Officers to:
 - a. Continue to provide educational programs, such as the 9-1-1 for Kids program, to the community
 - b. Submit articles on fire safety, flood safety, and disaster preparedness for inclusion in the City's monthly "e-newsletter" *City Link*
 - c. Coordinate with the City's Media and Communication Division to post press releases from Riverside County Fire on the City's website when they contain information pertinent to City residents
2. Coordinate with Riverside County Fire Department's Public Information Officers and the City's Media and Communication Division to have public service announcements air on the City's government access channel MVTV-3 and develop new program content to address specific fire safety and disaster preparedness needs in the community
3. Continue to support fire personnel participation in fire safety education for school age children
4. Enhance the Moreno Valley Fire Department website with more fire safety and disaster preparedness information

Goal 4: Maintain a Strong Partnership with Riverside County Fire Department

The City of Moreno Valley has contracted with Riverside County Fire for fire protection services since 1984. Through open dialogue with the County, the City has expanded its services since incorporation to include municipal staffing and the addition of paramedic firefighters to all fire engine companies. It is important that the City maintains an open relationship to ensure that the City is receiving cost effective, quality fire protection services. The contract the City maintains with the County allows the City to provide excellent fire protection services and advance life support care at a cost savings to the City.

Strategies

1. Actively participate in all quarterly Contract Partners meetings with Riverside County Fire
2. Participate in subcommittees associated with cost allocation planning for fire protection services
3. Provide feedback on services, costs and other issues of concerns to the Riverside County Fire Chief and his staff
4. Review cost allocation plan and quarterly billing statements for transparency

Goal 5: Ensure Fire Administration Staffing is Sufficient for the Needs of the Department

To properly oversee Fire Operations it is important to both increase and enhance staffing in Fire Administration to ensure there is quality assurance oversight for the paramedic program as well as sufficient administrative staff to support the Fire Chief, two Battalion Chiefs, and in the future an Administrative Battalion Chief. The Fire Department, which consists of Fire Operations, Fire

Prevention, and the Office of Emergency Management, consists of 69 firefighter personnel, three chief officers, and nine City personnel for a total of 81 employees. The increase and enhancement of administrative staffing is necessary in order to ensure appropriate span of control is maintained, workloads are manageable, and job titles/descriptions are in line with the type of work being performed.

Strategies

1. Reestablish the Administrative Battalion Chief position to oversee personnel issues, schedule training, and provide leadership when the Fire Chief is unavailable
2. Reestablish the Emergency Medical Services (EMS) Captain to directly oversee the QA/QI of the City's paramedic program
3. Reclassify the Office Assistant position in Fire Administration to a Senior Administrative Assistant to provide improved administrative support for the Fire Chief, Battalion Chiefs, and EMS Captain
4. Reclassify the Management Assistant position to a Management Analyst position due to the type of work being performed in support of the Fire Chief
5. Consider adding two Battalion Chiefs when the City begins construction on an 8th fire station

FIRE PREVENTION

The Fire Marshal, under direction of the Fire Chief, manages the Fire Prevention Bureau. The Fire Prevention Bureau conducts fire and life safety inspections as well as plan reviews for new construction, existing buildings, and special events. The Bureau also oversees the City's Hazard Abatement Program and Multi-Family Residential Inspection Program to ensure multi-housing units receive state mandated annual inspections.

Fire Prevention is the second largest division of the Fire Department consisting of five non-sworn full time personnel and six non-sworn part time personnel. The division also has five defunded positions due to budget constraints.

Goal 1: Fiscal Sustainability

A brief overview of the fees charged for plan review and inspection of new development, existing construction, and hazard abatement shows that the City does not recover 100% of the costs associated with providing the staff and materials for these programs. As state legislation allows the City to recover all costs associated with providing these services, the Fire Department will continue to review the costs associated with performing these services and increase fees where appropriate.

Strategies

1. Examine cost recovery options that would lead to a cost neutral business model
2. Review fire fees to ensure appropriate cost recovery for services provided

3. Establish an appropriate fee schedule for the Multi-Family Residential Inspection Program

Goal 2: Ensure All Business and Commercial Occupancies Receive Annual Fire and Life Safety Inspections

Both Fire Prevention and Fire Operations perform annual fire and life safety inspections on business and commercial occupancies in Moreno Valley, however, not all of these occupancies receive an annual inspection. Currently, Fire Prevention is conducting a windshield survey to capture 100% of the businesses in Moreno Valley that are required to have annual fire and life safety inspections, including multi-family residential complexes.

Strategies

1. Complete the windshield survey to create a database that captures every business and commercial occupancy in the City
2. Ensure each occupancy that is required to have an annual fire and life safety inspection is assigned to a Fire Prevention Technician, Fire Prevention Inspector, or Fire Engine Company each year
3. Examine the use of new technology applications, such as iPad based inspection software, in order to automate inspection process, scheduling, and data entry

Goal 3: Perform Hazard Abatement Inspections Bi-Annually

The Fire Prevention Bureau conducts a hazard abatement inspection program on all vacant parcels of land in Moreno Valley on an annual basis. This process begins in the spring and concludes in the early summer. Typically, due to the climate conditions that exist in Moreno Valley, regrowth of grasses and tumbleweeds occur in early fall. Due to budget constraints, the Fire Prevention Bureau addresses the fall hazard abatement program on a case by case basis rather than performing a comprehensive, proactive city wide inspection program.

Strategies

1. Establish a Fall season hazard abatement program to address the accumulation of tumbleweeds and regrowth of vegetation from the Spring hazard mitigation efforts

Goal 4: Provide Efficient Plan Review

The Fire Prevention Bureau currently utilizes a 3rd party consultant to review all technical plans submitted to the City. All non-technical site review plans are reviewed by the City's Fire Safety Specialist. The Fire Prevention Bureau is examining a variety of measures to improve customer service including decreasing the turn-around times for initial review as well as evaluating the current fee schedule. The Fire Prevention Bureau is also investigating the utilization of electronic plan check submittal as an avenue for improving customer service.

Strategies

1. Examine methods for improving the Bureau's efficiency in reviewing building plans, such as electronic plan review and web based plan submittals
2. Develop an "Over the Counter" plan review pilot program for reviewing non-technical plans in order to reduce plan check turnaround times and decrease the cost to the customer

Goal 5: Evaluate Management Structure and Career Advancement within the Bureau

The Fire Marshal oversees five full time staff members and six part time staff. Over the last three years the Fire Prevention Bureau has been assigned the City's Hazard Abatement program and has recently implemented an inspection program to ensure every multi-family residential housing unit is inspected annually in accordance with state law. In order to improve supervision of field staff, the Fire Prevention Bureau has identified the need to re-establish the Deputy Fire Marshal position. Additionally, in order to promote staff from within the Bureau, the Fire Marshal will identify training opportunities for staff to improve their qualifications for career advancement.

Strategies

1. Identify a revenue stream to re-establish funding for the Deputy Fire Marshal position
2. Develop a level of succession to meet the needs of the Bureau

OFFICE OF EMERGENCY MANAGEMENT

The Fire Department's Office of Emergency Management is responsible for minimizing the impact of natural and man-made disasters by establishing readiness through city-wide prevention, preparedness, response, recovery 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 Moreno Valley Fire Department, and hence the Riverside County Fire Department, it is critical that the City's Office of Emergency Management collaborates projects, emergency management grants, emergency management exercises, and the management of declared local disasters with the Riverside County Fire Department Office of Emergency Services. Having an integrated, cooperative approach for addressing regional disasters benefits the community as resources can be allocated to areas where they are most critically needed during a major incident.

Goal 1: Provide Training to Employees and Citizens

Unfortunately, disasters take place all the time around the United States and the world. These can be naturally occurring disasters such as hurricanes, floods, wildfires, and tornados, or they can be man-made events such as terrorism attacks. It is very important that all City employees are

trained in their roles and responsibilities as disaster service workers and, even more importantly, that the citizens of Moreno Valley are trained so they are better able to provide for themselves and their families after a major event.

Strategies

1. Continue to conduct 2 ½ day Federal Emergency Management Agency (FEMA) CERT training a minimum of four times a year
2. Continue to provide emergency preparedness outreach activities to the community and utilize Riverside County Fire Office of Emergency Services as an additional training resource
3. Evaluate reinstating the City's CPR and First Aid program as cost neutral, alternative funding sources are identified
4. Work with the Riverside County Fire Public Information Officer and the City's Media & Community Division to have Earthquake Preparedness videos presented on the City's Government Access Channel, MVTV-3, as well as to place relevant emergency preparedness information on the City's website
5. Define priorities, develop and implement a five year emergency management exercise program
6. Utilize resources from the Riverside County Fire Office of Emergency Services to provide National Incident Management System (NIMS) training requirements
7. Continue NIMS training of City employees
8. Coordinate and manage citizen sworn disaster service workers

Goal 2: Incorporate Federal and State Legal Mandates and Standards into City Emergency Management Strategies

The Robert T. Stafford Disaster Relief and Emergency Assistance Act is a federal law designed to bring an orderly and systemic means of federal disaster assistance to state and local governments to assist them in carrying out their responsibilities to aid citizens. Congress' intention was to encourage states and local governments to develop comprehensive disaster preparedness plans, prepare for better intergovernmental coordination, and provide federal assistance programs for losses due to a disaster. There are several other pieces of legislation, such as the Emergency Services Act of 2006, that place mandates on local governments to ensure that local areas are prepared to respond to an emergency effectively and proficiently.

Strategies

1. Utilize the NIMS Capability Assessment Tool (NIMSCAST) process in developing NIMS compliance
2. In coordination with the Riverside County Fire Office of Emergency Services and the California Emergency Management Agency (Cal EMA), complete NIMS resource typing and credentialing requirements
3. Update the City's Emergency Action Plan
4. Update the City's Local Hazard Mitigation Plan for submittal to FEMA by October 2016

5. Maintain an effective Emergency Operations Plan (EOP) consistent with local needs as well as state and national requirements

Goal 3: Continually Improve Emergency Operations Center (EOC) Functions and Capabilities Based on a Comprehensive Assessment

In order for the City to quickly and effectively manage any disaster it is essential to continually evaluate and improve the EOC to ensure it is in a constant state of readiness and to provide appropriate training to City staff.

