The proposed World Logistics Center Specific Plan (WLC) is a master plan for the development of logistics warehouse distribution facilities on approximately 2,610 acres of land in the Rancho Belago area of eastern Moreno Valley. The Specific Plan proposes the development of 40.4 million square feet of high-cube logistics facilities on 2,382.8 acres, 200,000 square feet of light logistics facilities on 37.1 acres, an in-project fueling station, 115.8 acres of street right-of-way and 74.3 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 includes a portion of the SJWA property in order to designate that land for as open space use.

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 Broadiaea 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 served115kV to12kV 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 40,600,000 square feet of Distribution Center/Warehousing space. The potential electrical demand for this area would be approximately 68 MW summarized as follows:

Land Use Type	Potential Building Sq. Ft.	Demand Factor (w/sq ft)	Expected Demand (kW)	Load Factor	Expected Annual kWH Used
Logistics Warehouse (LD/LL)	**40,600,000**	**1.68**	**68,208**	**0.63**	**376,426,310**

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 68MW 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 cannot 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 "C" 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 C.

- A 36" high pressure transmission pipeline in private property parallel to and south of the 30" transmission pipeline along proposed Street C from Virginia Street to Gilman Springs Road.

- 16", 24" and 30" parallel high pressure transmission pipelines in private property along Virginia Street from the project boundary to a location north of proposed Street C.

- A "Blow down/Pipe Cleaning facility" on the south east corner of Virginia and proposed Street C.

- 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" gas 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.

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 0.03 x 40,600,000 sf 1,218,000 sf.

Land Use Type	Potential Building Sq. Ft.		Natural Gas Consumption Factor (CF/YR/SF)		Natural Gas Consumption (CF/YR)
Office Space	**1,218,000**		**12.00**		**14,616,000**

Voice, Video, and Data

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 pole line 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.

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) copies[1] 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

[1]One 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

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.

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.

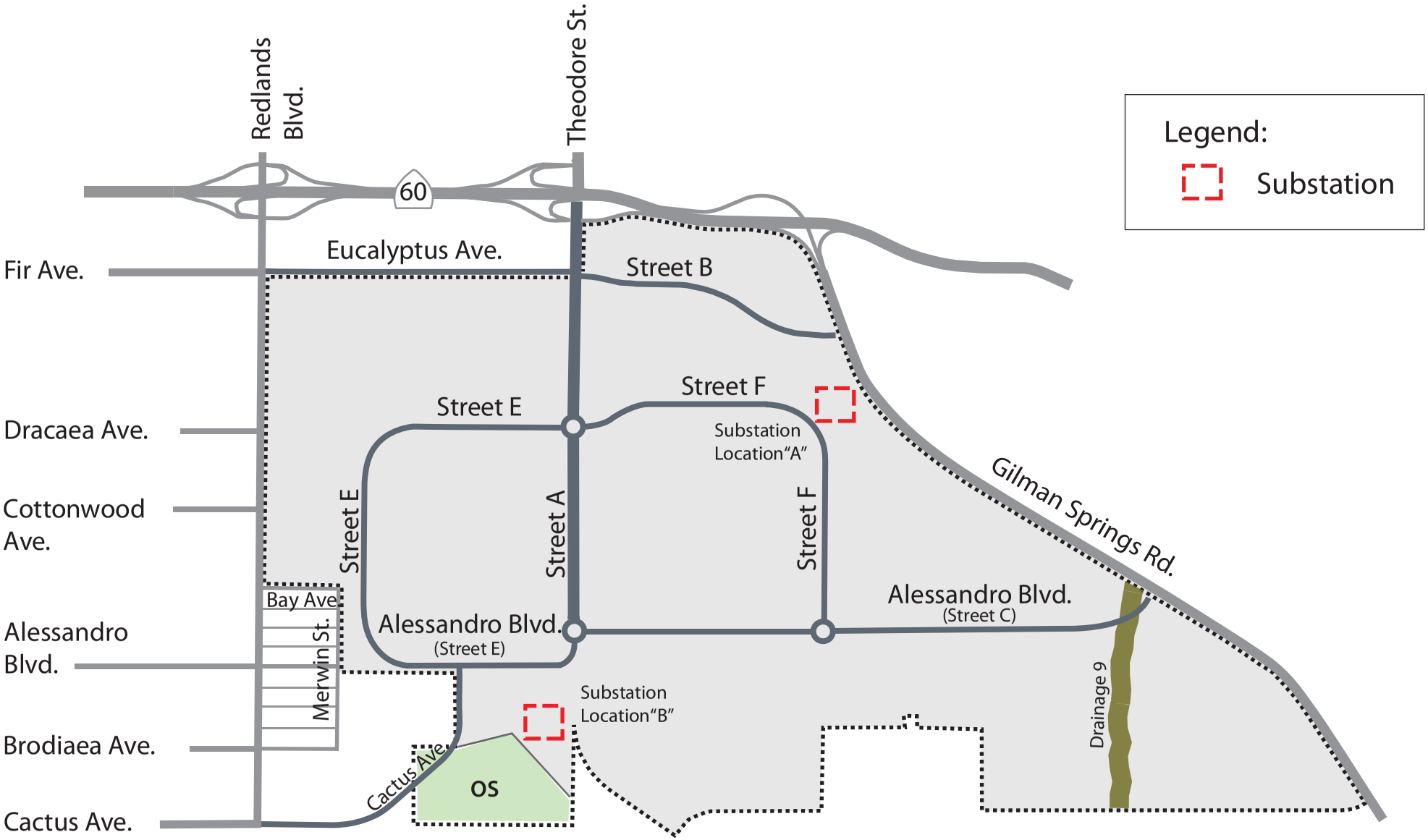
V. Existing rated and effective operating capacity of generating plants and the planned additions for a ten-year (10) period.

