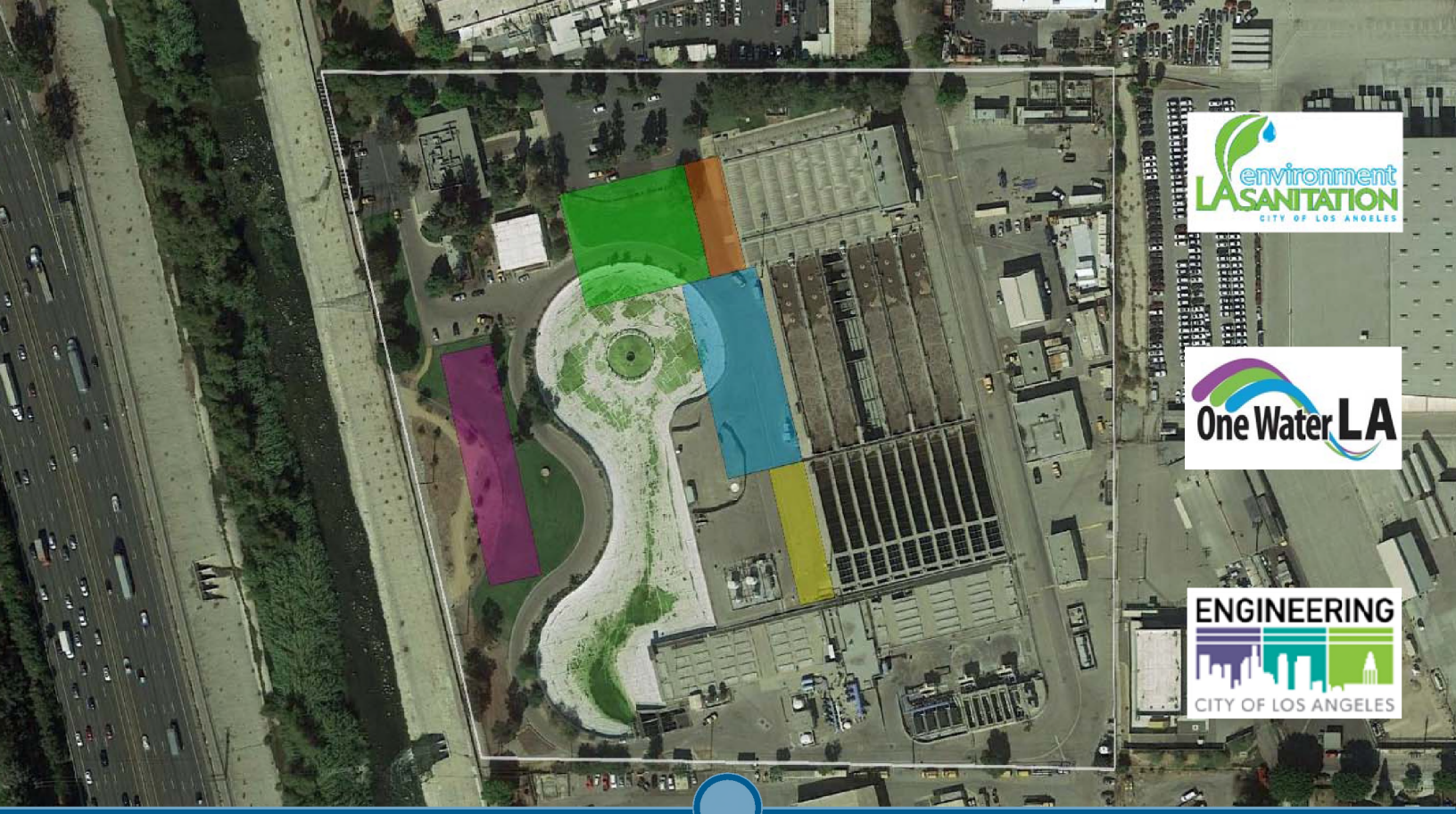


CEQA Plus Initial Study/Mitigated Negative Declaration *for*

Los Angeles-Glendale Water Reclamation Plant Primary Effluent Equalization Storage and Personnel Building

Prepared for

City of Los Angeles Bureau of Sanitation
Water Reclamation Division

Prepared by

Kennedy/Jenks Consultants,
Rincon Consultants, Inc. and
Kunzman and Associates

December 2017

Final CEQA Plus
Initial Study/Mitigated Negative Declaration
(IS/MND)

for

Los Angeles-Glendale Water Reclamation Plant
Primary Effluent Equalization Storage
and Personnel Building

City of Los Angeles
LA Sanitation

State Clearinghouse No. 2017101069

December 2017

PREFACE

In accordance with the California Environmental Quality Act (CEQA), the City of Los Angeles Department of Sanitation (LA Sanitation, LASAN), as the Lead Agency, completed an Initial Study/Mitigated Negative Declaration (hereafter referred to as the Draft IS/MND) to address and disclose the potential environmental impacts associated with the proposed Los Angeles-Glendale Water Reclamation Plant Primary Effluent Equalization Storage and Personnel Building Project (Project). The purpose of the Draft IS/MND it to determine if the proposed project may have a significant effect on the environment and to serve as an informational document for the public and the decision-makers.

The Notice of Intent to Adopt a Mitigated Negative Declaration (MND) for the proposed project was posted at the office of the Los Angeles County Clerk on November 1, 2017. In addition, in accordance with State CEQA Guidelines Section 15072, the Notice of Intent to Adopt an MND for the project was mailed to approximately 65 organizations and individuals potentially affected by or interested in the proposed project. A notice regarding the project was published in the Los Angeles Times on November 3, 2017 and November 10, 2017. Copies of the Draft IS/MND were made available for review at the following libraries: Atwater Village Branch Library and Los Feliz Branch Library. In addition, copies of the Draft IS/MND were available at City of Los Angeles Wastewater Engineering Services located at 2714 Media Center Drive, Los Angeles, CA and online at the LASAN website (https://www.lacitysan.org/san/faces/wcnav_externalId/s-lsh-wwd-cw-p-lagwrp).

In accordance with State CEQA Guidelines Section 15073, a 30-day comment period for the Draft IS/MND began on October 31, 2017 and ended on November 30, 2017. To ensure all comments were received, the public comment period was extended through December 8, 2017. Three comments were received on the Draft IS/MND. These comments are discussed/responded to in the Comment/Response matrix. Copies of the comments received are included in Appendix J of the Final IS/MND.

This Final Initial Study/Mitigated Negative Declaration (Final IS/MND) has been prepared pursuant to CEQA (California Public Resources Code Section 21000 et seq.), and the implementing State CEQA Guidelines (Title 14, California Code of Regulations Section 15000 et seq.). The Final IS/MND is comprised of the MND and the Final Initial Study/Checklist; corrections/additions to the Draft IS/MND; responses to comments on the Draft IS/MND; public noticing documents; and appendices. With respect to the corrections/additions to the Draft IS/MND, changes in text are signified by strikeouts where text is removed and by italics and underline where text is added. The corrections/additions to the Draft IS/MND are limited to:

- Correcting the total amount of additional operational storage the project would provide from 5 million gallon (MG) to 5.64 MG.
- The addition of new Appendix J (comments on the public draft document).
- Per the comment response matrix, edits to Appendix E to address comments regarding AB52 compliance.

These refinements do not reduce the effectiveness of the mitigation measures in reducing significant impacts to less-than-significant levels.

In addition to the Final IS/MND, a Mitigation Monitoring and Reporting Program has been prepared for the proposed project; the draft was provided with the Public Draft IS/MND. In accordance with Section 15074(b) of the State CEQA Guidelines, the City of Los Angeles will adopt the Final IS/MND if, based on the whole of the record, including comments received, it determines that there is no substantial evidence that the proposed project will have a significant effect on the environment that cannot be mitigated or avoided, and that the IS/MND reflects the City of Los Angeles's independent judgement and analysis.

The Final IS/MND for the project consists of the following components:

- Preface
- Comments and Responses on the Initial Study/Proposed Mitigated Negative Declaration
- Mitigated Negative Declaration
- Final Initial Study/Checklist (including the Mitigation Monitoring and Reporting Program)
- Appendices:

  A Project Figures
  B Photographs of Project Site/Components
  C Air Quality Conformance Memorandum and Air Quality Data
  D Biological Resources Assessment
  E Cultural Resources Report
  F Paleontological Resources Assessment
  G Field Noise Measurement Data
  H Traffic/Transportation Assessment
  I NPDES Permits
  J Comment Letters (or emails) on the Initial Study/Proposed Mitigated Negative Declaration

The Final IS/MND, and related records, are available to the public at City of Los Angeles Wastewater Engineering Services located at 2714 Media Center Drive, Los Angeles, CA and online at the LASAN website (https://www.lacitysan.org/san/faces/wcnav_externalId/s-lsh-wwd-cw-p-lagwrp).