Strategies

1. Improve and test EOC Standard Operating Procedures
2. Train EOC staff on updated protocols
3. Build personnel depth in EOC functional areas
4. Maintain and test City emergency management equipment and supplies to ensure the City remains in a constant state of readiness

Goal 4: Manage FEMA and State Disaster Recovery Projects to Ensure Timely Completion of Required Documentation

Large disasters such as Hurricane Katrina, the Loma Prieta Earthquake and the Northridge Earthquake have a major impact on local residents, the government, and the impacted areas' economic activity and base. The City of Moreno Valley expends resources in preparing for, responding to, and recovering from a disaster event. As an event progresses from preparatory activities to response activities to post event recovery, it is critical that the City maintains appropriate records to ensure that Moreno Valley can successfully recover costs associated with the disaster from federal and state disaster assistance programs. Appropriate documentation will also prepare the City to apply for future Hazard Mitigation Grants from the federal government.

Strategies

1. Coordinate with departments to provide accurate information for Preliminary Damage Assessment and appropriate documentation for Project Worksheets
2. Complete close out documentation and coordinate a FEMA review of completed projects

Goal 5: Maintain Effective Coordination and Partnerships with Local, Regional, and State Agencies

Maintaining and strengthening the City's relationships with various local, regional, and state agencies is vital to effectively coordinating emergency responses during disasters. The ability to interact with other jurisdictions, jointly perform emergency management exercises, and discuss regional response scenarios is vital to ensuring that not only do the citizens of Moreno Valley

receive assistance during a major disaster but also that the region receives assistance where it is most critically needed. More importantly, the City's Office of Emergency Management will need to work closely with the Riverside County Fire Office of Emergency Services to ensure preparedness activities as well as disaster responses are more regional in concept and in application.

Strategies

1. Participate in operational area, regional, and strategic planning activities
2. Provide feedback and participate in coordinated multi-jurisdictional/multi-agency exercises
3. Coordinate emergency response preparedness, exercises, and other activities with Riverside County Fire Office of Emergency Services, Riverside County operational area agencies, Cal EMA, and other local and regional stakeholders such as the school districts, hospitals, and March Air Reserve Base

FIRE FACILITY AND EQUIPMENT MASTER PLAN

Evaluating the existing and future infrastructure requirements for the Moreno Valley Fire Department is vital to ensuring the safety and protection of lives and property for the citizens of Moreno Valley. Having the appropriate facilities and equipment available are critical to the effective operation of the Moreno Valley Fire Department. As part of this strategic plan, the Fire Department is providing a ten year master plan for fire department facilities, equipment needs, and the importance of traffic mitigation.

FIRE FACILITIES

The Moreno Valley Fire Department participates in the City's Capital Improvement Project (CIP) budget each fiscal year. This budget identifies the fire facilities that are to be constructed in the next five fiscal years as well as future fire station locations and CIP needs (see Table 2 on page 24). Due to the size of Moreno Valley and the projected population at build out it is estimated that the City will need to plan for the construction of a total of 12-13 fire stations with a possible 14th fire station as an in fill fire station. The exact locations for all the necessary fire stations to provide adequate fire and medical aid responses to Moreno Valley residents and businesses will be determined utilizing the fire station methodology on page 8. The Fire Department has already identified the exact locations for the eighth and ninth fire stations which are located on the map on page 11.

In addition to building new facilities in accordance with the fire station methodology illustrated on page 8, the Fire Department needs to maintain its existing facilities as each fire station is expected to have a 50 year life span. This requires fire station personnel to continue to maintain these facilities at their current levels and to work with the Facilities & Maintenance Division to ensure the appropriate preventive maintenance work is being performed on the buildings.

The two oldest fire stations in Moreno Valley, Fire Station 48 and Fire Station 65, were built in the mid 1980's. Fire Station 65 is slated to be relocated in the next five to ten years as the southern area of the City continues to grow. Due to the construction of warehousing and distribution centers in that region of Moreno Valley, the Fire Department will need to build the Industrial Fire Station to provide adequate fire and emergency medical response coverage to that area. In order to maintain appropriate response times and emergency response coverage in the City, Fire Station 65 will need to be relocated northwest from its current location to accommodate the emergency response area of the Industrial Fire Station.

Description of Project	Projected Fiscal Year to Begin	Estimated Cost
Morrison Park Fire Station, Fire Station #99	FY 2010-11	\$5,925,460
Remodel Fire Station 48	FY 2013-14	\$4,173,000*
Relocation of Fire Station 65 (Note land acquisition occurred in FY 2011-12)	FY 2015-16 and Beyond	\$7,540,000
Redlands Boulevard Fire Station (Note land acquisition occurred in FY 2011-12)	FY 2015-16 and Beyond	\$7,640,000
Industrial Fire Station with Training Tower (Note land acquisition occurred in FY 2011-12)	FY 2015-16 and Beyond	\$8,350,000
Public Safety Conversion – Includes Expansion of Fire Administration	FY 2015-16 and Beyond	\$107,639,939
Cottonwood Park Fire Station – Infill Fire Station	FY 2015-16 and Beyond	\$6,760,000
Fire Station (Future) Land Acquisition	FY 2015-16 and Beyond	\$739,000
Gilman Station (Future)	FY 2015-16 and Beyond	\$6,500,000
Northeast Station (Future)	FY 2015-16 and Beyond	\$6,500,000
Fire Station 6 Storage Shed	FY 2015-16 and Beyond	\$150,000
Total Estimated CIP Costs		\$161,917,399

Table 2: Fire Department Capital Improvement Projects as Listed in the FY 2011-12 CIP Book

*Cost for the Fire Station 48 remodel is being reevaluated for the FY 2012-13 CIP

The current CIP proposes a major remodel/renovation of Fire Station 48 in FY 2013-2014 to extend the life span of the current facility. This remodel would include bathroom renovations to comply with ADA requirements; semi-privatization of sleeping quarters for privacy and modesty; kitchen renovations; and construction of an exercise room. A funding source for this project has yet to be identified.

FIRE APPARATUS

The Moreno Valley Fire Department currently has six fire stations staffed by six fire engines and two aerial apparatus (also known as truck companies) that respond to emergency calls for service

such as fires, medical emergencies, traffic accidents natural and manmade disasters, hazardous materials incidents, and rescue emergencies. A seventh fire station is slated to open in October of 2012 and will minimally be staffed with a fire engine.

Fire engines provide the initial response to any request for emergency service. These fire apparatus are staffed with paramedic firefighters to provide advance life support care for any medical emergency. Additionally, when responding to a fire, their primary responsibilities include laying water supply lines; locating, accessing, and extinguishing the fire; search and rescue if no truck company is available; and assisting in the overhaul and salvage. Truck companies provide search and rescue; forcible entry; a rapid intervention crew (RIC) in case of a building collapse; ventilation of smoke and hot gases; aerial water application; staffing to augment the engine company compliment; and provide backup response to emergency calls for service when engine companies are committed elsewhere.

Truck company personnel are trained to a higher level than fire engine personnel due to the nature of the calls they respond to. These incidents include swift water rescue, low angle rescue, high rise incidents, wide rise incidents, confined space rescue, and trench rescues. Truck companies also carry equipment not normally located on a fire engine. This equipment includes heavy rescue equipment, confined space rescue equipment, low angle rescue equipment, auto extrication equipment (Jaws of Life), a variety of ground ladders, smoke removal fans, and large water delivery appliances.

On an initial report of a fire there is an automatic dispatch of three fire engines, one truck company, and one Battalion Chief for a total of 13 personnel. When the fire is confirmed to be a working fire, there are two additional units dispatched providing a minimum of 19 fire personnel on scene per Riverside County Fire Department Policy which results in a total of 6 fire apparatus and one Chief Officer committed to the incident. This leaves a total of two fire apparatus available for dispatch in the City until Riverside County Fire is able to move up additional fire apparatus from neighboring jurisdictions to cover the City's vacant stations. This process could take up to 30 minutes, and not every vacant station in the City would be covered by the County or other local agencies.

The City participates in a cooperative, regionalized fire and rescue delivery system with the Riverside County Fire Department through the fire services contract the City has with the County. As part of this regionalized system, additional resources are available from the County and surrounding jurisdictions to Moreno Valley when there is an emergency in the City that is utilizing a majority of the City's resources. This allows some of the City's vacant fire stations to be staffed with fire apparatus from surrounding cities or from the County. Conversely, the City provides fire apparatus to local jurisdictions when they are experiencing either a major incident, or a series of incidents, that has left very few, if any, fire resources available for dispatch in that area. Through the Master Mutual Aid Agreement, the City is obligated to provide fire apparatus to other jurisdictions to assist in handling emergency calls for service, just as those jurisdictions are obligated to provide resources to the City.

As future fire stations are constructed to address new residential, commercial, and industrial development the Fire Chief will need to evaluate what existing fire stations and apparatus can

service the newly developed areas. This includes considering the ability to provide an emergency response into the new planning area within 5 minutes of receiving a dispatch from the Emergency Command Center and the ability to have an aerial apparatus on scene within 8 minutes of dispatch for any reported fires.

As new specific plans are submitted for the developing areas on the east end of Moreno Valley the Fire Department will need to consider what types of occupancies will be built; square footage of any commercial or industrial complexes, the number of new residential complexes that will be built; development of the roads servicing the area; and population increases in that area in order to appropriately staff any existing fire station or new fire station. This information will be utilized to determine what type(s) of fire apparatus will need to be purchased in order to provide adequate fire protection and emergency medical services to the new development area. The table below shows recommended first alarm responses for fires at high-hazard, medium-hazard, and low-hazard occupancies.

TRAFFIC MITIGATION

Traffic is, and will continue to be, an issue in the City of Moreno Valley. Traffic affects the safety of both firefighters and citizens in the community as well as response times to emergency calls for service and increases equipment wear. A recently published study by the United States Fire Administration, and the Department of Homeland Security, reported that since 1984 the percent of firefighter fatalities attributable to vehicle accidents has ranged annually from 20% to 25%. The same study discussed the importance of controlling traffic flow through an intersection to ensure the safety of the emergency responders as this is when emergency vehicles are most likely to be involved in an accident.

The City currently has 172 active traffic signals. Forty-two of these traffic signals have an emergency vehicle preemption system installed on them so that when an emergency vehicle equipped with a transponder can trigger a traffic signal to either remain green or turn a red light to green so that an emergency vehicle can traverse a signalized intersection with the right of way.

On December 6, 2011 the City's Public Works Department began the process to retrofit 115 intersections with an emergency vehicle preemption system, known as Opticom. It is estimated that this project will be completed in June 2012. Once the installation is complete, the Public Works Department will then budget funding to install Opticom at the remaining 15 intersections. At the direction of City Council, all new signalized intersections will have Opticom installed so that the City will have 100% of its signalized intersections covered by an emergency vehicle preemption system. This will vastly increase the safety to firefighters, the community, and reduce response times.