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)


Redlands Blvd.
Theodore St.
60
Legend:
Substation
Fir Ave.
Eucalyptus Ave.
Street B
Dracaea Ave.
Cottonwood Ave.
Alessandro Blvd.
Brodiaea Ave.
Cactus Ave.
Street E
Street F
Substation Location"A"
Street E
Street A
Street F
Gilman Springs Rd.
Bay Ave.
Merwin St.
Alessandro Blvd.
(Street E)
Alessandro Blvd.
(Street C)
Substation Location"B"
Drainage 9
Cactus Ave.
OS

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. 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.

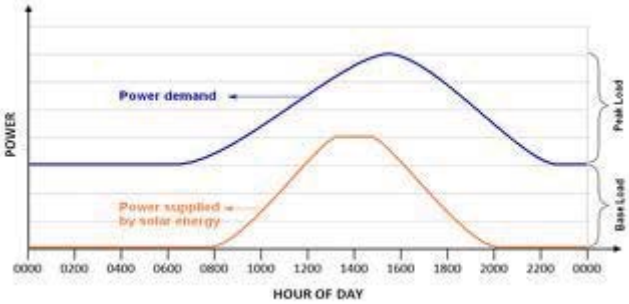


Figure 1 also shows a typical utility demand cycle superimposed over the normal PV generation cycle. The comparison shows that the normal peak electrical requirement is not coincident with the PV array's peak output capabilities.

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

The total planning area will have approximately 40,600,000 square feet of rooftop. Of that total it is anticipated that approximately 55% or 22,330,000 square feet can be available for PV installation. Depending on the type of PV cells that are used, 201 MW/AC of peak output could be produced during the optimum production period. It is anticipated that the entire project could have a peak electrical demand requirement of 68 MW. The available rooftop space could, therefore meet the electrical cycle demand under optimum conditions.

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.

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. 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.

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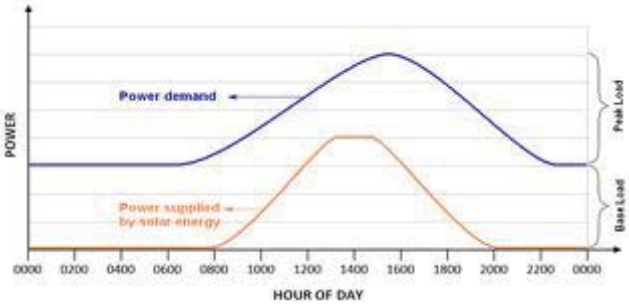

Figure 1 also shows a typical utility demand cycle superimposed over the normal PV generation cycle. The comparison shows that the normal peak electrical requirement is not coincident with the PV array's peak output capabilities.

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

The total planning area will have approximately 40,600,000 square feet of rooftop. Of that total it is anticipated that approximately 34% or 13,641,600 square feet can be available for PV installation. Depending on the type of PV cells that are used, 68.2 megawatts (AC) of peak output could be produced during the optimum production period. It is anticipated that the entire project could have a peak electrical demand requirement of 68 MW (AC). The available rooftop space could, therefore meet the electrical cycle demand under optimum conditions.

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.

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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.

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- 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.

WLC Solar Overview

Building Area		
Total Building Area	Square feet	40,600,000
Peak Electricity Demand		
Peak Demand, at 1.68 Watts (AC) per SF	MW (AC)	68.2
Annual Electricity Consumption		
Peak Demand	MW (AC)	68.2
Total Hours in Year	hours / year	8,760
Consumption Hours as a % of Total Hours	%	63%
Total Annual Electricity Consumption (AC)	**MWh / year (AC)**	**376,426**
Annual Electricity Production		
Installed Solar Capacity - Total DC	MW (DC)	81.8
Highland Fairview's 90% Share	*MW (DC)*	*74.0*
Conversion Factor from DC Power to AC Power	DC to AC	0.83
Installed Solar Capacity - Total AC	MW (AC)	*68.2*
Annual Solar Facility Operating Hours	hours / year	1,860
Annual Solar Electricity Production (AC)	**MWh / year (AC)**	**126,867**
Annual Solar Electricity Production as a % of Annual Electricity Consumption		*34%*
Equivalent # of Households Supplied by WLC Solar Facility		
Annual Solar Electricity Production (AC)	MWh / year (AC)	126,867
Average Annual Household Electricity Consumption	MWh / year / household (AC)	11.28
Average Number of Households Supplied by WLC Solar Facility	Households	11,247