PUBLIC COMMENT MATRIX

Los Angeles-Glendale Water Reclamation Plant
Primary Effluent Equalization Storage and Personnel Building
Public Draft CEQA Plus Initial Study/Mitigated Negative Declaration
(Public Comment Period October 31, 2017 – November 30, 2017; extended to December 8, 2017 to ensure all comments addressed)

No.	Commenter (Name, Affiliation, Date)	Comment	Response	Misc.
1	Gayle Totton, M.A., Ph.D. Associate Governmental Program Analyst Native American Heritage Commission (916) 373-3714 Comment received via email on 11/8/2017	I have finished reviewing the Mitigated Negative Declaration on the above referenced project. Since the document is substantially in compliance with the requirements of AB-52, I didn't want to send a formal comments letter but there is one correction/clarification I am requesting you make in the document. The narrative in the Cultural Resources and Tribal Cultural Resources section refer to the process for inadvertent finds of human remains without noting the specific requirements of Public Resources Code (PRC) section 5097.98. The description of that process in Appendix E is in error, stating that the Most Likely Descendent (MLD) has 48 hours from time of contact to make recommendations for disposition of the remains. The PRC states that the MLD has 48 hours from the time they access the site to make recommendations. Since the information in the Appendix is incorrect, I would request that you include the correct specific requirements for inadvertent finds of human remains	*In response to this comment the text in Appendix E, Phase I Cultural Resources Report, has been updated to more accurately reflect the wording in PRC section 5097.98.* *The text has been updated on pages 27 and 28 of Appendix E as follows:* *The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner will notify the NAHC, which will determine and*	

No.	Commenter (Name, Affiliation, Date)	Comment	Response	Misc.
		as a mitigation measure in the Cultural Resources and Tribal Cultural Resources sections.	*notify a most likely descendant (MLD). The MLD shall complete their inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site ~~shall complete the inspection of the site within 48 hours of notification~~ and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.*	
2	Kelly Schmoker-Stanphill, M.S. Senior Environmental Scientist (Specialist) California Department of Fish and Wildlife Habitat Conservation Planning 949-581-1015 Kelly.Schmoker@wildlife.ca.gov Email received on 11/27/2017.	…"I am seeking clarification as to how this project will affect flow in the LA River. The Document is unclear as to the volume of increased storage being proposed by this Project (appears 5.64 MG), how long this water will be held, and if this water was historically released to the Los Angeles River will now be stored in a tank waiting for demand (customers) to purchase it instead of being released to the Los Angeles River. I am seeking clarification as to what reduction of current discharge (flow) to the Los Angeles River will occur as a result of the increased on-site storage proposed as part of this Project."	*Hi Kelly,* *I thought it may be best to provide you with this initial response to your questions. But please feel free to contact me directly should you have any additional questions or concerns about the project.* *I understand from your comments that the CEQA document is unclear as to the volume of increased storage being proposed by this Project (5.64 MG), how long this water will be held, and if this water historically released to the Los Angeles River will now be stored in a tank waiting for demand (customers) to purchase it instead of being released to the Los Angeles River.*	Response sent via email on 11/29/2017. Per Kelly's email 11/29/2017, no further questions or clarification are requested.

No.	Commenter (Name, Affiliation, Date)	Comment	Response	Misc.
			The proposed project is a redundancy project only and there would be no change of flows released to the Los Angeles River. The project is not proposing to increase the amount of wastewater treated nor change the amount provided as recycled water or discharged to the river. The Project rather provides for the addition of structures which will be utilized for existing uses in order to improve plant performance and provide temporary storage of raw influent/primary effluent during peak wet weather events only. *A summary of the proposed upgrades to be used for existing uses are as follows:* *2 Primary Clarifiers: These two new clarifiers will improve plant performance. The 0.44 MG may be used for temporary storage during peak wet weather events only.* *2.5 MG equalization tank: This new tank will improve process performance. The main function is to act as a buffer, to store/process the incoming raw influent that comes at widely fluctuating rates and provides to the biological nutrient removal at steady (average) flow rates. During*	

No.	Commenter (Name, Affiliation, Date)	Comment	Response	Misc.
			the peak hours flow comes in at high levels, it is stored in the EQ tanks, and released back to the headworks at low flow hours. *3 Aeration Tanks: Each tank can hold approximately 0.9 MG, for a total of 2.7 MG. One tank will be retrofitted with biological nutrient removal equipment and will be used to improve operational availability and may be used for peak wet weather events. Two tanks will used only during peak wet weather events to prevent sewer overflows.* *2 Secondary Clarifiers: These will provide for process improvements only.* *The document will be clarified to note that the proposed additional storage amount is 5.64 MG, slightly greater than the 5 MG noted in the project description.*	
3	Scott Morgan, Director State Clearinghouse Office of Planning and Research 1400 10th Street, PO Box 3044 Sacramento, CA 95812-3044 Letter received on November 30, 2017.	Subject: Los Angeles-Glendale WRP Primary Effluent Equalization Storage and Personnel Building Project, SCH#: 2017101069 The State Clearinghouse submitted the above named Mitigative Negative Declaration to selected state agencies for review. The review period closed on	*Thank you for your comment.*	

No.	Commenter (Name, Affiliation, Date)	Comment	Response	Misc.
		November 29, 2017, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.		

Prepared By **Kennedy/Jenks Consultants**

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~~Public Draft~~Final CEQA Plus Initial Study/Mitigated Negative Declaration

Los Angeles-Glendale Water Reclamation Plant
Primary Effluent Equalization Storage
and
Personnel Building

Prepared for

City of Los Angeles
LA Sanitation
4600 Colorado Blvd.
Los Angeles, CA 90039

K/J Project No. 1744511*00

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List of Acronyms

ACI	American Concrete Institute
AEP	Association of Environmental Professionals'
ANSI	American National Standards Institute
APE	Area of potential effects
AQMP	Air Quality Management Plan
ARB	Air Resources Board
ASTM	American Section of the International Association for Testing Materials
AWWA	American Water Works Association
BAT	Best available technology
BAU	Business as Usual
BMPs	Best Management Practices
BNR	Biological Nutrient Demand
BOD	Biochemical Oxygen Demand
BOE	Bureau of Engineering
BRA	Biological Resource Assessment
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalOSHA	California Occupational Safety & Health Administration
Caltrans	California Department of Transportation
CARB, ARB	California Air Resources Board
CBC	California Building Code
CDC	California Department of Conservation
CDFW	California Department of Fish and Wildlife
CDMG	California Department of Mines and Geology
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CH_4	Methane

CHRIS	California Historical Resources Information System
CIP	Capital Improvement Program
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2E	Carbon dioxide equivalent
CRHR	California Register of Historical Resources
CWA	Clean Water Act
CY	Cubic yard
dBA	decibels
DB	Design-Build
DBB	Design-Bid-Build
DBH	diameter-at breast-height
DCS	Distributed Control System
EED	Environmental Engineering Division
EIR	Environmental Impact Report
EPA	US Environmental Protection Agency
EQ	Equalization
Equalization Storage Project	CIP 4176 LAGWRP Primary Effluent Equalization Storage Project
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
General Plan	City of Los Angeles General Plan
GHG	Greenhouse Gases
GWP	Global warming potential
HFC	Hydrofluorocarbons
IPCC	Intergovernmental Panel on Climate Change
IS/MND	Initial Study/Mitigated Negative Declaration
LA Sanitation, LASAN	City of Los Angeles Bureau of Sanitation
LACM	Natural History Museum of Los Angeles County
LAFD	Los Angeles County Fire Department
LAGWRP	Los Angeles-Glendale Water Reclamation Plant
LAPD	Los Angeles Police Department
LAX	Los Angeles International Airport
LSTs	Localized Significance Thresholds

MBTA	Migratory Bird Treaty Act
MG	Million gallons
MGD	Million gallons per day
mil	millimeter
MND	Mitigated Negative Declaration
MPO	Metropolitan Planning Organizations
MT	Metric Tons
MZR	Mineral Resource Zone
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCPs/HCPs	Natural Community Conservation Plans/Habitat Conservation Plans
NELA	Northeast Los Angeles River Revitalization Project Area
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NO_2	Nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	*National Wetlands Inventory*
Personnel Building Project	CIP 4170 LAGWRP Personnel Building Project
PF	Public Facilities
PFC	Perfluorocarbons
Plan	Sustainable City Plan
PM_{10}	Particulate matter less than 10 microns in size
$PM_{2.5}$	Particulate matter less than 2.5 microns in size
PRC	Public Resources Code
Rincon	Rincon Consultants, Inc.
RTP	Regional Transportation Plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments'
SCAQMD	South Coast Air Quality Management District

SCCIC	South Central Coastal Information Center
SCS	Sustainable Communities Strategy
SEA	Significant Ecological Area
SF_6	Sulfur hexafluoride
SFHA	Special Flood Hazard Area
SIP	State Implementation Plan
SLF	Sacred Lands File
SMGB	State Mining and Geology Board
SO_2	Sulfur dioxide
Sq. ft.	square feet
SRA-7	Source Receptor Area 7
SVP	Society of Vertebrate Paleontology
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
USEPA, EPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VOC	Volatile Organic Compounds
WEAP	Paleontological Worker Environmental Awareness Program

Executive Summary

This Initial Study/Mitigated Negative Declaration (MND) has been prepared by the City of Los Angeles (City), as represented by the Los Angeles Department of Public Works Bureau of Sanitation (LASAN), to evaluate potential environmental effects that would result from development of the proposed Los Angeles-Glendale Water Reclamation Plant (LAGWRP) Primary Effluent Equalization Storage and Personnel Building Project (Proposed Project or Project). This MND has been prepared in conformance with the California Environmental Quality Act of 1970 (CEQA) statutes (Cal. Pub. Res. Code Section 2100 et seq., as amended) and its implementing guidelines (Cal. Code Regs., Title 14, Section 15000 et. seq., 2014). LASAN is identified as the lead agency for the Proposed Project under CEQA.