EMERGENCY MEDICAL DISPATCH

Emergency medical dispatch (EMD) is a recognized structured system used to determine the nature and severity of a medical problem, prioritize it so the appropriate level of Emergency Medical Services is dispatched safely, and provides the caller with instructions on how to assist

the patient until emergency medical services arrive. The system also allows dispatchers, based on a set of protocol and answers obtained from the caller, to triage emergency calls for service and dispatch a tiered level of emergency response. This reduces the risk to firefighters when responding to emergencies and also keeps units available for more urgent calls for service.

Dispatchers are the primary link between the public, who are in need of emergency medical care, and firefighters/ambulance personnel who can provide the required level of medical care. Dispatchers who utilize emergency medical dispatch protocols can assist with the immediate implementation of CPR, airway maintenance, hemorrhage control, emergency birthing instructions for women in labor, c-spine precautions, treatments for heat related or cold related emergencies, and auto injectors (Epi-pens) for allergic reactions.

Not all Public Safety Answering Points (PSAP) provide this service. In Riverside County only the cities of Riverside and Corona provide this service. In 2012, the Riverside County Fire Department Emergency Command Center will begin instituting several of the protocols associated with EMD. Riverside County will then look at utilizing EMD as a way to triage calls for service in order to dispatch the appropriate level of medical care, allowing fire apparatus to remain ready for emergency calls that may be more serious in nature. This system may also be used for coordinating a tiered level of response to fires.

FUTURE CONSIDERATIONS

The goal of any strategic plan is to map out the future direction for the Fire Department. Over the next ten years there will be items that will need to be discussed with the Riverside County Fire Department and with City Council in order to better serve the needs of the community and the needs of firefighting personnel. These items include:

- ◆ Construction of a training/drill tower
- ◆ Four person staffing
- ◆ Paramedic squads
- ◆ Dividing the City into two battalions
- ◆ Riverside County Fire Department fire apparatus lease program

CONSTRUCTION OF A TRAINING/DRILL TOWER

The Ben Clark Training Center, located at 16791 Davis Avenue in Riverside, is a regional training center for both law enforcement agencies and fire departments. The drill tower at this location is a regional training tower serving not only the Riverside County Fire Department but also the students at Moreno Valley College.

When utilizing the training tower, three fire apparatus are out of service in the City due to the distance they would need to travel from the Ben Clark Training Center back to Moreno Valley to respond to an emergency call for service. A local training tower would allow fire apparatus to stay within the city limits of Moreno Valley for multi-company training and be available to respond to emergencies.

Furthermore, training could be scheduled more frequently for City personnel. Being able to drill on a daily or weekly basis is an important component of building an effective and efficient fire ground operation for when a fire emergency occurs. The main benefit to being able to train more frequently for high rise emergencies is that it raises the level of safety for fire personnel. Additionally, they are able to provide a more organized response to high hazard incidents which can ultimately affect the outcome of the emergency situation.

Having a training tower located in Moreno Valley has been recognized in the City's Capital Improvement Project (CIP) budget since 1992 when the Fire Chief at the time requested its construction as part of the ten year CIP with construction to begin in Fiscal Year 1998-99. Due to financial considerations, and the size of property that would need to be purchased to accommodate a joint fire station and drill tower, the fire department has continuously deferred this project. However, with the pending land acquisition in the south end of the City of 4.78 acres, there is now not only the appropriate land size available but also the location is ideal as it is not near a residential development. The fire station and drill tower will be constructed shortly after Fiscal Year 2015-16.

FOUR PERSON STAFFING

A landmark study released by the National Institute of Standards and Technology (NIST) released in 2010 confirms that the size of fire fighting crews has a substantial effect on the fire service's ability to protect lives and property in residential fires. Conducted by a broad coalition in the scientific, fire fighting and public safety communities, the study results found that four person fire fighting crews were able to complete 22 essential fire fighting and rescue tasks in a typical residential structure 30% faster than two person crews and 25% faster than three person crews. This study was the first to quantify the effects of crew sizes and arrival times on the fire service's lifesaving and fire fighting operations.

Additionally, the Fire Department is subject to the Federal Regulation 1910.134 issued by the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) which requires two firefighters to enter a burning building together and two firefighters to be outside the building who are able to render immediate assistance should a rescue need to be made. This is commonly called the "two in/two out" rule. As the City staffs all fire engines with three fire personnel and the truck companies with four fire personnel, the engine is oftentimes waiting for the arrival of another fire apparatus in order to safely enter a burning building. The impact of not having essential equipment on scene in a timely manner could lead to an increase in the amount of property loss due to fires and potentially increase the loss of life should anyone be trapped inside. There is also an inherent risk to the firefighters the longer it takes to initiate an interior fire attack due to flashover conditions typically developing within 8 minutes of the start of a fire.

While the Fire Department desires to have four person staffing on all fire apparatus to increase the effectiveness of fire fighting operations it is unlikely that this will occur in the next five to ten years due to the economic situation in Moreno Valley and the cost associated with increasing staffing from three fire personnel on a fire engine to four. Utilizing information from the City's

contract with Riverside County Fire for Fiscal Year 2011-12, the cost per engine company per year would be \$419,972 to add an additional firefighter or a total of \$2,939,804 when accounting for the six fire engines the City currently staffs and the seventh fire engine that will be staffed when the Morrison Park Fire Station opens in 2012.

The City will need to consider the importance of increasing staffing to four person fire engine crews versus the importance of opening additional fire stations as calls for service increase due commercial and industrial buildings being constructed and population growth. With the approximate operating costs for a three person staffed engine company at \$1.1 million a year, in theory, the City could staff two fire engines at two new fire stations with the savings from having three person staffed engine companies versus four person staffed engine companies. The Fire Chief is estimating the City will need to build its next two fire stations within the next eight years given the projected population growth and increase in commercial development for Moreno Valley.

The Fire Chief does recommend that the City, and specifically City Council, be aware of the importance of staffing fire engines with four fire personnel versus three and consider upgrading to four person staffing as economic conditions permit. The Fire Chief will work with the City to determine a way to balance the need to increase staffing to four person fire engine companies with the need to open new fire stations. One possibility for meeting the need to increase staffing for safer fire ground operations is presented in the Paramedic Squad section below.

PARAMEDIC SQUADS

The City's six fire engines are staffed with firefighter paramedics who provide advance medical care for medical emergencies and trauma. As calls for service continue to increase in the City of Moreno Valley, the Fire Chief will need to consider adding additional fire emergency response units to the existing fire stations in order to provide adequate personnel and equipment for emergency responses. As 84.4% of the Fire Department's emergency calls for service are for medical emergencies it is possible that the additional equipment would consist of a paramedic squad in lieu of a fire engine or fire truck.

One advantage to a paramedic squad is that it will allow for a tiered level of response for both medical and fire emergencies as discussed in the Emergency Medical Dispatch section of this strategic plan. The paramedic squads will also provide additional coverage at the busier fire stations for medical responses requiring advance life support and will provide more staffing for fire ground operations. Finally, there is a cost savings to both purchasing and staffing a paramedic squad. The cost for a paramedic rescue squad and its equipment is \$92,907, which is over \$400,000 less than the cost of a paramedic fire engine. Additionally, a squad is staffed with two Firefighter Paramedic personnel versus a fire engine that is staffed with one Fire Captain, one Fire Apparatus Engineer, and one Firefighter Paramedic. The cost for two Firefighter Paramedic personnel to cover the paramedic rescue squad seven days a week is estimated at \$625,000, which is a 52% savings in personnel costs versus a paramedic fire engine which is approximately \$1.2 million a year.

DIVIDING THE CITY INTO TWO BATTALIONS

The Moreno Valley Fire Department's Battalion Chiefs are responsible for the management of the City's six fire stations and 69 firefighting personnel, with one Battalion Chief on duty at all times. With the level of emergency activity in a city as large and complex as Moreno Valley, when the Morrison Park Fire Station opens in October 2012, the Fire Department will be at its upper most limit for reasonable efficiency expectations for a single battalion with only two Battalion Chiefs supervising field staff.

In order to provide appropriate supervision to field staff, accomplish administrative tasks, and respond to emergency calls for service, the Fire Chief will need to consider splitting the City into two battalions and adding two additional Battalion Chiefs when construction begins on an 8th fire station as the span of control for two Battalion Chiefs will be exceeded when the fire station opens and additional personnel are added. Battalion Chiefs ensure that fire stations are maintained, schedule personnel for training, investigate complaints from the public, and a variety of other administrative tasks in addition to providing operational expertise on the fire grounds. As the number of personnel and fire stations are expanded, the Fire Department need to hire additional Battalion Chiefs to ensure that the myriad of administrative tasks assigned to Battalion Chiefs as well as supervision of employees can be accomplished in an efficient and effective manner.

RIVERSIDE COUNTY FIRE APPARATUS LEASE PROGRAM

The City of Moreno Valley currently owns three of the six fire engines present in the City as well as the two 100' aerial ladder companies and one 75' quint that is a reserve ladder truck. The cost to purchase and equip a fire engine is estimated at \$545,000 and is depreciated over 10 years. In order to cover the replacement cost of the fire engine, the City's Finance department charges the Fire Department an amount equal to the purchase price of the fire engine and its equipment divided by ten each fiscal year. Currently, this would be \$54,500 per year for a new fire engine. The vehicle equipment replacement account allows the Fire Department to replace vehicles as needed once they have reached the end of their useful life span.

Three of the City's fire engines are leased from the County of Riverside at a cost of \$19,200 per year per vehicle and includes preventive maintenance as well as the cost of both minor and major vehicle repairs. If the City was to transfer the title of the City owned fire engines to the County, the City would save \$35,300 each year in vehicle replacement costs. Additionally, the City would save money on the repair of City owned fire engines as the City currently budgets money for any repair that exceeds \$5,000. Should an expensive item such as a transmission or axle break on a fire engine the City would need to pay for the cost of the repair. For any leased fire engine the County is responsible for the maintenance of the vehicle and all vehicle repair work. This is a major benefit to the City as the Fire Department would no longer need to budget for expensive vehicle repairs. Furthermore, while it would be a minor savings, the City would no longer need to insure the City owned fire engines. The total insurance cost savings to the City would be \$4,960 annually.

Under this program, the City would still need to make the initial purchase of the fire engine, and then transfer the title to the County. Once the title is transferred to the County it is then becomes the responsibility of the County to allocate the appropriate funding to replace the fire engines in the future and to budget for all vehicle repair costs. The County depreciates their vehicles over 20 years, however, when the fire engines reach a certain age, mileage, or condition it is placed into reserve status to extend its useful life to reach the full 20 years

Vehicles that are not covered by this program include the City's two 100' aerial ladder trucks and the 75' quint. The City will still be required to budget for any repair exceeding \$5,000 on these two vehicles as well as budget for their replacement.