Notes
AC = Alternating Current
DC = Direct Current

WLC Solar Overview

Assumptions and Supporting Calculations	
Basis for Sizing the Solar Facility	Peak Demand
Total Building Area	
Total Building Area	40,600,000
Peak Demand	
Peak Demand Factor - Watts (AC) /SF [1]	1.68
Total Peak Demand, MW (AC)	68.2
Tenants' Annual Electricity Consumption	
Peak Demand, MW (AC)	68.2
Total Hours in Year	8,760
Ratio of Consumption Hours to Total Hours [1]	63%
Total Annual Electricity Consumption, MWh	376,426
Rooftop Space Required to Satisfy WLC Annual Electricity Consumption	
Watts Produced per Square Foot of Solar Panels (DC) [2]	12
Conversion Factor from DC to AC [2]	0.83
Watts Produced per Square Foot of Solar Panels (AC)	10.0
Average Solar Capacity Factor [2]	21%
Annual Electricity Production per 1 Million SF of Solar Panels, MWh (AC)	18,600
Square Feet of Solar Panels Required to Meet WLC Electricity Consumption	6,820,800
Unusable Rooftop Space, % of Total [2]	50%
Square Feet of Rooftop Required to Meet WLC Electricity Consumption	13,641,600
Required Size of Solar Facility	
If Based on MWh Consumption	
Tenants' Total Annual Electricity Consumption, MWh	N/A
Annual AC Production per 1MW (DC) of Solar Panels, MWh	N/A
If Based on Peak Demand	
Peak Demand (AC)	68.2
Conversion Factor (DC to AC)	0.83
Required Size of Solar Facility, MW (DC)	81.8
Check: Total MWh (AC) of Electricity Produced by a 81.8MW Solar Facility	*126,867*
Maximum WLC Annual Electricity Consumption	
Maximum Rooftop Space Available to Produce Solar	20,300,000
Annual Electricity Production per 1 Million SF of Solar Panels, MWh (AC)	18,600
Maximum WLC Annual Electricity Consumption	377,580

Notes

[1] Per Dry Utility Memo -Final.pdf

[2] Estimates provided by a leading developer of commercial/industrial rooftop solar PV projects

World Logistics Center Specific Plan Sanitary Sewer Analysis

PREPARED FOR: Highland Fairview

PREPARED BY: CH2M HILL

DATE: September 2014

Summary of Modifications

Modifications to the Sanitary Sewer Analysis have been made to reflect changes in the Project Description. These modifications are reflected in the memo and shown in Exhibits 2 through 6.

Introduction

The proposed World Logistics Center Specific Plan (WLC) is a master plan for the development of logistics warehouse distribution facilities on approximately 2,610 acres of land in the Rancho Belago area of eastern Moreno Valley. The Specific Plan proposes the development of 40.4 million square feet of high-cube logistics facilities on 2,382.8 acres, 200,000 square feet of light logistics facilities on 37.1 acres, an in-project fueling station, 115.8 acres of street right-of-way and 74.3 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 includes a portion of the SJWA property in order to designate that 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

Eastern Municipal Water District (EMWD) and the Edgemont Community Services District (ECSD) provide wastewater (sewer) services in the City of Moreno Valley. EMWD provides wastewater treatment, collection, and disposal service to most of the City while ECSD provides sewer service to a small area in the southwestern portion of the City. Wastewater generated within the WLC area is treated at EMWD's Moreno Valley Regional Water Reclamation Facility (MVRWRF). The MVRWRF facility is located east of Perris Boulevard, just south of Mariposa Avenue. The MVRWRF treats domestic, commercial, and industrial wastewater, and currently accepts an average daily flow of approximately 11.21 million gallons per day (mgd), with an existing capacity of approximately 16 mgd. The existing development on the site (seven residences and associated farming facilities) is served by private septic tank systems. The area adjacent to the project is currently served by a 15-inch

sewer pipeline located within Redlands Boulevard along the western perimeter of the project and an 8- to 15-inch sewer located within Eucalyptus Avenue along the northern perimeter of the project.

Wastewater Generation Factors

Estimated wastewater flows from the WLC project are based on a factor of water use equivalent to 0.01 gallons per day (gpd)/square foot (sqft). This factor was 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 September 10, 2013. This study addresses the overall project demands and uses wastewater generation factors which are lower than EMWD's rates used to cover the broad spectrum of light industrial uses. Therefore a facility sizing factor of 2.0 times was applied to the 0.01 gpd/sqft base wastewater rate resulting in a wastewater generation factor of 0.02 gpd/sqft. Based on a maximum building area of 40.6 million square feet, the estimated wastewater generated from the WLC project is 812,000 gpd. An additional 5,100 gpd of flow was added to account for wastewater generated by the in-project fueling station. Thus, the total estimated wastewater generated from the project is 817,100 gpd.

Analysis Criteria

Assumptions

The analysis of the sanitary sewer system for the World Logistics Center (WLC) was performed using the 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 gpd/sqft. For parcels 2, 3 and 4 adjacent to Skechers, 0.02 gpd/sqft, 0.176 gpd/sqft and 0.144 gpd/sqft were used respectively. The total average day loading for the project area was 868,000 gpd which included 40,600,000 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 an existing system at the intersection of Brodiaea Avenue and Redlands Blvd into an existing 15-, 18- and 21-inch sewer pipeline, with a proposed upgrade to 33-inch on Brodiaea Avenue and 36-inch on Wilmot St. . The sewage is then conveyed to the MVWRF through a trunk sewer with existing diameter piping between 24-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 criterion was not satisfied.

Analysis

Existing System

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

1. **Phase 1-WLC project area and loading into the EMWD existing system (Exhibits 2 and 3).**

   This scenario analyzes the system for phase 1 of the site development, which does not include the undeveloped parcels in the Skechers area. 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. As part of phase 1, existing pipeline replacement is required for 2700 feet of existing 15-inch and 18-inch piping immediately downstream of the connection with the WLC sanitary sewer. The replacement piping is sized at 33-inch and 36-inch for buildout conditions. Exhibits 2 and 3 show the approximate timing for the sewer improvements.