Project Background and Objectives

LASAN operates and maintains the LAGWRP, which provides water reclamation for the eastern San Fernando Valley communities that are both within and outside of the Los Angeles city limits. LAGWRP was constructed in 1972 and has been operating since 1976. The LAGWRP is the first water reclamation plant in the City of Los Angeles. The cities of Los Angeles and Glendale (which is located to the east of the LAGWRP) co-own the plant, where each city pays 50 percent of the costs and receives an equal share of the recycled water produced by the plant. LAGWRP is a regionally strategic facility within both the City of Los Angeles and City of Glendale's overall wastewater system in addition to being a significant recycled water producer. By processing flows in the eastern San Fernando Valley, the plant is able to provide critical hydraulic relief to the City of Los Angeles's major sewers downstream.

The plant is designed and permitted to treat average dry weather flow of 20 million gallons per day (MGD). Treatment consist of preliminary and primary treatment processes, biological nitrogen removal activated sludge process, filtration treatment, disinfection (chloramination) and dechlorination for product water discharged to the Los Angeles River. The plant's product water is pumped to the "Title 22" recycled water distribution system (non-potable reuse) and then used for landscape irrigation at to Griffith Park, the Los Angeles Greenbelt Project and other uses, the remainder of the flows are sent by gravity to the Los Angeles River. Treatment level "Title 22" standards for water reclamation are established under Title 22, Division 4, Environmental Health, California's Water Recycling Criteria. All solids removed from the treatment process are discharged to the sewer for conveyance to the Hyperion Water Reclamation Plant for treatment and beneficial use.

LASAN is proposing to implement both operational and administrative improvements for existing uses at the LAGWRP. These projects are included in its Capital Improvement Program (CIP) as CIP 4176 LAGWRP Primary Effluent Equalization Storage Project (Equalization Storage Project), and the CIP 4170 LAGWRP Personnel Building Project (Personnel Building Project) which includes the rehabilitation of the existing Administration Building. A third project, the CIP 4187 Blower Air Clean-up System, will be constructed during the same timeframe as the proposed projects. That project was subject to a separate CEQA Notice of Exemption; however, it is discussed in this document in order to assess any potential cumulative impacts. Implementation of the three projects will be coordinated in parallel or sequentially to minimize costs and construction time and to maximize efficiency.

The Personnel Building project will design and construct a new administrative/operations building for existing LAGWRP personnel. In addition, the existing Administration building located onsite will be remodeled (interior only).

The proposed facilities would be located within the existing fenced boundary of the LAGWRP on land owned by the City of Los Angeles and City of Glendale.

Project Components

The major components of the project are:

1. Equalization Storage Project

The Equalization Storage Project will serve to improve the existing process designed to provide consistent flow and loading to LAGWRP processes to maintain optimum treatment at the plant, provide for enhanced operational flexibility and reliability, and add a total of approximately 5.64 million gallons (MG) ~~5 MG~~ of storage required for the collection system to provide the required wet weather relief at the downstream reaches of the LAGWRP.

The project includes the following structures for existing uses:

Two primary clarifiers

Two new primary clarifiers will be constructed and integrated with existing eight primary clarifiers to provide for operational flexibility and 0.44 MG of storage for upstream sewer relief during wet weather.

One 2.5 MG EQ tank

A 2.5 MG EQ tank will be constructed to provide constant flow and loading to the biological treatment system. The 2.5 MG of storage will also be used for upstream sewer relief during wet weather. The 2.5 MG tank will be used daily to temporarily store wastewater or primary effluent during high flow and release back to headwork's during low flow times. This tank will be integrated with existing structures via extended influent and effluent channels. Piping galleries would connect the tank to the existing systems.

Three aeration tanks

Three new aeration tanks will be constructed and integrated with existing channels, galleries and 6 aeration tanks. One tank, Tank No. 7, will be retrofitted for biological nutrient removal (BNR) with baffles, 3 mixers and one internal recycle pump and will provide stand-by capacity. ~~Tank No. 7, retrofitted for biological nutrient removal (BNR), will provide stand-by capacity.~~ Three tanks, Tanks No. 8, No. 9 and a designated tank (any No. 1 through No. 6) will be used during wet weather events to provide 2.7 MG capacity (each tank is ~ 0.9 MG capacity) and a total of 5.64 MG storage (with the 2.5 MG EQ tank, 0.44 MG primary clarifiers). Tank No. 7 ~~tank~~ will be used for operational flexibility and maintaining the existing tanks (No. 1 through 6). As such, there will be no increase in energy usage at the site from the additional BNR equipment (3

mixers, one internal recycle pump). Each new aeration tank would ~~be~~ match the existing (structure, piping, gates).

Two secondary clarifiers

Two secondary clarifier channels will be installed. Secondary clarifiers follow the BNR activated sludge process to provide for settling of mixed liquor suspended solids. Influent and effluent channels, and piping galleries would match existing (structure, equipment); approximately connect the clarifiers to the rest of the treatment system.

Piping and Appurtenances

Two 24 inch discharge pipes to the headworks of the plant will be constructed and in-plant sewers will be installed to draw from the 2.5 MG EQ tank. The project will require the extension of existing channels, galleries and piping to integrate new structures with existing and integration with existing electrical and control systems

2. Personnel Building Project

The Personnel Building Project will design and construct an estimated 7,000 sq. ft. 2-story building of 15,000 sq. ft. with breaking vistas of the Los Angeles River for existing LAGWRP personnel. The new facility will provide permanent office space for existing Operations Staff, additional laboratory space for the Environmental Monitoring Division and offices for environmental monitoring staff, and sufficient locker room and shower facilities for Operators and space for Human Resources staff (safety engineer), lunch room and conference rooms and community meeting room. The building is adjacent to the Los Angeles River, but completely inside the LAGWRP site.

The existing Administration Building onsite will also be remodeled to provide training rooms and auxiliary space for the City's staff assisting the City of Los Angeles's programs. The remodel of the building is part of the Personnel Building Project (CIP 4170) and will be completed in conjunction with it. The work will be inside of the building and is not intended to provide space for additional workers on site. It is to support existing staff and provide additional meeting space. Grading for the new Personnel Building will extend up to the existing Administration Building per the project plans for sidewalk and landscape continuity. Existing vegetation to be excavated is mostly turf.

3. Other Relevant Activities

Pond

There is an unutilized lined existing pond within the existing boundary of the LAGWRP. The pond has been out of operation since 2012 and there is no need to put it back into service as the process function is no longer required.

As part of the Equalization Storage Project, the pond will be modified into a water feature and landscape to integrate the EQ storage tank, the new aeration tanks, and the new Personnel Building as well as transportation /traffic circulation through the plant (for chemical delivery, etc.).

Site Work

A geotechnical report was prepared for the project which addresses surficial soils, site preparation, site earthwork, and foundations. In general, grading for the proposed project would consist of excavation for construction of building foundations and/or water treatment structures and minor vertical modifications to existing site roads and/or driveways to accommodate building construction.

All such work would be on the existing LAGWRP site. Staging areas would be on site. Exported excavated soil would be used as cover at local landfills, and construction debris would be recycled or disposed of at local landfills.

Project Construction

Construction of the Project components is expected to take approximately 24 months. The anticipated construction start date in the second or third quarter of 2018 for the Personnel Building, and first quarter 2019 for the Equalization Storage Project. Anticipated earliest date of completion is the first quarter 2020 for the Personnel Building, and first quarter 2021 for the Equalization Storage Project. The rehabilitation of the existing Administration Building is estimated to occur simultaneously with the construction of the other components; however design and scheduling have not yet been finalized.