SUMMARY

This strategic plan lays the foundation for the development of the Moreno Valley Fire Department over the next ten years by identifying five goals for Fire Operations as well as five goals each for Fire Prevention and Fire Operations. These goals are:

FIRE OPERATION GOALS

- ◆ **Goal 1:** Financial Management and Accountability
- ◆ **Goal 2:** Arrive On Scene within 5 Minutes of Dispatch 90% of the Time
- ◆ **Goal 3:** Reduce the Risk of Fire to Residents through Prevention Campaigns and Mitigation Efforts
- ◆ **Goal 4:** Maintain a Strong Partnership with Riverside County Fire Department
- ◆ **Goal 5:** Ensure Fire Administration Staffing is Sufficient for the Needs of the Department

FIRE PREVENTION GOALS

- ◆ **Goal 1:** Fiscal Sustainability
- ◆ **Goal 2:** Ensure All Business and Commercial Occupancies Receive Annual Fire and Life Safety Inspections
- ◆ **Goal 3:** Perform Hazard Abatement Inspections Bi-Annually
- ◆ **Goal 4:** Provide Efficient Plan Review
- ◆ **Goal 5:** Evaluate Management Structure and Career Advancement within the Bureau

OFFICE OF EMERGENCY MANAGEMENT

- ◆ **Goal 1:** Provide Training to Employees and Citizens
- ◆ **Goal 2:** Incorporate Federal and State Legal Mandates and Standards into City Emergency Management Strategies
- ◆ **Goal 3:** Continually Improve Emergency Operations Center Functions and Capabilities Based on a Comprehensive Assessment
- ◆ **Goal 4:** Manage FEMA and State Disaster Recovery Projects to Ensure Timely Completion of Required Documentation

- ◆ **Goal 5:** Maintain Effective Coordination and Partnerships with Local, Regional, and State Agencies

This plan also identifies five key areas that need to be considered as the City continues to grow. These items will need to be assessed over the next decade and potentially implemented in order to provide quality services to Moreno Valley. These areas are:

- ◆ Construction of a training/drill tower
- ◆ Four person staffing
- ◆ Paramedic squads
- ◆ Dividing the City into two battalions
- ◆ Riverside County Fire Department fire apparatus lease program

Finally, the Moreno Valley Fire Department is a dynamic organization that must be able to react to change, resolve problems, and work together with other departments and agencies on issues that might arise. The intent of this plan is to serve as a guide for the Fire Department's development over the next ten year. It also serves as the foundation document for informing City Council as to the direction the Fire Department is headed in order to ensure the community continues to receive outstanding fire protection services. The Fire Department will review this plan biennially to ensure the goals outlined in this plan are being met.



World Logistics Center Specific Plan Sanitary Sewer Analysis

PREPARED FOR: Highland Fairview
PREPARED BY: CH2M HILL
DATE: November 2, 2012

Introduction

The proposed World Logistics Center Specific Plan (WLC) is a master plan for the development of logistics warehouse distribution facilities on approximately 2,710 acres of land in the Rancho Belago area of eastern Moreno Valley. The Specific Plan proposes the development of approximately 41.4 million square feet of high-cube logistics facilities on 2,606 acres, 200,000 square feet of general warehousing facilities on 29 acres, an in-project fueling station, and 75 acres of permanent open space.

The Specific Plan area is situated southerly of State Route 60, generally between Redlands Boulevard and Gilman Springs Road (the easterly City limit). The Specific Plan extends to, but does not include, the San Jacinto Wildlife Area (SJWA). The General Plan Amendment and Zone Change which accompany the Specific Plan do include the SJWA property in order to designate the SJWA land for open space use.

The World Logistics Center is located within the wastewater service area of Eastern Municipal Water District (EMWD). The purpose of this technical memorandum is to identify sewer system requirements for the WLC.

Moreno Valley Sewer System

Currently, Eastern Municipal Water District (EMWD) serves most of the City and the surrounding areas. Sewers do not exist within most of the eastern side of Moreno Valley, where the Specific Plan area is located. Wastewater generated from EMWD's service area is treated at EMWD's Moreno Valley Regional Water Reclamation Facility (MVRWRF). The MVRWRF, located in the southwestern portion of the City, has the capacity to treat 16 million gallons per day (MGD) of wastewater. The direction of wastewater flow is generally north to south and east to west. Wastewater generated from the Specific Plan area is currently conveyed southwesterly to the MVRWRF via a major trunk sewer system within Redlands Blvd.

As part of the Highland Fairview Corporate Park project, two sewer lines were constructed within the project site. A sewer pipeline varying in size from 8 inches to 15 inches is located on the Eucalyptus Ave draining to the west. The sewer ties into the 15-inch sewer located in Redlands Blvd flowing to the south, which ultimately joins the 15-inch EMVTS south of Cottonwood Ave.

Wastewater Generation Factors

Flow from the Logistics Development is based on a factor of water use equivalent to 0.01 gpd/sf. These values were determined based on a water demand analysis and benchmarking study conducted to determine water generation factors for similar facilities as outlined in the Technical Memorandum entitled *World Logistics Center Water Demands and Waste Water Generation for Buildings* dated March 13, 2012. Since this study is for specific plan purposes and because these wastewater generation factors are less than rates used to cover the broad spectrum of light industrial uses, a facility sizing factor was added. This factor is 2.0 times the 0.01 gpd/sf for a wastewater generation factor of 0.02 gpd/sf. Based on a square footage of 41.6 million, the wastewater generated from the Logistics uses on the site is 832,000 gpd. An additional 5,100 gpd of flow was added to account for the in-project fueling station. Thus, the total wastewater generated from the site is 837,100 gpd.

Analysis Criteria

Assumptions

The sanitary sewer system for the World Logistics Center (WLC) was performed using the available InfoSewer model provided by the Eastern Municipal Water District (EMWD). Two scenarios were utilized from the EMWD model:

- Existing piping with 2012 dry weather loading
- Buildout piping with buildout dry weather loading

Sanitary sewer piping and pump station components were added to each model scenario for the WLC project area. WLC project area loading was applied at 0.02 gallons per day/building square feet (gpd/sqft). For the two parcels adjacent to Skechers, parcels 3 and 4, 0.176 gpd/sqft and 0.144 gpd/sqft were used respectively. The total average day loading for the project area was 888,000 gpd which included 41,600,000 sqft for the WLC site, the in-project fueling station and 2,545,000 sqft for the Skechers building and adjacent parcels. A dry weather diurnal curve was applied to the WLC project area with a peaking factor of 2.8. Wet weather loading components (infiltration and inflow) were not fully implemented in the District model and were not considered in the 2008 EMWCD Master Plan. Based on discussions with the District, wet weather analysis was not included as part of the WLC sanitary sewer analysis.

Design Criteria

The general planning standards used in the WLC sanitary sewer analysis are as follows. These were taken from the 2008 EMWD Master Plan document.

- Manning's "n" = 0.015.
- Minimum scouring velocity = 2 fps
- Maximum flow velocity = 10 fps for gravity sewers
- Minimum gravity sewer pipe size is 8-inch
- Maximum flow-depth-to-diameter ratio (d/D) as follows:
 - 8 to 12 inch pipelines is 50 percent
 - 15 inch and larger pipelines is 75 percent

- Minimum cover of sewer pipes is 7.5 feet
- Maximum cover of sewer pipes is 20 feet
- The minimum slope as shown in **Exhibit 1**

EXHIBIT 1
Pipe Diameter Minimum Design Slope

Pipe Diameter	Minimum Slope
8-inch	0.0040
10-inch	0.0032
12-inch	0.0024
15-inch	0.0016
18-inch	0.0014
21-inch	0.0012
24-inch	0.0010
27-inch	0.0008
30-inch	0.0007
36-inch	0.0007
42-inch	0.0007
48-inch	0.0007
54-inch	0.0007

Profiles for on-site piping were established based on the minimum cover, maximum cover, and minimum slope criteria. For each scenario, the on-site piping was sized to satisfy the maximum d/D ratio and minimum scouring velocity criteria. In some areas of limited loading, the minimum scouring velocity cannot be achieved without a pipe size smaller than 8-inches. Given that the minimum sewer pipe size allowable by EMWD is 8-inches, in these areas 8-inch pipes were selected which overrides the minimum scouring velocity criteria. Pump stations and force mains were sized to satisfy peak dry weather flows while satisfying the maximum and minimum velocity criteria.

Existing System Connection

The WLC sanitary sewer discharges into the existing system at the intersection of Brodiaea Avenue and Redlands Blvd into a proposed 21-inch diameter pipeline which is a replacement for the existing 18-inch pipeline. The sewage is then conveyed to the MVWRF through a trunk sewer with existing diameter piping between 21-inches and 54-inches. For each model scenario, the existing trunk sewer between the WLC and the MVWRF was evaluated for the design criteria. Improvements were considered where the d/D ratio criteria was not satisfied.

Analysis

Existing System

Three scenarios were developed from the EMWD existing model for the WLC project area. The scenarios and results are described below.