2. **Phase 1 + Phase 2-WLC project area and loading into the EMWD existing system (Exhibit 4).**

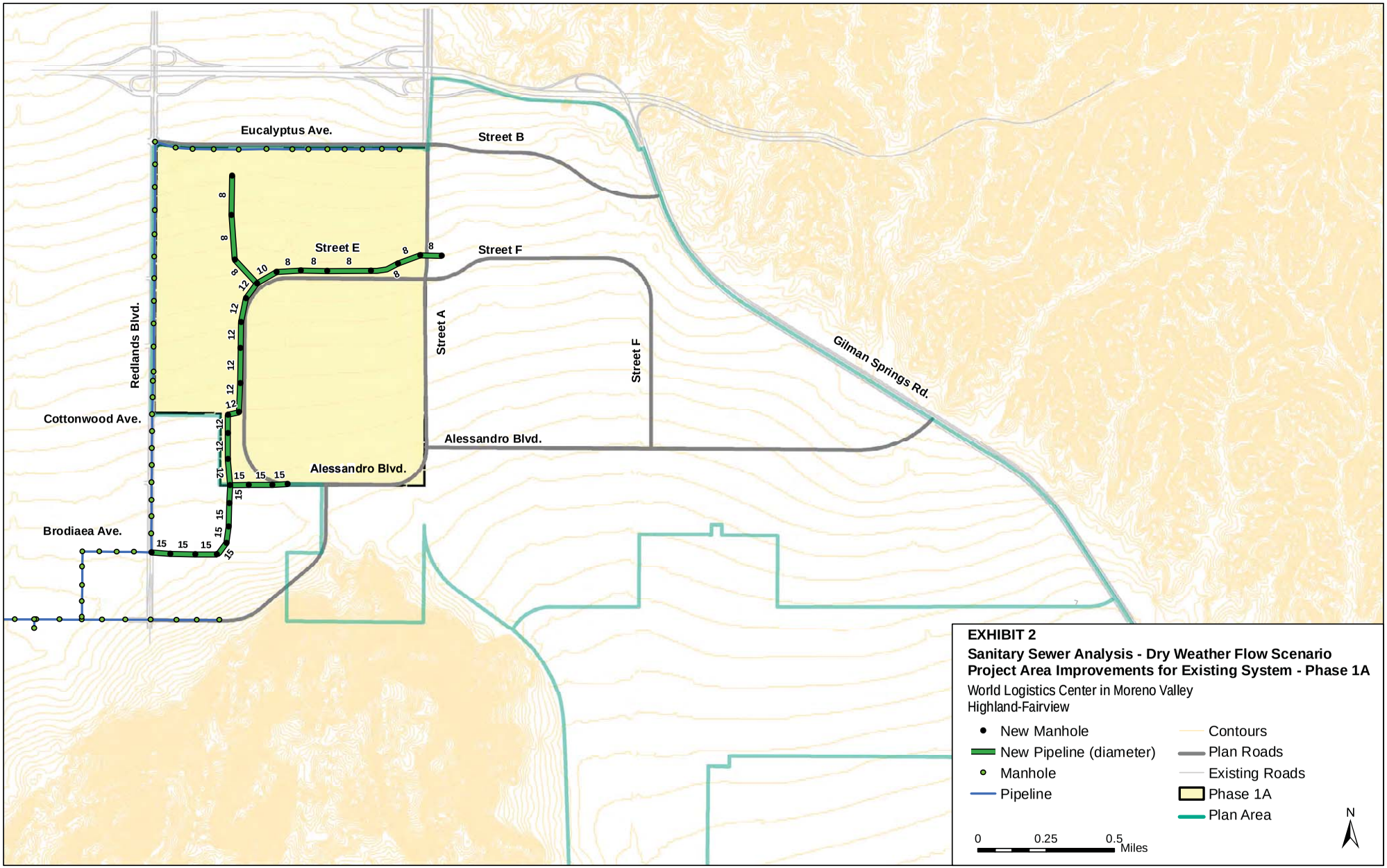
   This scenario analyzes the system for phase 1 and phase 2 of the site development and includes the undeveloped parcels in the Skechers area. The northwest gravity line is sized based on the phase 1 construction. As part of phase 2, the remaining gravity lines and the regional pump station are constructed. 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 85 feet of total dynamic head (TDH). The forcemain is sized at 12 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 and proposes the development of a 2,722-unit senior housing community. Quail Ranch is located east of the Gilman Springs Road, three miles south of SR60 and covers approximately 720 acres. The development proposes 1,159 residential units, a park, golf course, and a clubhouse. The portion of the San Jacinto Wildlife Area that was part of the original Moreno Highlands Specific Plan is covered by EMWD's existing build-out model. In the model, this area is categorized as single family residential but it is going to be designated as permanent open space as part of a General Plan Amendment and Zone Change which accompany the WLC Specific Plan.

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 southeast 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 82 feet of total dynamic head (TDH). The forcemain is sized at 21inches. Buildout pipe sizes in the existing system are also identified in Exhibit 5 for the trunk sewer between the WLC project area and the Wastewater Treatment Plant. 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.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Street B
Street E
Street F
Street A
Street F
Redlands Blvd.
Cottonwood Ave.
Alessandro Blvd.
Alessandro Blvd.
Brodiaea Ave.
Gilman Springs Rd.
EXHIBIT 2
Sanitary Sewer Analysis - Dry Weather Flow Scenario
Project Area Improvements for Existing System - Phase 1A
World Logistics Center in Moreno Valley
Highland-Fairview
New Manhole
New Pipeline (diameter)
Manhole
Pipeline
Contours
Plan Roads
Existing Roads
Phase 1A
Plan Area
0
0.25
0.5
Miles
N