Summary of Environmental Impacts

An analysis of environmental impacts potentially caused by the Proposed Project has been conducted and is contained in this IS/MND. Table ES-1 provides a summary of the environmental impacts that would result during construction and operation of the Proposed Project, mitigation measures that would lessen significant environmental impacts, and the level of significance of the environmental impacts that would remain after implementation of mitigation. For those impacts determined to be less than significant and requiring no mitigation measures, a "Not Applicable" determination is stated under the "Level of Significance After Mitigation" column within Table ES-1.

The Proposed Project would create short-term significant impacts to biological resources, cultural resources, and noise requiring mitigation measures to reduce the impacts to a less than significant level. Specific mitigation measures have been identified to reduce the short-term impacts to a less than significant level. The Proposed Project would not lead to any long-term significant impacts during postconstruction operations.

Table ES - 1: Summary of Environmental Impacts and Mitigation Measures

Potential Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance After Mitigation
AESTHETICS			
The Proposed Project would have substantial adverse effect on a scenic vista	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not substantially degrade the existing visual character or quality of the site and its surroundings.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	No impact	No mitigation measures are required.	Not applicable
AGRICULTURE AND FORESTY RESOURCES			
The Proposed Project would not convert farmland to another non-agricultural use.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not conflict with existing zoning for agricultural use or a Williamson Act contract.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not conflict with existing zoning, or cause rezoning of, forest land or timberland.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not result in loss of forest land or conversion of forest land to non-forest use.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not involve changes in the existing environment which, due to their location or nature, would result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use.	No impact	No mitigation measures are required.	Not applicable
AIR QUALITY			
The Proposed Project would not conflict with or obstruct implementation of the applicable air quality plan.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would cause a violation of an air quality standard or contribute substantially to an existing or projected air quality violation as a result of daily NOx emissions and localized construction PM10 emissions during construction activities.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would result in a cumulatively considerable net increase of criteria pollutant emissions associated with construction of the Proposed Project.	Less than Significant	No mitigation measures are required.	Not applicable

Potential Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance After Mitigation
The Proposed Project would not expose sensitive receptors to substantial pollutant concentrations that would result in a health risk for the residents.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not create objectionable odors affecting a substantial number of people.	Less than Significant	No mitigation measures are required.	Not applicable
BIOLOGICAL RESOURCES			
The Proposed Project would cause a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or the United States Fish and Wildlife Service (USFWS).	Less than Significant with Mitigation Incorporated	**BIO-1**Prior to start of project activities, a qualified biologist should conduct a Worker Environmental Awareness Program training to orient staff with sensitive biological resources that may occur within the project site and adjacent areas and provide information on sensitive work practices. **BIO-2** To avoid impacts to nesting birds, project-related activities should occur outside of the bird breeding season (February 1 to August 31) to the extent practicable. If project activities must occur within the bird breeding season, no more than three days prior to initiation of ground disturbance and/or vegetation removal, a nesting bird and raptor pre-activity survey should be conducted by a qualified biologist within the disturbance footprint plus a 100 foot buffer, where practicable. If the project is phased, a subsequent pre-activity nesting bird and raptor survey may be required prior to each phase of construction. Results of the nesting bird and raptor survey, if applicable, should be documented. **BIO-3** If active nests are found, an avoidance buffer ranging in size from 25 to 50 feet for song birds, and up to 250 feet for raptors depending upon the species and the proposed work activity, should be determined and demarcated by a qualified biologist. A qualified biologist may adjust this buffer size depending on the potential disturbance from the project activities to the nesting birds. Active nests should be monitored at a minimum of once per week until it has been determined that the nest is no longer being used by either the young or adults. No ground disturbance should occur within this buffer until the qualified biologist confirms that the breeding/nesting is completed and all young have fledged. If project activities must occur within the buffer, they should be conducted at the discretion of the qualified biologist.	Less than Significant
The Proposed Project would cause a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would cause a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Less than Significant with Mitigation Incorporated	**BIO-4** Trees that occur within the proposed project footprint that may be impacted by trimming, removal, relocation, or may impact the tree's root structure, should be identified on project plans with the associated tree species and DBH. Impacts to native oak tree species, defined to be valley oak (*Quercus lobata*) and California live oak (*Quercus*	Less than Significant

Potential Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance After Mitigation
		agrifolia), or any other tree of the oak genus indigenous to California which measures eight inches or more in diameter, four and one-half feet above the ground level at the base of the tree, should be assessed and a tree removal permit from the City of Los Angeles should be acquired prior to the start of project activities.	
The Proposed Project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	No impact	No mitigation measures are required.	Not applicable
CULTURAL RESOURCES			
The Proposed Project would not cause a substantial adverse change in the significance of a historical resource.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would potentially cause a substantial adverse change in the significance of an archaeological resource during Project construction.	Less than Significant with Mitigation Incorporated	**CR-1 Unanticipated Discoveries.** In the event that archaeological resources are encountered during ground-disturbing activities, work in the immediate area shall halt, and an archaeologist meeting the Secretary of Interior's Professional Qualifications Standards for archaeology (NPS 1983) shall be contacted immediately to evaluate the find. Evaluation of significance for the find may include the determination of whether or not the find qualifies as an archaeological site. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for CRHR or NRHP eligibility. If the discovery proves to be significant and cannot be avoided by the project, additional work, such as data recovery excavation, may be warranted to mitigate any significant impacts to archaeological resources. Mitigation of significant impacts to the find may include a damage assessment of the find, archival research, and/or data recovery to remove any identified archaeological deposits, as determined by the qualified archaeologist. After effects to the find have been appropriately mitigated, work in the area may resume. After any cultural resources find during construction, an archaeological monitor shall be retained for the duration of all ground-disturbing activities. In the event that the discovery is found to be Native American in origin, a Native American monitor shall also be retained for the duration of all ground-disturbing activities.	Less than Significant
The Proposed Project would potentially cause a substantial adverse change in the significance of a paleontological resource during Project construction.	Less than Significant with Mitigation Incorporated	**CR-2 Retain a Qualified Paleontologist.** Prior to initial ground disturbance, the applicant shall retain a project paleontologist, defined as a paleontologist who meets the SVP standards for Qualified Professional Paleontologist, to direct all mitigation measures related to paleontological resources. A qualified paleontologist (Principal Paleontologist) is defined by the SVP standards as an individual with an M.S. or Ph.D. in paleontology or geology who is experienced with paleontological procedures and techniques, who is knowledgeable in the geology of California, and who has worked as a paleontological mitigation project supervisor for a least one year (SVP 2010). **CR-3 Paleontological Worker Environmental Awareness Program (WEAP).** Prior to the start of construction, the project paleontologist or his or her designee shall conduct training for construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction staff. The WEAP shall be fulfilled at the time of a preconstruction meeting at which a qualified paleontologist shall attend. **CR-4 Paleontological Monitoring.** Ground disturbing construction activities (including grading, trenching, foundation work, and other excavations) that exceed 10 feet in depth anywhere on the site should be monitored on a full-time basis by a qualified paleontological	Less than Significant

Potential Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance After Mitigation
		monitor during initial ground disturbance. Monitoring should be conducted by a qualified paleontological monitor, who is defined as an individual who has experience with collection and salvage of paleontological resources (SVP 2010). The duration and timing of the monitoring will be determined by the project paleontologist and the location and extent of proposed ground disturbance. If the project paleontologist determines that full-time monitoring is no longer warranted, based on the specific geologic conditions at the surface or at depth, the lead paleontologist may recommend that monitoring be reduced to periodic spot-checking or cease entirely. Ground disturbing activity that does not exceed 10 feet in depth within Quaternary alluvium would not require paleontological monitoring. **CR-5 Fossil Discovery.** In the event of a fossil discovery by construction personnel, all work in the immediate vicinity of the find shall cease and a qualified paleontologist shall be contacted to evaluate the find before restarting work in the area. If it is determined that the fossil(s) is(are) scientifically significant, the qualified paleontologist shall complete the following conditions to mitigate impacts to significant fossil resources. If fossils are discovered, the project paleontologist or paleontological monitor should recover them. Typically fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case the paleontologist should have the authority to temporarily direct, divert, or halt construction activity to ensure that the fossil(s) can be removed in a safe and timely manner. Once salvaged, significant fossils should be identified to the lowest possible taxonomic level, prepared to a curation-ready condition, and curated in a scientific institution with a permanent paleontological collection (such as the Natural History Museum of Los Angeles County), along with all pertinent field notes, photos, data, and maps. Fossils of undetermined significance at the time of collection may also warrant curation at the discretion of the project paleontologist. **CR-6 Final Paleontological Mitigation Report.** Upon completion of ground disturbing activity (and curation of fossils, if necessary) the qualified paleontologist should prepare a final mitigation and monitoring report outlining the results of the mitigation and monitoring program. The report should include discussion of the location, duration and methods of the monitoring, stratigraphic sections, any recovered fossils, and the scientific significance of those fossils, and where fossils were curated.	
The Proposed Project would potentially disturb human remains during Project construction.	Less than Significant	No mitigation measures are required.	Not applicable
GEOLOGY AND SOILS			
The Proposed Project would not expose people or structures to risk of loss, injury, or death involving fault rupture or landslides. The Proposed Project would not result in exposure of people or structures to risk of loss, injury, or death involving seismic ground shaking or liquefaction.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not result in substantial soil erosion or the loss of topsoil.	Less than Significant	No mitigation measures are required.	Not applicable