- 1. Full WLC project area and loading into the EMWD existing system (Exhibit 2).**

This scenario analyzes the system based on the assumption that the entire site will be constructed without adjustments to loading from phased development. On-site gravity pipe sizes range from 8 to 15-inches. The northwest section of the project area is served by gravity flow into the existing system connection at Brodiaea Ave and Redland Blvd. The east and south areas of the site are served by gravity flow into a regional pump station. The regional pump station is rated at approximately 970 gpm and 95 feet of total dynamic head (TDH). The pump station discharges to the northwest gravity line upstream of the existing system connection. The forcemain is sized at 12-inches. For this forcemain size a scouring velocity of greater than 2 feet/second is achieved.. Using a smaller sized forcemain would considerably increase the TDH. The parcels in the southeast section of the site may require building specific pumps to convey sewage to the nearest gravity pipeline. Existing pipeline replacement is required for 2700-feet of existing 18-inch piping immediately downstream of the connection with the WLC sanitary sewer. The replacement piping is sized at 21-inches.
- 2. Phase 1-WLC project area and loading into the EMWD existing system (Exhibit 3).**

This scenario analyzes the system for phase 1 of the site development. The northwest gravity line will serve all of the phase 1 development. The regional pump station will not be constructed. Prior to phase 2 development, several parcels in the east section of phase 1 may require building specific pumps to convey sewage to the nearest gravity pipeline. On-site gravity pipe sizes range from 8 to 15-inches. Existing pipeline replacement is required for 2700-feet of existing 18-inch piping immediately downstream of the connection with the WLC sanitary sewer. The replacement piping is sized at 21-inches. It is important to note that Phase 1 has more area draining into it than what it would once Phase 2 is constructed. For this reason, some pipelines in the Phase 1 area are bigger than the same pipelines in Scenario 1.
- 3. Phase 1 + Phase 2-WLC project area and loading into the EMWD existing system (Exhibit 4).**

This scenario analyzes the system for phase 1 and phase 2 of the site development. The northwest gravity line is sized based on the phase 1 construction. As part of phase 2, the remaining gravity lines and the regional pump station are constructed. Some parcels in the east section of phase 1 will be re-routed to the phase 2 gravity lines and building specific pump stations for these parcels can be eliminated. On-site gravity pipe sizes range from 8 to 15-inches. The parcels in the southeast section of the site may require building specific pumps to convey sewage to the nearest gravity pipeline. The regional pump station is rated at approximately 970 gpm and 95 feet of total dynamic head (TDH). The forcemain is sized at 12-inches. As part of phases 1, existing pipeline replacement is required for 2700-feet of existing 18-inch piping

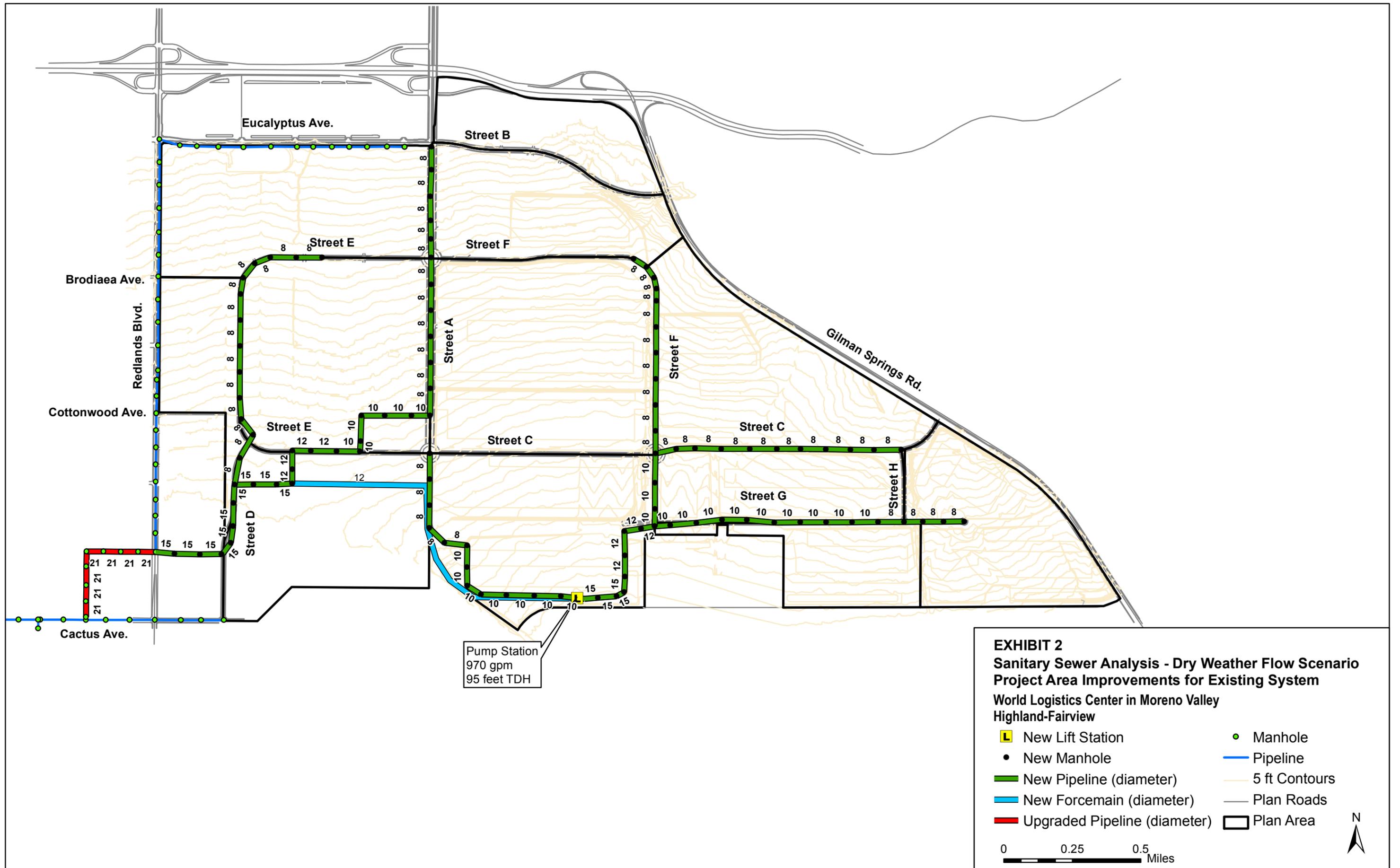
immediately downstream of the connection with the WLC sanitary sewer. The replacement piping is sized at 21-inches.

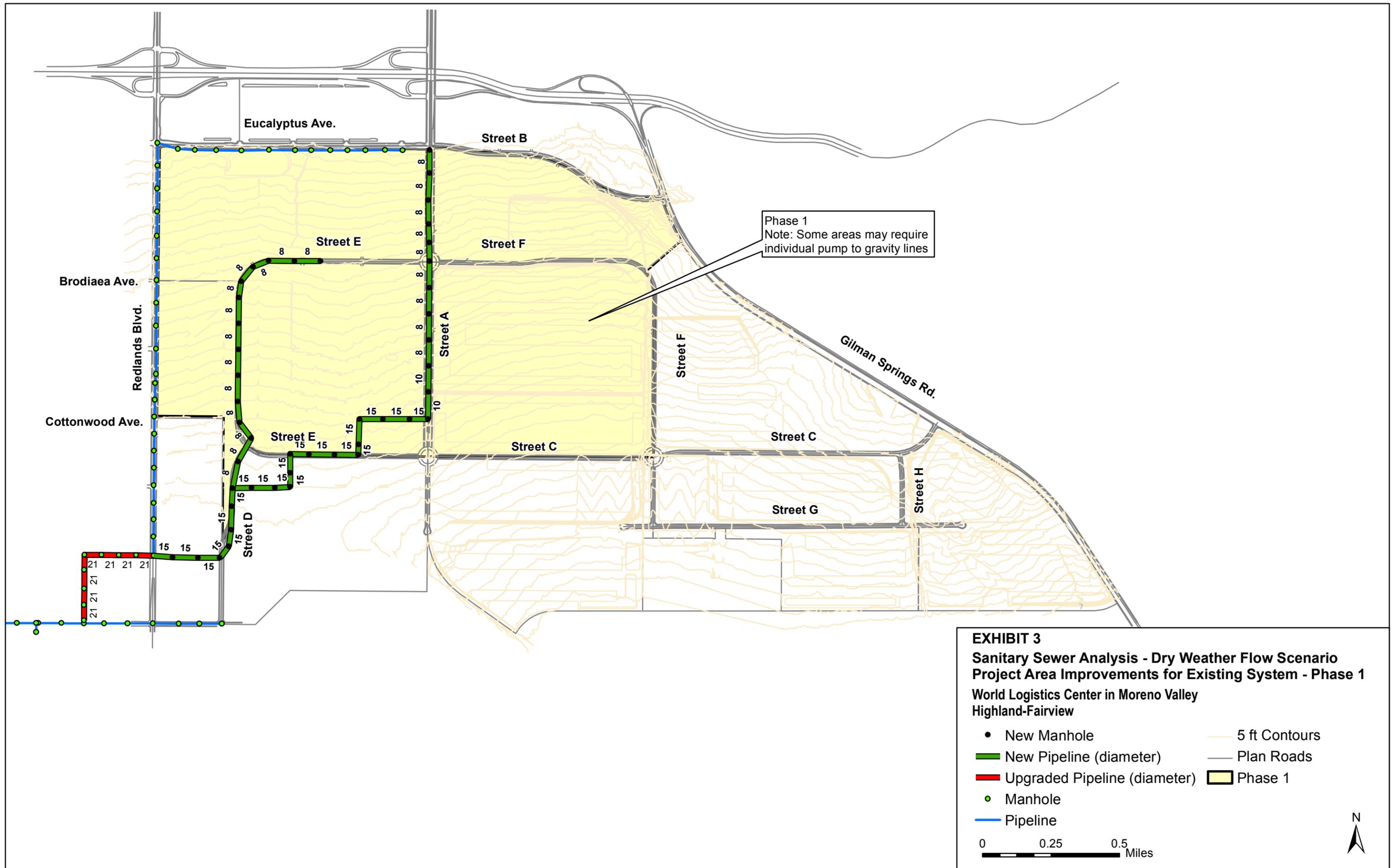
Buildout System

Two scenarios were developed from the EMWD buildout model for the WLC project area. EMWD buildout models cover two additional major developments expected in the Moreno Valley service area: (1) Aquabella, and (2) Quail Ranch. The Aquabella development covers 670 acres of land east of Lasselle Street, west of Oliver Street, and north of Iris Avenue. The Quail Ranch is located east of the Gilman Springs Road, and is categorized as mixed residential land use. The Quail Ranch development covers an area of approximately 720 acres. The development will consist of 1,159 residential units, a park, golf course, and a clubhouse. The area surrounded by Alessandro Blvd to the north, Ulysses Street to the west, Gilman Springs Road to the east, and southerly service area boundary to the south, is also covered in the EMWD existing build-out model. This area is categorized as single family residential area but is not consistent with the City of Moreno Valley's General Plan which is designated as open space in this area.

The scenarios and results are described below.

1. **Full WLC project area and loading into the EMWD buildout system with 2008 master plan buildout pipe sizes (Exhibit 5).** On-site pipe and regional pump station sizing for this scenario consider increased buildout loading from areas immediately south of the WLC project area, including Quail Ranch to the south-east and other areas immediately south. On-site gravity pipe sizes range from 8 to 24-inches. The regional pump station is rated at approximately 3,900 gpm and 92 feet of total dynamic head (TDH). The forcemain is sized at 21-inches. Buildout pipe sizes in the existing system are also identified in Exhibit 5 for the trunk sewer between the WLC project area and the WWTP. The buildout pipe sizes come from the EMWD buildout model based on the 2008 master plan.
2. **Full WLC project area and loading into the EMWD buildout system with reduced buildout pipe sizes (Exhibit 6).** The loading in the WLC project area is less than the loading planned for the project area in the buildout model and 2008 master plan. For this scenario, the buildout pipeline improvements were downsized in the trunk sewer between the WLC project area and the WWTP to accommodate the reduced loading. On-site piping and pump station sizing is the same as buildout scenario 1.