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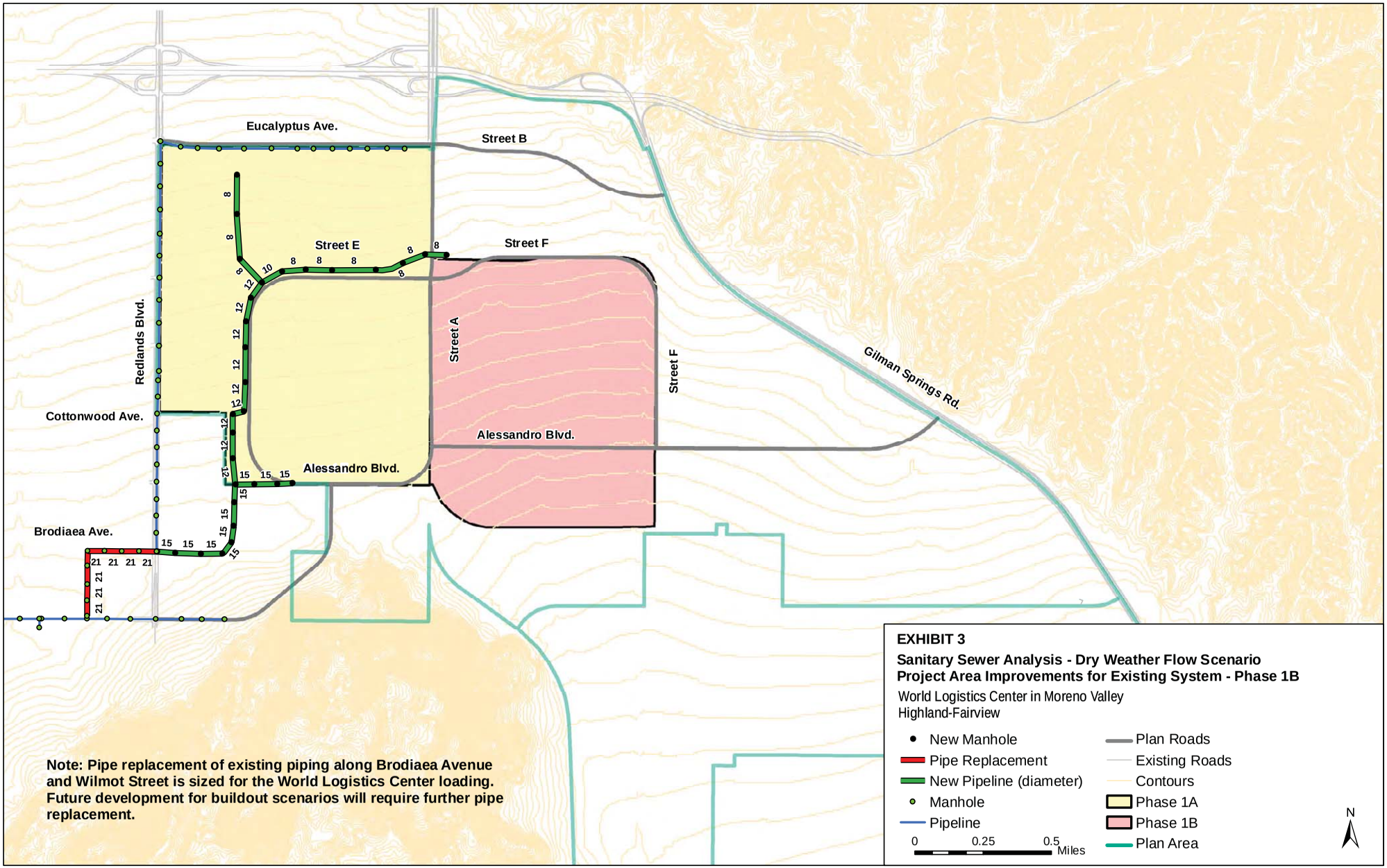
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Street F
Gilman Springs Rd.
Redlands Blvd.
Cottonwood Ave.
Alessandro Blvd.
Alessandro Blvd.
Brodiaea Ave.
8
10
12
15
21
Note: Pipe replacement of existing piping along Brodiaea Avenue and Wilmot Street is sized for the World Logistics Center loading. Future development for buildout scenarios will require further pipe replacement.
EXHIBIT 3
Sanitary Sewer Analysis - Dry Weather Flow Scenario
Project Area Improvements for Existing System - Phase 1B
World Logistics Center in Moreno Valley
Highland-Fairview
New Manhole
Pipe Replacement
New Pipeline (diameter)
Manhole
Pipeline
Plan Roads
Existing Roads
Contours
Phase 1A
Phase 1B
Plan Area
0
0.25
0.5
Miles
N