Potential Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance After Mitigation
The Proposed Project would not be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse resulting from unstable soils.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not create risks to life or property resulting from expansive soils.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project does not include the use of septic tanks or alternative waste water disposal systems.	Less than Significant	No mitigation measures are required.	Not applicable
GREENHOUSE GAS EMISSIONS			
Operation of the Proposed Project would not generate GHG emissions exceeding the SCAQMD threshold.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions.	Less than Significant	No mitigation measures are required.	Not applicable
HAZARDS AND HAZARDOUS MATERIALS			
The Proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project may be located on or immediately adjacent to a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. However, it would not create a significant hazard to the public or the environment.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project is located within 2 miles of a public airport or public use airport; however, it would not result in a safety hazard for people residing or working in the project area.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project is not within the vicinity of a private airstrip and would not result in a safety hazard for people residing or working in the project area.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	Less than Significant	No mitigation measures are required.	Not applicable

Potential Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance After Mitigation
The Proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires.	No impact	No mitigation measures are required.	Not applicable
HYDROLOGY AND WATER QUALITY			
The Proposed Project would not violate any water quality standards, waste discharge requirements, or otherwise substantially degrade water quality.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not substantially degrade water quality.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not place within a 100-year flood hazard area structures which would impede or redirect flood flows.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not expose people or structures to a significant inundation by seiche, tsunami, or mudflow	Less than Significant	No mitigation measures are required.	Not applicable
LAND USE AND PLANNING			
The Proposed Project would not physically divide an established community.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not conflict with any applicable habitat conservation plan or natural community conservation plan.	No impact	No mitigation measures are required.	Not applicable

Potential Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance After Mitigation
MINERAL RESOURCES			
The Proposed Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.	No impact	No mitigation measures are required.	Not applicable
NOISE			
Short-term and temporary construction activity at DCTWRP, along the proposed recycled water pipeline, and at PSG would expose persons to or generate noise levels in excess of applicable standards established in the local general plan or noise ordinance.	Less than Significant	No mitigation measures are required.	Not applicable
Construction of the warehouse at DCTWRP, although temporary, would generate vibration levels that would expose persons to excessive groundborne vibration or groundborne noise levels and interfere with events at the Japanese Garden.	Less than Significant	No mitigation measures are required.	Not applicable
Operation of the Proposed Project would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the Project.	Less than Significant Impact with Mitigation Incorporated	**NOI-1** The on-site construction activity schedules are from 6:30 AM to 3:30 PM, Monday through Friday. The hours of construction, including noisy maintenance activities and all spoils and materials transport, shall be restricted to the periods and days permitted by the local noise or other applicable ordinance. Noise-producing project activity shall comply with local noise control regulations affecting construction activity or obtain exemptions therefrom. **NOI-2** All noise-producing project equipment and vehicles using internal combustion engines (including haul trucks) shall be professionally fitted with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features. These devises shall be professionally maintained in good operating condition so as to meet or exceed original factory specification. **NOI-3** All mobile or fixed noise-producing equipment used that is regulated for noise output by a local, state, or federal agency shall comply with such regulation while in the course of project activity. **NOI-4** Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors. **NOI-5** Construction site and access road speed limits shall be established and enforced during the construction period. **NOI-6** The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only. **NOI-7** Electrically powered equipment instead of pneumatic or internal combustion	Less than Significant

Potential Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance After Mitigation
		powered equipment shall be used, where feasible.	
Construction of the Proposed Project would result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project.	Less than Significant Impact with Mitigation Incorporated	**NOI-1** The on-site construction activity schedules are from 6:30 AM to 3:30 PM, Monday through Friday. The hours of construction, including noisy maintenance activities and all spoils and materials transport, shall be restricted to the periods and days permitted by the local noise or other applicable ordinance. Noise-producing project activity shall comply with local noise control regulations affecting construction activity or obtain exemptions therefrom. **NOI-2** All noise-producing project equipment and vehicles using internal combustion engines (including haul trucks) shall be professionally fitted with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features. These devises shall be professionally maintained in good operating condition so as to meet or exceed original factory specification. **NOI-3** All mobile or fixed noise-producing equipment used that is regulated for noise output by a local, state, or federal agency shall comply with such regulation while in the course of project activity. **NOI-4** Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors. **NOI-5** Construction site and access road speed limits shall be established and enforced during the construction period. **NOI-6** The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only. **NOI-7** Electrically powered equipment instead of pneumatic or internal combustion powered equipment shall be used, where feasible.	Less than Significant
The Proposed Project would not expose people working or residing in the project area to excessive noise associated with an airport land use plan or within two miles of a public airport.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not expose people working or residing in the project area to excessive noise associated with a private airstrip.	No impact	No mitigation measures are required.	Not applicable
POPULATION AND HOUSING			
The Proposed Project would not induce substantial population growth, either directly or indirectly.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere.	No impact	No mitigation measures are required.	Not applicable

PUBLIC SERVICES			
The Proposed Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities in order to maintain acceptable service ratios, response times, or other performance objectives.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities in order to maintain acceptable service ratios, response times, or other performance objectives.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities in order to maintain acceptable service ratios or other performance objectives.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered parks and recreational facilities.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not directly or indirectly result in an increase in population. Thus, the proposed project would not result in an increase in library, community center, or other public facility use in the project area.	No impact	No mitigation measures are required.	Not applicable
RECREATION			
The Proposed Project would not directly or indirectly increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project does not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	Less than Significant	No mitigation measures are required.	Not applicable
TRANSPORTATION/TRAFFIC			
Construction of the Proposed Project would conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses	Less than Significant	No mitigation measures are required.	Not applicable

(e.g., farm equipment).			
The Proposed Project would not result in inadequate emergency access.	No impact	No mitigation measures are required.	Not applicable
Construction of the Proposed Project may conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, otherwise decrease the performance or safety of such facilities.	No impact	No mitigation measures are required.	Not applicable
TRIBAL CUTURAL RESOURCES			
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code.	No impact	No mitigation measures are required.	Not applicable
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	No impact	No mitigation measures are required.	Not applicable
UTILITIES AND SERVICES SYSTEMS			
The Proposed Project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not require or result in the construction of new water or wastewater treatment facilities, the construction of which could cause significant environmental effects. Additionally, the Proposed Project would not result in a determination by the wastewater treatment provider that serves or may serve the project that is has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	No impact	No mitigation measures are required.	Not applicable
Sufficient water supplies are available to serve the Proposed Project from existing entitlements and resources.	No impact	No mitigation measures are required.	Not applicable
The Proposed Project would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.	Less than Significant	No mitigation measures are required.	Not applicable
The Proposed Project would comply with federal, state, and local statutes and regulations related to solid waste.	No impact	No mitigation measures are required.	Not applicable

Section 1: Mitigated Negative Declaration

1. Project Title:	Los Angeles-Glendale Water Reclamation Plant Primary Effluent Equalization Storage and Personnel Building
2. Lead Agency Name and Address:	City of Los Angeles Bureau of Sanitation Water Reclamation Division 4600 Colorado Blvd. Los Angeles, CA 90039
3. Contact Person and Phone Number:	Cyrous Gilani, (323) 342-1580 Cyrous.Gilani@lacity.org
4. Project Location:	Los Angeles-Glendale Water Reclamation Plant, 4600 Colorado Blvd., Los Angeles, CA 90039
5. Project Sponsor Name and Address:	City of Los Angeles Bureau of Sanitation Water Reclamation Division 4600 Colorado Blvd. Los Angeles, CA 90039
6. General Plan Designation:	The proposed project will be constructed and operated on land designated by the Los Angeles County General Plan (General Plan) as public facilities, open space and industrial. Additionally, the proposed will be consistent with the General Plan and the policies advocated in that plan.
7. Zoning:	Zoning designations include the R (residential), C (commercial), and M (industrial) series, as well as other designated zones such as public facilities and open space.

8. Description of Project:

City of Los Angeles Bureau of Sanitation (LA Sanitation, LASAN) is proposing operational and physical administration upgrades for existing uses at the Los Angeles-Glendale Water Reclamation Plant (LAGWRP). The proposed project includes three primary elements: Primary Effluent Equalization Storage Project, new Personnel Building and rehabilitation of the existing Administration Building.