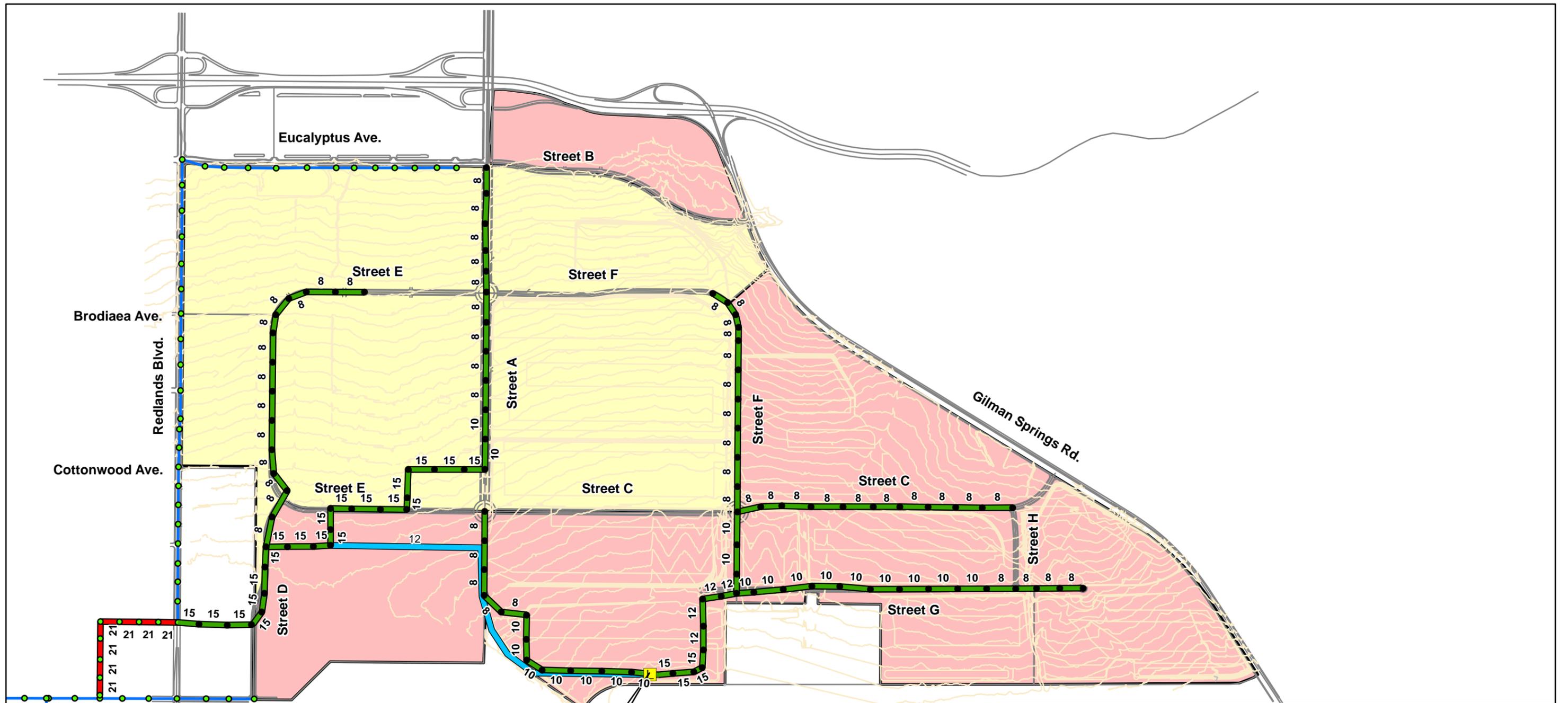
Phase 1
 Note: Some areas may require individual pump to gravity lines

EXHIBIT 3
Sanitary Sewer Analysis - Dry Weather Flow Scenario
Project Area Improvements for Existing System - Phase 1
World Logistics Center in Moreno Valley
Highland-Fairview

- New Manhole
- 5 ft Contours
- New Pipeline (diameter)
- Plan Roads
- Upgraded Pipeline (diameter)
- Phase 1
- Manhole
- Pipeline

0 0.25 0.5 Miles

N



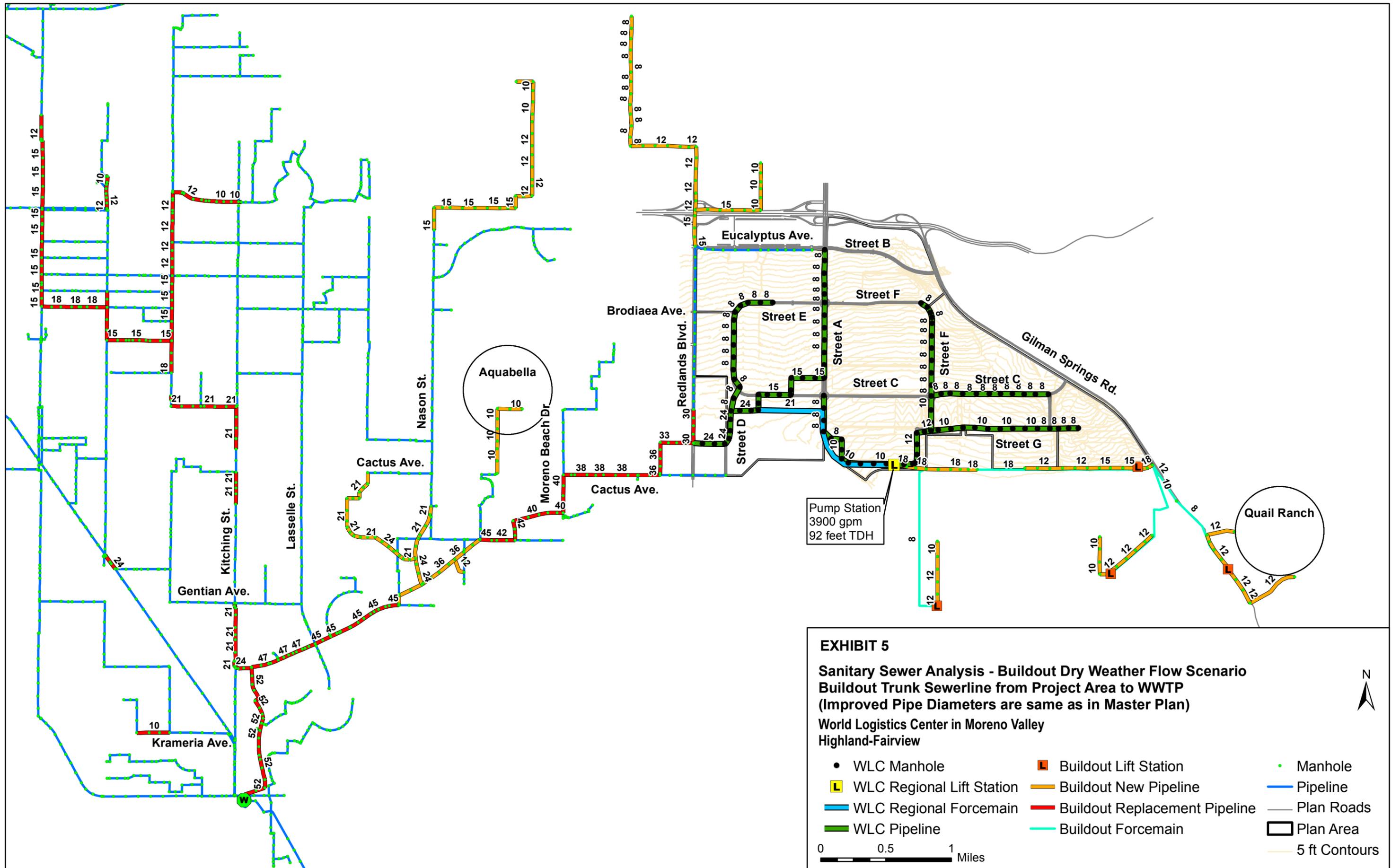
Pump Station
970 gpm
95 feet TDH

EXHIBIT 4
Sanitary Sewer Analysis - Dry Weather Flow Scenario
Project Area Improvements for Existing System - Phase 1 and 2
 World Logistics Center in Moreno Valley
 Highland-Fairview

New Lift Station	Manhole	Phase 1
New Manhole	Pipe Replacement	Phase 2
New Pipeline (diameter)	Pipeline	
New Forcemain (diameter)	5 ft Contours	
	Plan Roads	