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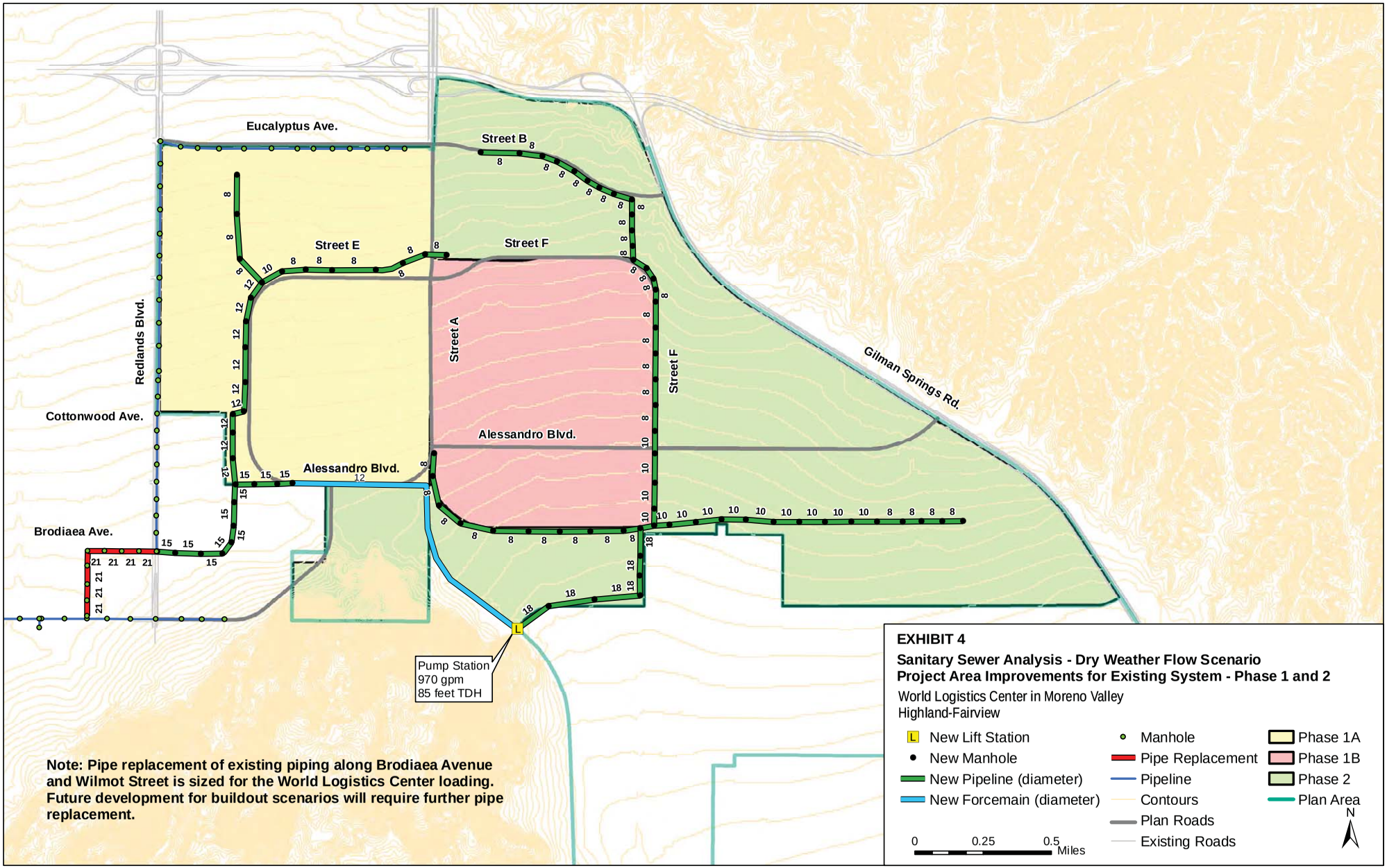

Note: Pipe replacement of existing piping along Brodiaea Avenue and Wilmot Street is sized for the World Logistics Center loading. Future development for buildout scenarios will require further pipe replacement.