9. Surrounding Land Uses and Setting:

All project activities will occur within the existing LAGWRP site. The site is mainly industrial and heavily disturbed (i.e., paved, concrete, etc.). The LAGWRP is located adjacent to the Los Angeles River and the Interstate 5-S freeway. A small public park runs adjacent to the west of the facility, outside of the boundary.

The Zoning Information and Map Access System (ZIMAS) designates the proposed project site as a "PF" Public Facilities Zone. The following is the land survey information of the proposed project site collected from the Public Land Survey System:

Assessor Parcel:	5593018903
Section:	29
Township:	1N
Range:	13W

10. Public Review:

Copies of the Draft and Final Mitigated Negative Declaration and Initial Study are available for public review at:

City of Los Angeles Bureau of Sanitation
2714 Media Center Drive
Los Angeles, CA 90065
Cyrous Gilani, (323) 342-1580, Email: Cyrous.Gilani@lacity.org

The ~~Draft~~ documents can also be downloaded in digital format from the City's website at https://www.lacitysan.org/san/faces/wcnav_externalId/s-lsh-wwd-cw-p-lagwrp.

~~A hardcopy~~Hardcopies of the draft document ~~has also been~~were provided ~~at~~ to the following libraries for viewing:

Atwater Village Branch Library
3379 Glendale Blvd.
Los Angeles, CA 90039

Los Feliz Branch Library
1874 Hillhurst Avenue
Los Angeles, CA 90027

The public review period for the Initial Study/Mitigated Negative Declaration (IS/MND) began ~~in~~ on October 31, 2017 and ~~closes~~ closed ~~in~~ on November 30, 2017 after a 30-day review period. ~~See the Notice of Intent for the exact 30-day review period.~~ See Sections 2.2.3 and 2.2.4 for other public agencies whose approval is required.

11. Mitigation Measures:

All mitigation measures identified in the Initial Study are prepared for adoption as conditions of the project and will be implemented through a mitigation monitoring and reporting program adopted with the Mitigated Negative Declaration (MND).

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would potentially be significantly affected by this Project as indicated by the checklist on the following pages.

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

Prepared by: Kennedy/Jenks Consultants
J. Lauren Everett Smith, Project Manager
Rachel Druffel-Rodriguez, Project Engineer
Meredith Clement, Project Manager, QA/QC

Co-Occurrence by City of Los Angeles, Bureau of Sanitation
Cyrous Gilani, Group Manager, Odor Control, LASAN Wastewater Engineering Services
Joline Munoz, Environmental Engineer, LASAN Water Reclamation Division

DETERMINATION: (To be completed by the Lead Agency)
On the basis of this initial evaluation:

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

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

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

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

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

Roshanak Aflaki — 10.25.2017

Signature — Date

Roshanak Aflaki, LASAN Water Reclamation Division Manager

Title — For

Section 2: Introduction

2.1 California Environmental Quality Act Compliance

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared in accordance with the California Environmental Quality Act (CEQA) (Ca. Pub. Res. Code Section 21000 et seq.) and State CEQA Guidelines (14 Cal Code of Regs. Section 15000 et seq.). This document evaluates the potential project impacts and evaluates the potential for mitigation measures to lessen and avoid significant impacts. This IS/MND will be distributed to public agencies and other interested parties for review. Comments on the IS/MND should be submitted in writing prior to the end of the public review period. Prior to making a determination, LASAN will consider the IS/MND together with the comments received during the public comment period. LASAN will adopt the IS/MND only if it finds, on the basis of the whole record, that there is no substantial evidence that the project will have a significant effect on the environment.

2.1.1 CEQA-Plus Evaluation

This IS/MND has also been prepared to address compliance with the National Environmental Policy Act (NEPA). This will assist LASAN in the event federal funding is pursued for the project. At the current time, there is no federal lead agency associated with the project, so while this IS/MND includes the content needed for NEPA compliance, it does not include all the processes required to complete NEPA (Notice of Intent, Notice of Availability, filing with the Federal Register, or preparing a Record of Decision). Under NEPA a federal agency may use a completed CEQA document if that document meets NEPA requirements.

2.1.2 List of Potential Discretionary Actions

The following discretionary actions may potentially be required in order to implement the proposed project. Note that the following list is preliminary, subject to revision, and may not be comprehensive:

- Approval of the proposed project and CEQA document by the LASAN Director
- Los Angeles City Council

2.1.3 Other Responsible and Trustee Agencies

This IS/MND is intended for use by responsible and trustee agencies that may have an interest in reviewing the proposed project. The following is a list of potential responsible and trustee agencies for the proposed project, which will be asked to review this document:

- LASAN – operator and owner of LAGWRP
- City of Glendale – joint owner of LAGWRP
- LASAN Bureau of Engineering (BOE), Environmental Engineering Division (EED) – design engineer or record
- City of Los Angeles Board of Public Works
- Los Angeles City Council

2.1.3.1 California Native American Tribe Consultation

A Cultural Resources Study for the project was conducted by Rincon Consultants, Inc. (Rincon). The study was prepared in accordance with CEQA statutes and guidelines, and the California State Water Resources Control Board's Clean Water State Revolving Fund criteria for CEQA-Plus cultural resources studies. The cultural resources study includes a records search, Native American consultation, local interested parties consultation, and an intensive pedestrian survey of the project site. The study is included as Appendix E to this report, and documents AB 52 and Section 106 consultation.

2.1.4 Public Review Process

In reviewing the IS/MND, affected public agencies and the interested public should focus on the sufficiency of the document in identifying and analyzing the proposed project's possible impacts on the environment. A copy of the draft and final IS/MND and related documents are available for review at LASAN (see address below) generally between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday:

City of Los Angeles Bureau of Sanitation
2714 Media Center Drive
Los Angeles, CA 90065
Cyrous Gilani, (323) 342-1580, Email: Cyrous.Gilani@lacity.org

The Draft and Final document can also be downloaded in digital format from the City's website at https://www.lacitysan.org/san/faces/wcnav_externalId/s-lsh-wwd-cw-p-lagwrp.

A hardcopy of the draft documents ~~has also been~~were provided ~~at~~ to the following libraries for viewing:

Atwater Village Branch Library
3379 Glendale Blvd.
Los Angeles, CA 90039

Los Feliz Branch Library
1874 Hillhurst Avenue
Los Angeles, CA 90027

Substantive environmental comments on the IS/MND were ~~may be~~ made in writing before the end of the public review period. The 30-day review and comment period began ~~in~~ on October 30, 2017 and ended ~~in~~ on November 30, 2017 (although extended to December 5, 2017 to ensure all comments received), ~~has been~~and was established in accordance with Section 15072(a) of the CEQA Guidelines. See the Notice of Intent for the exact review period dates. Following the close of the public comment period, LASAN ~~will~~ considered the IS/MND and comments thereto in determining whether to both adopt this document and approve the proposed project.

2.2 Organization of this Initial Study/MND

This MND is comprised of seven sections and technical appendices:

- **Section 1 – Mitigated Negative Declaration**. This section provides a summary of the project and LASAN's determination pursuant to CEQA.

- **Section 2 – Introduction**. This section provides an introduction and summary of the CEQA process in relation to the project.

- **Section 3 – Project Description**. This section provides a discussion of the project location, a summary of the existing environmental conditions, and a detailed description of the proposed project.

- **Section 4 – Federal Cross-Cutters.** This section describes how this IS/MND demonstrates the project addresses federal laws, executive orders, and government-wide policies, on Environmental Protection Agency's (EPA's) behalf as appropriate, in order to make the project eligible to receive federal funding.

- **Section 5 – Environmental Checklist**. This section contains the CEQA checklist form that provides an overview of the project's potential impacts, as well as detailed analyses of the anticipated project-related and cumulative environmental impacts. Mitigation measures have been identified to eliminate potential significant effects or reduce them to a level that is considered less than significant. This section also includes the mandatory findings of significance, as required by CEQA.

- **Section 6 – Mitigation Monitoring and Reporting Plan**. This section includes a program for reporting on or monitoring the changes which LASAN has either required in the project or made a condition of approval to mitigate or avoid significant environmental effects, as required by CEQA Section 15074(d). Adoption of the monitoring and reporting plan by LASAN must occur at the same time it considers adoption of the MND.

- **Section 7 – List of Preparers**. This section lists report authors and reviewers, including staff from LASAN BOE, EED, Kennedy/Jenks Consultants, Kunzman and Associates, and Rincon Consultants.

- **Section 8 – References**. This section identifies those references used in preparation of this MND.

Section 3: Project Description

3.1 Project Background and Objectives

LASAN operates and maintains the LAGWRP, which provides water reclamation for the eastern San Fernando Valley communities that are both within and outside of the Los Angeles city limits. LAGWRP was constructed in 1972 and has been operating since 1976. The LAGWRP is the first water reclamation plant in the City of Los Angeles. The cities of Los Angeles and Glendale (which is located to the east of the LAGWRP) co-own the plant, where each city pays 50 percent of the costs and receives an equal share of the recycled water produced by the plant. LAGWRP is a regionally strategic facility within both the City of Los Angeles and City of Glendale's overall wastewater system in addition to being a significant recycled water producer. By processing flows in the eastern San Fernando Valley, the plant is able to provide critical hydraulic relief to the City of Los Angeles's major sewers downstream.