0 0.25 0.5 Miles

N
↑



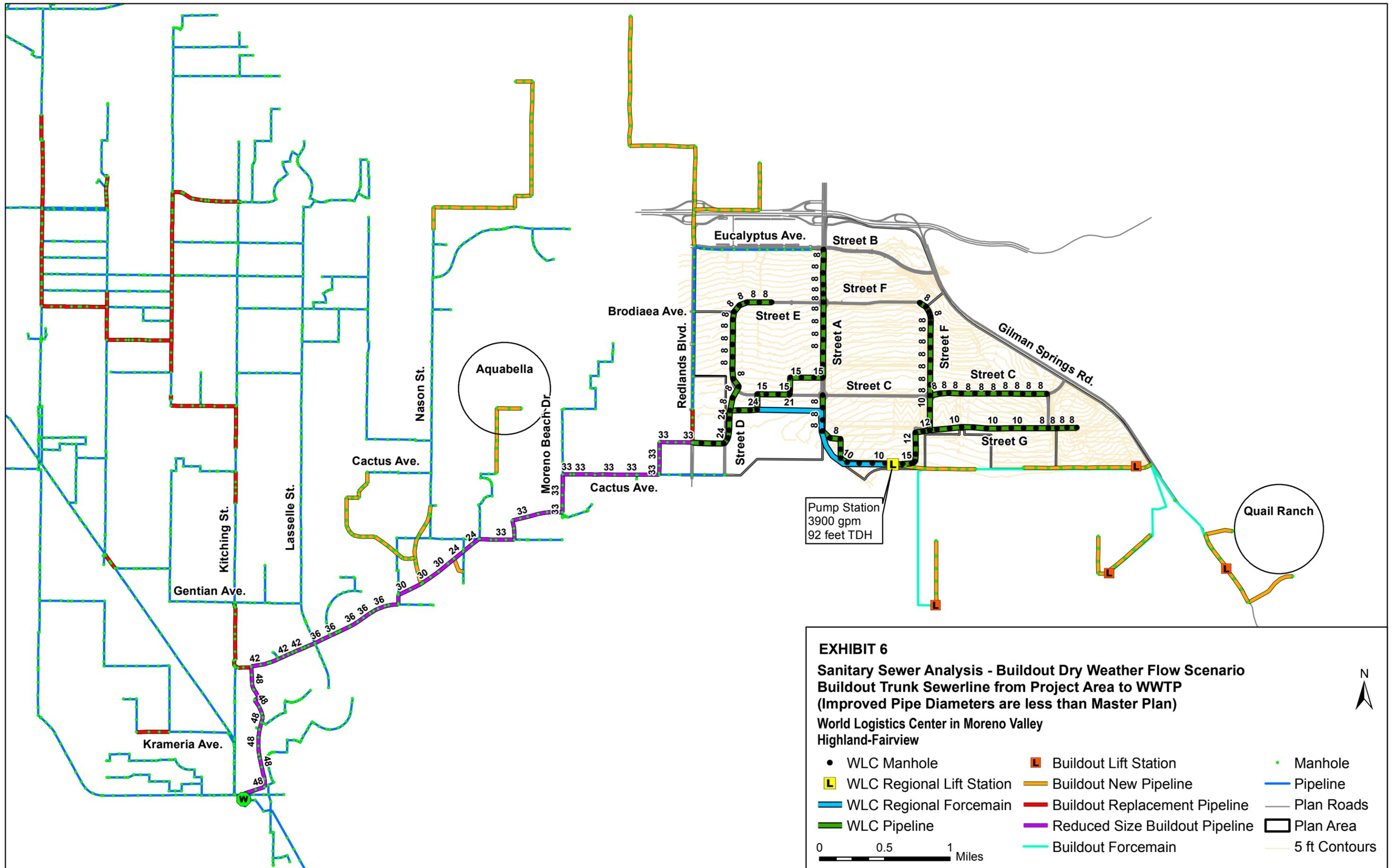


EXHIBIT 6
Sanitary Sewer Analysis - Buildout Dry Weather Flow Scenario
Buildout Trunk Sewerline from Project Area to WWTP
(Improved Pipe Diameters are less than Master Plan)

World Logistics Center in Moreno Valley
 Highland-Fairview

- | | | |
|-----------------------------|----------------------------------|-----------------|
| ● WLC Manhole | ■ Buildout Lift Station | ● Manhole |
| ■ WLC Regional Lift Station | — Buildout New Pipeline | — Pipeline |
| — WLC Regional Forcemain | — Buildout Replacement Pipeline | — Plan Roads |
| — WLC Pipeline | — Reduced Size Buildout Pipeline | □ Plan Area |
| | — Buildout Forcemain | — 5 ft Contours |

0 0.5 1 Miles

World Logistics Center Water Demands and Waste Water Generation for Buildings

PREPARED FOR: Highland Fairview

PREPARED BY: CH2M HILL

DATE: April 25, 2012

Water System Demands

The purpose of this technical memorandum is to evaluate water and waste water building demands for the proposed World Logistics Center (WLC) Development in Moreno Valley. A review of the Logistics water demand factor identified in *TPM 35629 EIR- Water and Sewer Evaluation (TPM Memorandum)*, by RBF consulting dated April 11, 2008 and a benchmarking study of regional water demand use factors was performed to develop the appropriate water demand factor for the WLC Development.

Water Demands from TPM Memorandum

In April 2008, the TPM Memorandum evaluated the impacts to the existing EMWD water system resulting from the following developments:

1. TPM No. 35629
2. Related Projects east of TPM No. 35629
3. The Highlands Area referred to as *the former Moreno Highlands* consisting of the Highland Fairview properties and the Lee property.

The TPM Memorandum calculated demands for the above areas based upon February 2008 EMWD usage factors, in accordance with the land uses designated in the *Moreno Highlands Specific Plan 212-1*. The TPM Memorandum also conducted a demand analysis based on water demands utilizing the *Logistics - Modified General Plan* land use map. (See Appendix A for both demand analyses.) The Logistics water demands are based on low water consumption rates associated with warehouse-type buildings and "per employee" water factors rather than "per dwelling unit" water demand factors.

The water demand usage factor utilized in the *Logistics - Modified General Plan* analysis is 20 gallons per day (gpd)/employee, based upon "common industry duty factors," identified at the time the memorandum was written. This resulted in an ADD of approximately 400,000 gpd for the 33,300,000 square feet (sf) warehouse building areas, based upon an assumption that the warehouses would be occupied by .6 employees per 1,000 sf of building area. This translates to a water demand usage factor of 0.012 gpd/sf for Logistics developments.

Benchmarking Study

A regional benchmarking study was performed to determine whether the 0.012 gpd/sf water demand factor utilized in the Memorandum is appropriate for present day.

CH2M HILL contacted over 20 water agencies within the region to determine the means and methods used by such agencies to determine the total potable water demand for planned warehouse distribution facilities (see complete list in Appendix B).

Most agencies indicated that they would apply standard water demand factors from the most recent water master plan, based upon the most appropriate land use listed. These agencies indicated that they would utilize the standard commercial, light industrial or business park land use water demand factors specified in the master plan, for a warehouse distribution facility.

These typical land use categories are applied per acre of land and are intended to account for irrigation water to be used onsite. In the case of the WLC, the irrigation water demand is near zero. Therefore, a water use demand factor that is applied per square foot of building area is better reflective of actual water use to be used onsite in the WLC. Table 1 lists typical agency water use demand factors.

TABLE 1
Typical Master Plan Water Use Demand Factors

Land Use Category	Total Water Demand (gpd/acre) ^a	Total Water Demand (gpm/acre)
Commercial		
Regional Commercial	3,500	2.43
Neighborhood Commercial	3,000	2.08
Industrial		
Light Industrial	1,250	0.87

Data from *Comprehensive Water Distribution Systems Analysis Handbook, Second Edition*

^aNote that these water demand factors apply on a per acre of land basis, which accounts for irrigation demand to be used onsite.

Most agencies that deviate from this process defer to the developer’s architect or engineer to recommend and use a more customized water demand factor, based upon similar facilities. The City of Ontario for instance, indicated that they would normally use a standard Industrial/Business Park water demand factor of 0.032 gpd/sf, but noted that water demands for warehouses may vary significantly, especially where recycled water and other water conservation measures are implemented. The City indicated that they would advise the developer’s engineer to calculate water demands based on the site specific development, considering recycled water use, Xeriscape implementation, and water use records from similar facilities previously constructed by the developer.

Site Specific Benchmark Water Studies

Two of the agencies contacted indicated that they prepare customer specific water studies for warehouse type facilities because the water use at such facilities is far less than standard light industry and/or commercial land use facilities. The Beaumont Cherry Valley Water

District, which is bounded on the west and north by the Yucaipa Valley Water District, on the east by the City of Banning and is situated one-mile north of the northerly boundary of Eastern Municipal Water District, is one such agency.

The agricultural-based industries within the Cherry Valley Water District are giving way to major warehouse distribution centers, e.g., Lowes, Cross Roads Logistics, Prologics, etc., which are being developed to utilize the rail distribution lines which run through the District. Several major development projects have been constructed, are in construction, or are in the planning phase. For warehouse distribution facilities planned to accommodate .39 to .6 employees per 1,000 sf of building space, the District utilizes a potable water demand factor of 0.009 gpd/sf. This is less than the Logistics factor of 0.012 gpd/sf, for a similar type facility, in the adjacent water district. The City of Riverside uses a similar type of evaluation.

East Valley Water District, also a neighboring water district, uses a potable water demand factor of 0.01 gpd/sf, for all warehouse type facilities. This factor is slightly less than the Logistics water demand factor of 0.012 gpd/sf.

Recommendations

Table 2 below summarizes the information. As shown in Table 2, values for Logistics water demand factors range from 0.009 to 0.012 gpd/sf. Based on this benchmarking study, it is recommended to use a water demand factor of 0.010 gpd/sf for the WLC Development.

TABLE 2
Water Demand Factors for Logistics Uses by Agency

Agency	Water Demand Factor (gpd/sf)
Highland Fairview Corporate Park	0.012
Beaumont/Cherry Valley	0.009
City of Chino	0.011
City of Riverside	0.009
East Valley Water District	0.010

Comparison to Metered Data

In order to validate the recommendation above the water demand factor of 0.010 was compared to actual metered data obtained from several water districts.

EMWD Similar Facilities

EMWD provided water use consumption data for 10 warehouse distribution facilities currently served by the District. The estimated water usage at the facilities is shown in Appendix C. The estimated maximum day water use ranges from 0.001 to 0.017 gpd/sf with the majority of them less than 0.01 gpd/sf.

Other Agency's Similar Facilities

Several agencies were contacted to obtain actual metered data from warehousing facilities. Verbal summaries of water use for various types of warehouse facilities known to exist within the Cities of Chino, Fontana, and Redlands as well as the Beaumont Cherry Water District were obtained. When contacting the agencies we were routed to the utility billing department who provided the verbal summaries of water use records for the various warehouse facilities ranging in size from 275,000 square feet to 971,640 square feet. Water usage varied from 0.0004 gpd/sf to 0.33 gpd/sf as shown in Table 3. See Appendix C for water use information collected.

In addition, information was received for a facility in the Beaumont Cherry Water District. The Lowes facility is a 193,000 sf facility with 0.08 employees/1,000 sf. The Lowes facility had an average 2010 water use of 141 gpd, which works out to 0.0007 gpd/sf as shown in Table 3. The Beaumont data proves the point that occupant density is the primary factor to be considered in projecting water use based on previous water use data.

TABLE 3
Actual Water Usage of Similar Facilities

Agency	Water Usage (gpd/sf)
Eastern Municipal Water District	0.004 to 0.017
City of Chino	0.002 to 0.003
City of Fontana	0.033
City of Redlands	0.0004 to 0.001
Beaumont Cherry Valley Water District	0.0007

In collecting the data the utility billing departments, other than Beaumont Cherry, had no record of the square footage of each facility account or the number of employees per SF of building. When obtaining the square footage from the planning department, a different database was used to pull up the square footage of the entire building that the account holder was located in. In multiple cases it was later determined that the account holder shares the building with another occupant, which substantially increases the actual gpd/sf water usage for each such tenant from the quantities calculated above.