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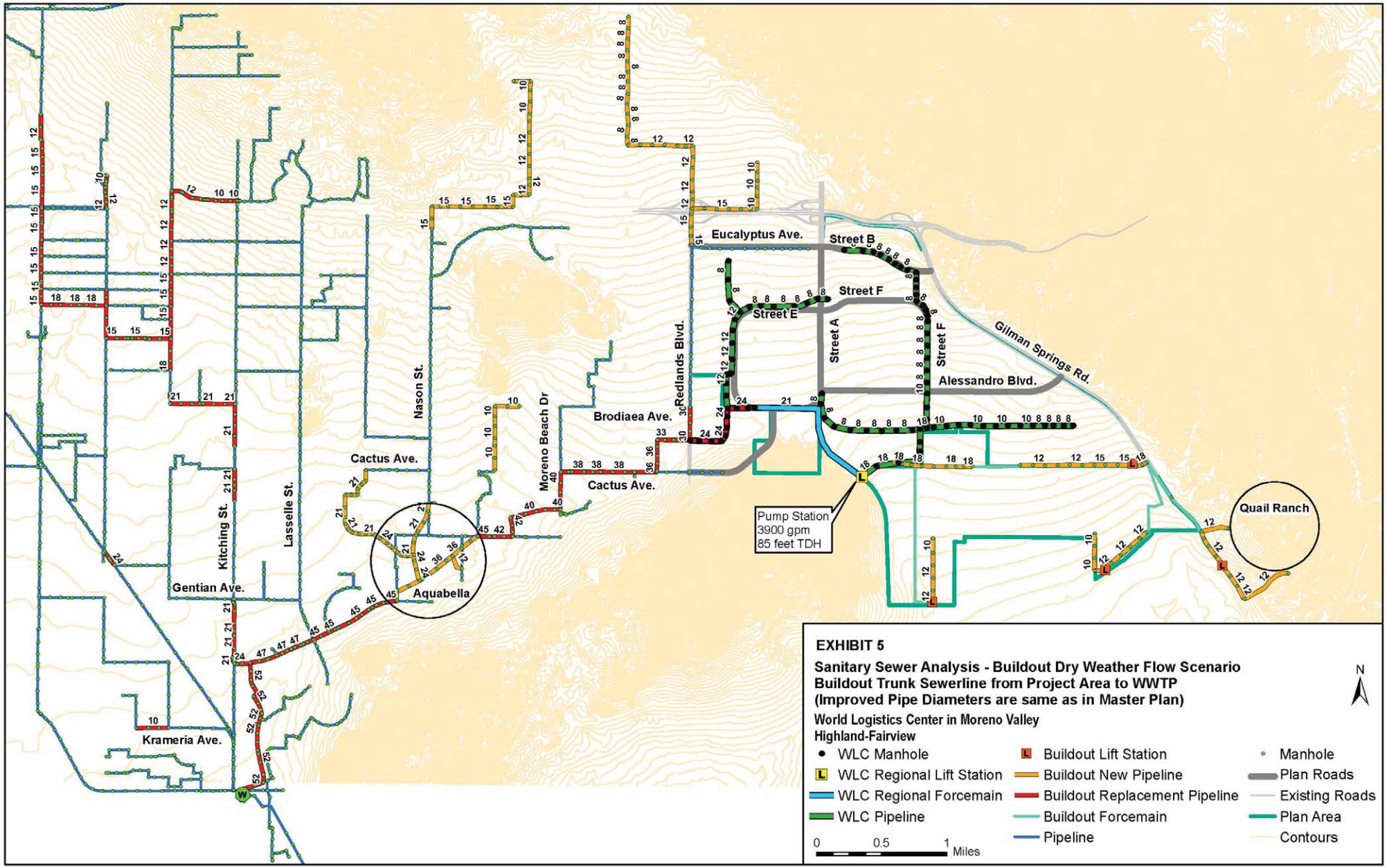
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Street F
Street E
Street A
Street F
Gilman Springs Rd.
Alessandro Blvd.
Redlands Blvd.
Brodiaea Ave.
Nason St.
Moreno Beach Dr
Cactus Ave.
Cactus Ave.
Kitching St.
Lasselle St.
Gentian Ave.
Aquabella
Krameria Ave.
Quail Ranch
Pump Station
3900 gpm
85 feet TDH
EXHIBIT 5
Sanitary Sewer Analysis - Buildout Dry Weather Flow Scenario
Buildout Trunk Sewerline from Project Area to WWTP
(Improved Pipe Diameters are same as in Master Plan)
World Logistics Center in Moreno Valley
Highland-Fairview
WLC Manhole
WLC Regional Lift Station
WLC Regional Forcemain
WLC Pipeline
Buildout Lift Station
Buildout New Pipeline
Buildout Replacement Pipeline
Buildout Forcemain
Pipeline
Manhole
Plan Roads
Existing Roads
Plan Area
Contours
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0.5
1
Miles
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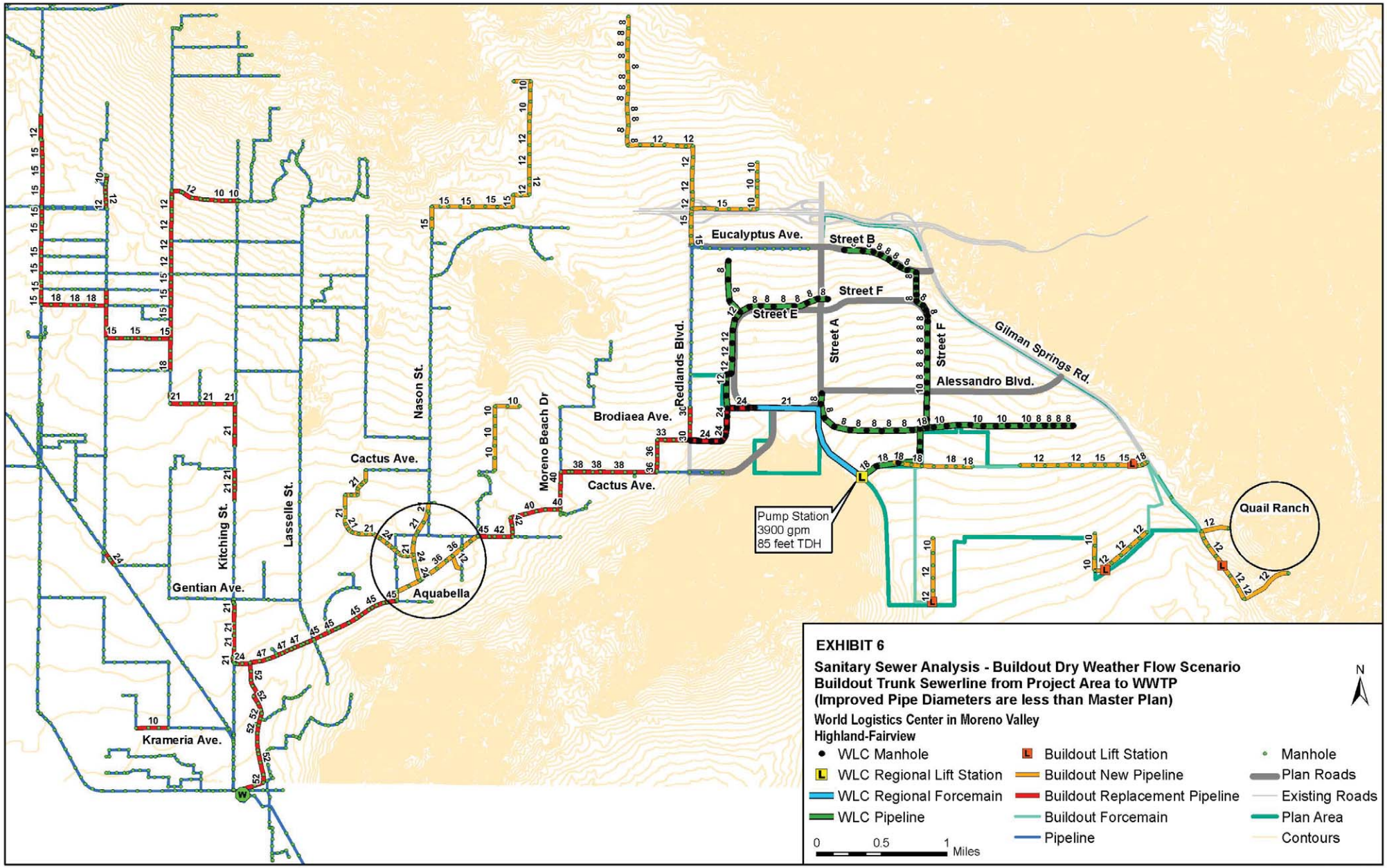
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Moreno Beach Dr
Cactus Ave.
Cactus Ave.
Kitching St.
Lasselle St.
Gentian Ave.
Aquabella
Krameria Ave.
Pump Station
3900 gpm
85 feet TDH
Quail Ranch
EXHIBIT 6
Sanitary Sewer Analysis - Buildout Dry Weather Flow Scenario
Buildout Trunk Sewerline from Project Area to WWTP
(Improved Pipe Diameters are less than Master Plan)
World Logistics Center in Moreno Valley
Highland-Fairview
WLC Manhole
WLC Regional Lift Station
WLC Regional Forcemain
WLC Pipeline
Buildout Lift Station
Buildout New Pipeline
Buildout Replacement Pipeline
Buildout Forcemain
Pipeline
Manhole
Plan Roads
Existing Roads
Plan Area
Contours
0
0.5
1
Miles
N