The plant is designed and permitted (NPDES permits #R4-2007-0006 and R4-2007-0007) to treat and reuse average wet and dry weather flow of 20 million gallons per day (MGD). Treatment consist of preliminary and primary treatment processes, biological nitrogen removal activated sludge process, filtration treatment, disinfection (chloramination) and dechlorination for product water discharged to the Los Angeles River. The plant's product water is pumped to the "Title 22" recycled water distribution system and then used for landscape irrigation at to Griffith Park, the Los Angeles Greenbelt Project and other uses, the remainder of the flows are sent by gravity to the Los Angeles River. Treatment level "Title 22" standards for water reclamation are established under Title 22, Division 4, Environmental Health, California's Water Recycling Criteria. All solids removed from the treatment process are discharged to the sewer for conveyance to the Hyperion Water Reclamation Plant for treatment and beneficial use.

All recycled water from the LAGWRP permitted for non-potable use is highly treated (tertiary) effluent that meets and exceeds the water quality standards for recycled water, irrigation and industrial uses. The plant is highly automated with staff controlling and monitoring processes from the Plant Distributed Control System (DCS) from the onsite control room or at remote locations.

LASAN is proposing to implement both operational and administrative improvements for existing uses at the LAGWRP. These projects are included in its Capital Improvement Program (CIP) as CIP 4176 LAGWRP Primary Effluent Equalization Storage Project (Equalization Storage Project), and the CIP 4170 LAGWRP Personnel Building Project (Personnel Building Project) which includes the rehabilitation of the existing Administration Building. A third project, the CIP 4187 Blower Air Clean-up System, will be constructed during the same timeframe as the proposed projects. That project was subject to a separate CEQA Notice of Exemption; however, it is discussed in this document in order to assess any potential cumulative impacts. Implementation of the three projects will be coordinated in parallel or sequentially to minimize costs and construction time and to maximize efficiency.

The Equalization Storage Project will improve existing uses at the LAGWRP such as providing equalization (EQ) for influent diurnal flow, consistent flow and loading to a biological process which is important to maintain optimal treatment, enhance operational flexibility and reliability,

and add a total of 5 million gallons (MG) of storage required for the collection system to provide the required relief at the downstream reaches of the LAGWRP. The proposed upgrades are for existing uses and will not increase the capacity of the LAGWRP. The LAGWPR National Pollutant Discharge Elimination System (NPDES) permit (R4-2007-0007) and Water Recycling Permit (R4-2006-0007) will not change due to installation of proposed structures for existing uses under this project. Proposed structures will provide only for (a) equalization of diurnal flow and (b) wet weather storage and release respectively.

The Personnel Building project will design and construct a new administrative/operations building for existing LAGWRP personnel. In addition, the existing Administration building located onsite will be remodeled (interior only).

3.2 Project Location

LAGWRP is located in the Glendale Narrows area of northeast City of Los Angeles. The location of the existing plant is shown in Figure A-1 (see Appendix A).

3.3 Project Components

The major components of the project are described in the following sections.

3.3.1 Equalization Storage Project

The Equalization Storage Project will serve to improve the existing process designed to provide consistent flow and loading to LAGWRP processes to maintain optimum treatment at the plant, provide for enhanced operational flexibility and reliability, and add a total of 5.64 MG of storage required for the collection system to provide the required wet weather relief at the downstream reaches of the LAGWRP.

The proposed facilities would be located within the existing fenced boundary of the LAGWRP on land owned by the City of Los Angeles and City of Glendale. A preliminary schematic of the proposed facilities' layout per pre-design (City of Los Angeles, June 14, 2017) is shown on Figure A-2 (see Appendix A). An aerial view of the project is provided as in Figure A-3 in Appendix A, and a 3D model rendering is shown on Figure A-4 in Appendix A. Although the Engineer of Record has performed substantial design for the project in order to determine its scope and potential cost, the final engineering design (construction documents or bridging documents depending on design-bid-build or design build construction vehicle) for the project will not be completed prior to the third Quarter of 2018. A master planning document for the LAGWRP activities is also currently being drafted with projected completion the second Quarter of 2018. It is possible that the layouts may change as a result of coordination of all project activities; however, it is not anticipated to change to the extent that calculations would have to be redone. Rather, for all construction impact calculations (described in Section 3.3.4.2 below) the most conservative values for potential impact were used in the analysis.

The Equalization Storage Project would include the construction of modifications/additions to existing structures and equipment inside new structures for integrations with existing, controls and monitoring to secure consistent flow and loading; and construction of pipelines and other

associated facilities in previously disturbed areas. Construction of the modifications/additions, including the associated appurtenances and pipelines, would involve demolition, grading and excavation activities all within the existing LAGWRP site boundary.

Specifically, the Equalization Storage Project will construct the following within the exiting LAGWRP site:

One 2.5 MG EQ tank

A 2.5 MG EQ tank will be constructed to provide constant flow and loading (Biochemical Oxygen Demand [BOD]; Nitrogen) to the biological treatment system. The 2.5 MG of storage will add to the existing tank volumes to provide a total of 5.64 MG of storage for upstream sewer relief during wet weather. The operational storage tank would be added to provide temporary storage of primary treated effluent that would provide daily flow EQ. Influent and effluent channels, and piping galleries would connect the tank to the existing systems. The tank, which would be installed to the west of the new primary clarifiers, would be approximately 160 feet long, 140 feet wide, and 16 feet deep (see Figure A-4 in Appendix A). The area of tank is approximately 22,400 square feet (sq. ft.).

Two primary clarifiers

Two new primary clarifiers will be constructed in an approximately 6,070 sq. ft. area to the west of the existing primary clarifiers and east of the new EQ storage tank. Primary clarifiers receive influent for treatment and remove settleable and floatable material, and oil and grease. Influent and effluent channels, and piping galleries would connect the clarifiers to the existing systems. A mobile office trailer is located where the personnel building is planned. The trailer will be demolished and the new personnel building will provide for staff currently working from the trailer. The primary clarifier tank/channels would match existing (structure, equipment); approximately 143 feet long, 22 feet wide, and 20 feet deep (see Figure A-4 in Appendix A). Concrete wall thickness will be determined during detailed design but are projected to match the existing walls, i.e., in the 1-foot range (see Figure A-4 in Appendix A).

Three aeration tanks

Three new aeration tanks will be constructed in an approximately 24,620 sq. ft. area to the west of the existing aeration tanks. One tank will be retrofitted for biological nutrient removal with baffles, 3 mixers and one internal recycle pump and influent gates, influent and effluent channels, and piping galleries. LASAN plans to only operate up to six tanks - the current number of aeration tanks. Tank No. 7, retrofitted for biological nutrient removal (BNR), will provide stand-by capacity. Tanks No. 7, No. 8, and No. 9 will be used only during wet weather events to provide required 2.7 MG capacity and a total of 5.64 MG storage with the 2.5 MG EQ tank. Thus the additional tanks will be used for operational flexibility and maintaining the existing tanks. As such, there will be no increase in energy usage at the site from the additional facilities. Each new aeration basin would be match existing (structure, equipment); approximately 240 feet long, 33 feet wide, and 19 feet deep (see Figure A-4 in Appendix A). Concrete wall thickness will be determined during detailed design but are projected to match the existing walls, i.e., in the 1-foot range (see Figure A-4 in Appendix A).

Two secondary clarifiers

Two secondary clarifier channels will be installed in an area of approximately 7,380 sq. ft. west of the existing secondary clarifiers (see Figures A-2, A-3). Secondary clarifiers follow the BNR activated sludge process to provide for settling of mixed liquor suspended solids. Influent and effluent channels, and piping galleries would match existing (structure, equipment); approximately connect the clarifiers to the rest of the treatment system. Each secondary clarifier channel would be approximately 170 feet long and 20 feet wide, with a 10-foot average depth. Concrete walls would be approximately 1-foot thick.

Piping and Appurtenances

The project will require the extension of existing channels, galleries and piping and integration with existing electrical and control systems. Two 24" discharge pipes to the headworks of the plant will be constructed and in-plant sewers will be installed to draw from the 2.5 MG EQ tank (see Figure A-3 in Appendix A). All activities will be constructed within the existing footprint of the LAGWRP.