LEED Calculations

An analysis was also made to estimate the water demand based on standard uses for each employee. Using the LEED calculation worksheet the estimated demand for toilet flushing is 5 gpd per person and lavatory 2.2 gpd per person. Miscellaneous water uses including kitchen and shower was estimated at an equivalent of 2.5 gpd per person. The total gpd per person is 9.7 gpd. Additional water demand for other miscellaneous uses are estimated at 25 percent and would be equivalent to approximately 2.4 gpd per person bringing the total warehouse demand to 12.1 gpd per person or 0.007 gpd/sf assuming 600 employees per million square feet which is less than the recommended value of 0.010 gpd/sf.

Building Water Demand

Based on the analysis outlined above, a water demand factor of 0.010gpd/sf is proposed for the WLC development. The development proposes 41.6 million square feet of Logistics uses. Thus, the water demand for the buildings is 416,000 gpd or 470 acre-feet per year (acft/yr).

Appendix A

Table B.4
Highlands - Existing City General Plan
Domestic Water Demand Estimate

Land Use [1]	Area (ac)	Units	Duty Factor [2]	ADD (GPD)	MDD [3] (MGD)	PHD [3] (GPM)
Very Low Density	51.0	102	645 gpd/ du	65,751	0.13	160
Low Density	1,100.5	4,985	500 gpd/ du	2,492,682	4.99	6,059
Medium Density	150.0	1,199	500 gpd/ du	599,719	1.20	1,458
R5	149.0	745	500 gpd/ du	372,332	0.74	905
High Density	52.2	1,005	240 gpd/ du	241,085	0.36	419
RR	0.1		1,600 gpd/ gross acre	150	0.00	0
Neighborhood Commercial	10.0		1,600 gpd/ gross acre	15,956	0.02	22
Community Commercial	16.0		1,600 gpd/ gross acre	25,614	0.04	36
Business Park	575.0		1,600 gpd/ gross acre	919,960	1.38	1,278
Mixed Use [6]			305 gpd/ du	491,564	0.74	683
Mixed Use [7]	80.6		1,600 gpd/ gross acre	128,935	0.19	179
Community Facility	1.5		2,400 gpd/ gross acre	3,631	0.01	5
Elementary School	70.0		2,400 gpd/ gross acre	168,104	0.25	233
Middle School	43.1		2,400 gpd/ gross acre	103,348	0.16	144
High School	40.7		2,400 gpd/ gross acre	97,683	0.15	136
Fire/ Police Station	1.5		2,400 gpd/ gross acre	3,585	0.01	5
Church	10.1		2,400 gpd/ gross acre	24,135	0.04	34
Public	0.2		2,400 gpd/ gross acre	410	0.00	1
Cemetery	16.5		0.378 acre-ft/yr/acre [4]	5,580	0.01	10
Golf Course	377.4		0.378 acre-ft/yr/acre [4]	127,362	0.32	221
Neighborhood Park	57.0		0.378 acre-ft/yr/acre [4]	19,241	0.05	33
Community Park	68.0		0.378 acre-ft/yr/acre [4]	22,962	0.06	40
Green Belt	59.9		0.000 acre-ft/yr/acre [5]	0	0.00	0
Open Space	191.6		0.000 acre-ft/yr/acre [5]	0	0.00	0
Scenic Highway	25.3		0.000 acre-ft/yr/acre [5]	0	0.00	0
Roads	317.0		0.000 acre-ft/yr/acre [5]	0	0.00	0
	3,484.1	8,036		5,929,787	10.84	12,058

[1] Based on Existing City General Plan (See attached exhibit)

[2] Based on EMWD standards

[3] Peaking factors are based on large pressure zone service.

[4] Assume 10-percent of Park, Golf Course, and Cemetery Area will require potable water demands

[5] Assume Open Space to be served by recycled water system

[6] Assume a maximum density of 20 DUs/acre for Mixed Use land use designations

[7] Assume mixed use to consist of Commercial and High Density land use designations

Table B-5
Highlands - Proposed Logistics Modified General Plan
Potable Water Demand Estimate

Land Use [1]	Area (ac)	Units	Building Square Footage	Estimated Employees [3]	Duty Factors	ADD (GPD)	MDD (MGD)	PHD (GPM)
Distribution/ Logistics Roads	1,525.1		33,343,929	20,006	20 gpd/ employee [6]	400,127	0.60	556
R5 Roads	86.2	53			500 gpd/ du [7]	26,461	0.05	64
Park Roads	1.4				0.378 acre-ft/yr/acre [4]	47,599	0.12	83
Open Space Roads	1,077.9				0.0 acre-ft/yr/acre [5]	0	0.00	0
Lee Property [2]								
Low Density Residential	87.0	435			500 gpd/ du [7]	217,500	0.44	529
Medium Density Residential	64.1	513			500 gpd/ du [7]	256,500	0.51	623
High Density Residential	11.0	220			240 gpd/ du [7]	52,800	0.08	92
Business Park	203.3				1,600 gpd/ acre [7]	325,256	0.49	452
Mixed Use [8]	14.0				305 gpd/ du [7][8]	85,378	0.13	119
Mixed Use [8]					1,600 gpd/ gross acre [9]	22,394	0.03	31
School:								
Elementary School	10.0				2,400 gpd/ gross acre [7]	24,012	0.04	33
High School	13.6				2,400 gpd/ gross acre [7]	32,572	0.05	45
Open Space:								
Golf Course	101.7				0.378 acre-ft/yr/acre [4]	34,327	0.09	60
Cemetery	16.3				0.378 acre-ft/yr/acre [4]	5,506	0.01	10
Open Space	4.8				0.0 acre-ft/yr/acre [5]	0	0.00	0
Green Belt	10.7				0.0 acre-ft/yr/acre [5]	0	0.00	0
Scenic Highway	10.5				0.0 acre-ft/yr/acre [5]	0	0.00	0
Roads	73.0							
	619.82	1,168				1,056,246	1.86	1,993
PA 7 Subtotal	3,464.1	1,220.9	33,343,929	20,006.4		1,530,433	2.63	2,696

[1] Based on Alternative Land Use Plan (See attached Exhibit)
 [2] The "Lee Property" is based on the 1991 Moreno Highlands Specific Plan, and current City of Moreno Valley General Plan
 [3] Assume 0.6 employee per 1,000 square feet of the Distribution/ Logistics buildings
 [4] Assume 10-percent of Park, Golf Course, and Cemetery Area will require potable water demands
 [5] Assume Open Space, Green Belt, and Scenic Highway irrigation areas to be served by recycled water system
 [6] Based on common industry duty factors
 [7] Based on revised EMMWD duty factors, February 2008
 [8] Assume a maximum density of 20 DU/acre for Mixed Use land use designations
 [9] Assume mixed use to consist of Commercial and High Density land use designations

Appendix B

Highlands "Logistics" Water Demand Benchmarking Study					
RBF water demand = 20 gpd/employee, assuming .6 employees/1,000 sf of bldgs. = .012 gpd/sf = 523 gpd/acre					
Water Agency	Contact Name	Phone Number	Email	Water Demand Factor	GPD/SF
City of Ontario	Sheldon Yu	(909) 395-2687	svu@ci.ontario.ca.us	1,400 gpd/acre	0.032
City of Riverside	Clay Monroe	(951) 826-5285	cmonroe@riversideca.gov	15- 20 gpd/acre	0.011
East Valley Water District	Lida	(909) 889-9501		.01/gpd/sf	0.01
Beaumont Cherry Valley Water District	Joe Riechenberger/Julie Salinas	(951) 845-9581/(626)437-2571	julie.salinas@bcvwd.org	15 gpd/employee for like facilities.	0.009
Palmdale Water District	Chris	661-947-4111		2,100 gpd/acre	0.048
West Valley Water District	Long Tsai	(909) 875-1322		3,500 gpd/acre - light industrial	0.08
City of Chino	Jesus Placentia	(909) 464-0781		500 gpd/acre for warehouses	0.011
City of Redlands	Tracy Harris	(909) 798-7698	tharris@cityofredlands.org	.01/gpd/sf	0.01
Yucaipa Valley Water District	Jeremy	(909) 797-5117			
City of Hesperia	John Leveille	(760) 947-1451			
Cucamonga Valley Water District	multiple people	(909) 987-2591			
City of La Verne	Janet Mangoosi	(909) 596-8744			
San Bernardino City Water Dept.	Robert Lindberg	(909) 384-7222	'lindberg_ro@sbcitywater.org'		
City of Fontana	Brenda Fowler	(909) 822-2201			
Fontana Water Company	Eric	909 201-7348			
Rubidoux Water Dept	Ron Young	(951) 684-7321			
Norco Water Dept	Laurie Asque	(951) 270-5654			
San Bernardino Valley Municipal Water District	Mike				
Santa Margarita Water District	Clay Header	(949) 459-6581			

Appendix C

City of Chino			
Water Demand Data for Similar Warehouse Distribution Type Facilities			
<u>DISTRIBUTION CENTERS</u>	<u>SQUARE FOOTAGE</u>	<u>USAGE 2011</u>	
	(sf)	(gpd)	(gpd/sf)
Warehouse Distribution Technologies	302,750	855	0.0028
National Distribution Center 1	430,000	897	0.0021
National Distribution Center 2	400,000	810	0.0020
Taylorred Services	400,000	1,153	0.0029
Geno Pacific 1	275,000	926	0.0034
Geno Pacific 2	275,000	934	0.0034

City of Fontana			
Water Demand Data for Similar Warehouse Distribution Type Facilities			
<u>DISTRIBUTION CENTERS</u>	<u>SQUARE FOOTAGE</u>	<u>USAGE 2011</u>	
	(sf)		
Walmart Distribution Warehouse	<u>600,000</u>	5,984,000	
		5,984,000	gal/month
		199,467	gpd
		0.3324	gpd/sf

City of Redlands				
Water Demand Data for Similar Warehouse Distribution Type Facilities				
<u>DISTRIBUTION CENTERS</u>		<u>SQUARE FOOTAGE</u>	<u>USAGE 2011</u>	
		(sf)		
BLDG A	<u>WAREHOUSE & OFFICE</u>	<u>971,640</u>	2,244	gal/6 months
	METER 1		71,060	gal/6 months
	METER 2		1,496	gal/6 months
	METER 3		0	gal/6 months
	METER 4		1,496	gal/6 months
	METER 5		76,296	gal/6 months
			422	gpd
			0.0004	gpd/sf
BLDG B	<u>WAREHOUSE & OFFICE</u>	<u>500,000</u>	0	gal/6 months
	METER 1		19448	gal/6 months
	METER 2		10472	gal/6 months
	METER 3		13464	gal/6 months
	METER 4		32912	gal/6 months
	METER 5		76296	gal/6 months
			422	gpd
			0.001	gpd/sf