CH2MHILL

World Logistics Center Water Demands and Waste Water Generation for Buildings

PREPARED FOR: Highland Fairview

PREPARED BY: CH2M HILL

DATE: September 10, 2013

Summary of Modifications

Modifications to the Water Demands and Waste Water Generation for Buildings analysis have been made to reflect changes in the Project Description. These modifications are reflected in the memo in the last section, Building Water Demands.

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. TPM 35629 refers to the Highland Fairview Corporate Park (HFCP) at Eucalyptus Avenue and Theodore Street which is immediately adjacent to the WLC project.

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 (Highland Fairview Corporate Park)
2. Related Projects in the vicinity of TPM No. 35629
3. The Highlands Area referred to as *the former Moreno Highlands Specific Plan* consisting of the Highland Fairview properties and the Lee property.

The TPM Memorandum calculated demands for the above areas based upon February 2008 Eastern Municipal Water District (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 combined in the EIR for the HFCP project. (See Appendix A for both demand analyses.) The Logistics water demands were 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 was 20 gallons per day (gpd)/employee, based upon "common industry duty factors," identified at the time the memorandum was written. As shown in Table B-5 of Appendix A, this analysis assumed that logistics development would consist of 33,343,929 square feet (sf) of warehouse building area on 1,525 acres. This resulted in an average day demand of approximately 400,000 gpd 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 19 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, with the use of drought tolerant and native landscaping, the irrigation water demand will be much less than for a typical industrial project. 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*

[a]Note 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 allow the developer's architect or engineer to recommend a more customized water demand factor, based upon similar facilities. The agency would then review and approve the modified demand factors. 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 is one such agency. It 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,

The agricultural-based industries within the Beaumont Cherry Valley Water District are giving way to major warehouse distribution centers, e.g., Lowes, Cross Roads Logistics, Prologics, etc. 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 Beaumont Cherry Valley water District utilizes a potable water demand factor of 0.009 gpd/sf. This factor is less than the logistics factor of 0.012 gpd/sf used in the TPM Memorandum and is for a similar type facility, in a water district adjacent to EMWD. 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 determined in the TPM Memorandum.

Recommendations

Table 2 below summarizes the information. As shown in Table 2, values used by nearby agencies for logistics water demand factors range from 0.009 to 0.012 gpd/sf. Based on this benchmarking study, it is recommended that a water demand factor of 0.010 gpd/sf be used 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 gpd/sf was compared to actual metered data obtained from several water districts.

EMWD Similar Facilities

EMWD provided water use consumption data for ten existing warehouse distribution facilities currently served by the District. The 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. 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 which 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 Lowes 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 where the account holder was located. 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. These means the actual values would be less.

LEED Calculations

An analysis was also made to estimate the water demand based on standard uses for each employee. The Leadership in Energy and Environmental Design (LEED) program has methodologies for estimating demand based per person or employee. Using this methodology and their calculation worksheet the estimated demand for toilet flushing is 5 gpd per person and for the lavatory is 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 using a factor of 0.6 employees/1000 sq ft for the WLC project. This value 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 building demand. The water demand for irrigation is not included in this analysis. The development proposes 40.6 million square feet of logistics uses. Thus, the water demand for the buildings is 406,000 gpd or 460 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]	80.6		305 gpd/ du	491,564	0.74	683
Mixed Use [7]			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					
	3,464.1	**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/acres 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	1,525.1		33,343,929	20,006	20 gpd/ employee [6]	400,127	0.60	556
Roads	86.2							
R5	10.6	53			500 gpd/ du [7]	26,461	0.05	64
Roads	1.4							
Park	141.0				0.378 acre-ft/yr/acre [4]	47,599	0.12	83
Roads	0.7							
Open Space	1,077.9				0.0 acre-ft/yr/acre [5]	0	0.00	0
Roads	1.3							
***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							
PA 7 Subtotal	619.82	1,168				1,056,246	1.86	1,993
	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 EMWD duty factors, February 2008
[8] Assume a maximum density of 20 DUs/acres 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	syu@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			
DISTRIBUTION CENTERS	**SQUARE FOOTAGE**	**USAGE 2011**	
	(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**
Taylored 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			
DISTRIBUTION CENTERS	**SQUARE FOOTAGE**	**USAGE 2011**	
	(sf)		
Walmart Distribution Warehouse	**600,000**	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				
DISTRIBUTION CENTERS		**SQUARE FOOTAGE**	**USAGE 2011**	
		(sf)		
BLDG A	**WAREHOUSE & OFFICE**	**971,640**	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	**WAREHOUSE & OFFICE**	**500,000**	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**