3.3.2 Blower Air Clean-Up System

In addition to the Equalization Storage Project and the Personnel Building Project, a smaller, but separate planned capital improvement project (CIP 4187) at LAGWRP is the addition of a biotrickling filter, or blower air clean-up system. As a means of odor control, LASAN collects foul air from the headworks building and primary settling tanks at the LAGWRP to keep both facilities under negative pressure and prevent odors from escaping. The captured air is then fed into the process air blowers and reused for aeration. LASAN is experiencing corrosion and aeration diffuser plugging issues and as result it is planning to build a blower air clean-up system to scrub the air before it enters the blowers. A CEQA Categorical Exemption (Section 15301[d]) was approved for this project in March 2017. This work would involve no expansion of existing use.

It is projected that the construction of the blower air clean-up system will occur at the same time as the other proposed improvements to eliminate site work and optimize construction efforts in the same area, and therefore it is discussed here so that any potential cumulative construction related impacts can be identified. This project is also shown on Figure A-3, and has been included in the summary construction schedule provided as Figure A-5 (see Appendix A).

3.3.3 Personnel Building Project

The Personnel Building Project will design and construct an estimated 7,000 sq. ft. 2-story building of 15,000 sq. ft. with breaking vistas of the Los Angeles River for existing LAGWRP personnel. The new facility will provide permanent office space for existing Operations Staff, additional laboratory space for the Environmental Monitoring Division and offices for environmental monitoring staff, and sufficient locker room and shower facilities for Operators and space for Human Resources staff (safety engineer), lunch room and conference rooms and community meeting room. The building is adjacent to the Los Angeles River, but completely inside the LAGWRP site.

The existing Administration Building onsite will also be remodeled to provide training rooms and auxiliary space for the City's staff assisting the City of Los Angeles's programs. The remodel of the building is part of the Personnel Building Project (CIP 4170) and will be completed in conjunction with it. The work will be inside of the building and is not intended to provide space for additional workers on site. It is to support existing staff and provide additional meeting space. Grading for the new Personnel Building will extend up to the existing Administration Building per the project plans for sidewalk and landscape continuity. As shown on Figure A-3 in Appendix A, existing vegetation to be excavated is mostly turf.

3.3.4 Other Relevant Activities

3.3.4.1 Pond

There is an unutilized lined existing pond within the existing boundary of the LAGWRP (see Figure A-2 in Appendix A). The pond was constructed in 1975 and covers approximately 91,107 sq. ft. of area and, when in use, had an average water depth of 5 feet. The pond's initial use was to provide a buffer for de-chlorination, however the process was eliminated many years ago. The perimeter of the pond consists of concrete retaining walls with approximately 5.0, 9.5, and 10.5 feet heights measured from its lowest adjacent grades with existing process pipes in the pond outside the existing effluent channel and pond overflow weir structure walls at the south end of the pond.

In 2013, the City of Los Angeles investigated the condition of the pond to eliminate leakage (LAG Pond Membrane Liner Technical Memorandum [CIP 4174, December 9, 2013]). The age of the clay liner, the observation of historical air bubbles and leaks, and overall concerns about the integrity of the pond perimeter retaining walls were investigated. Under CIP 4174, a 60-millimeter (mil) primary and 60 mil secondary HDPE membrane pond liner were installed over the recompacted clay materials, however the leakage was not eliminated. The pond has been out of operation since 2012 and there is no need to put it back into service as the process function is no longer required.

As part of the Equalization Storage Project, the pond will be modified into a water feature and landscape to integrate the EQ storage tank, the new aeration tanks, and the new Personnel Building as well as transportation /traffic circulation through the plant (for chemical delivery, etc.). The portion of the de-chlorination pond that remains after project improvements will be landscaped to create an aesthetically pleasing water feature to integrate existing and new structures on the site. All landscaping will be planted with native vegetation.

3.3.4.2 Site Work

A geotechnical report was prepared for the project which addresses surficial soils, site preparation, site earthwork, and foundations (City of LA BOE, Geotechnical Engineering Group, March 7, 2017). In general, grading for the proposed project would consist of excavation for construction of building foundations and/or water treatment structures and minor vertical modifications to existing site roads and/or driveways to accommodate building construction.

Construction of the additional primary clarifiers, EQ tank, and aeration basins generally would involve reconfiguration of the existing pond, excavating the expansion site, installing utility lines

and piping, erecting formwork and reinforcement, pouring of the concrete foundation and walls, and plumbing to connect with the existing system.

Construction activities for the 2.5 MG EQ tank would consist of excavating pits, constructing formwork, and pouring concrete. Piping and accessory structures also would be constructed to allow process water to be routed to and from the EQ tank.

All such work would be on the existing LAGWRP site. Staging areas would be on site. Exported excavated soil would be used as cover at local landfills, and construction debris would be recycled or disposed of at local landfills.

Pipeline excavation and other earthwork activities are summarized in Table 3-1. LASAN has provided maximum estimated earthwork quantities for the Equalization Storage Project and the Blower Air Clean-up System (see Section 3.3.4.1) of approximately 97,000 cubic yards (CY) (LASAN/City of LA Engineering, Predesign Report, 2017). It is projected that only 20,000 CY will be exported offsite. Additionally, the earthwork quantity for the new Personnel Building is estimated to also generate excavated soil which will not be exported but will be used as onsite fill and re-grading, in accordance with regulations, for the pond modifications and new circulation roadway for maintenance and delivery access to the rear of the property.

Table 3-1: Construction Earthwork Quantities

Tanks	Excavation Dimensions (ft)			Excavation Volume		Excavation Factor [1] (1.21)
	L	W	D	Cu. Ft.	Cu. Yd.	Cu. Yd.
Equalization Tank	160	140	16	358,400	13,274	29,336
2 Primary Clarifiers Tanks [2]	140	43	13	78,867	2,921	6,455
3 Aeration Tanks	240	103	21	517,020	19,149	42,319
2 Sedimentation Tanks	170	43	13	93,515	3,464	7,654
Subtotal						***85,765***
Pipe Galleries	Excavation Dimensions (ft)			Excavation Volume		1.21
	L	W	D	Cu. Ft.	Cu. Yd.	Cu. Yd.
Pipe Gallery No. 1	43	21	20	17,910	663	1,466
Pipe Gallery No. 2	111	12	22	29,304	1,085	2,399
Pipe Gallery No. 3	43	14	22	13,118	486	1,074
Channel No. 3	111	5	8	4,163	154	341
Subtotal						***5,279***
Piping	Trenching Dimensions (ft)			Excavation Volume		1.21
	L	W	D	Cu. Ft.	Cu. Yd.	Cu. Yd.
Pipe 30" to Headworks	900	6	12	59,400	2,200	4,862
Pipe 30" to in-plant Sewer	250	6	12	16,500	611	1,351
Subtotal						***6,213***
Total						***97,256***
Projected Export - @ 20%						***19,451***

Area	Ac.	Sq. Ft.
Equalization Tank	0.51	22,400
2 Primary Clarifiers Tanks	0.14	6,067
3 Aeration Tanks	0.57	24,620
2 Sedimentation Tanks	0.17	7,381
Total	***1.39***	***60,468***

Notes:
1 Excavation factor projected by estimator @ 121%
2 A very conservative escalation factor of 1.21 is applied to the total volume of material assuming the Contractor will need to excavate 121% more in order to have material left over for compacting and construction of concrete walls and slabs.

3.4 Project Construction

Construction of the Project components is expected to take approximately 24 months. The anticipated construction start date in the second or third quarter of 2018 for the Personnel Building, and first quarter 2019 for the Equalization Storage Project. Anticipated earliest date of completion is the first quarter 2020 for the Personnel Building, and first quarter 2021 for the Equalization Storage Project. The rehabilitation of the existing Administration Building is estimated to occur simultaneously with the construction of the other components; however design and scheduling have not yet been finalized. The Blower Air System will begin prior to all of these activities (see Figure A-5 in Appendix A).

The project construction schedule is shown in Figure A-5 (see Appendix A). The construction phasing is denoted in the schedule, and provides for construction including; earthwork, concrete pouring, mechanical work, electrical work, start up and General Contractor work. Two pipes will be tested with plant effluent and discharged into the in-plant sewer; no treatment is deemed required. All discharge to the in-plant sewer will conform with City of Los Angeles's dewatering specifications. As the groundwater level is approximately 20 feet below ground surface (LASAN/City of LA Engineering, Geotechnical Report, 2017), only minor dewatering is projected during construction.

It is anticipated that construction of the Equalization Storage and Personnel Building components will overlap by approximately six months. The projects may proceed as either Design-Bid-Build (DBB) or Design-Build (DB). Depending on the final construction method the schedule may change slightly. Both options are provided for in the Preliminary Design Report prepared for the project dated June 14, 2017 (LASAN/City of LA Engineering, Predesign Report, 2017). Preference as of the date of this document is to move forward with a DB project delivery method where one entity would perform both the design engineering and construction under a single contract. This would streamline and allow for efficiencies and coordination across all project elements.

The Blower Air System has also been included in the project schedule (see Figure A-5 in Appendix A).

3.4.1 Construction Traffic

The construction activities generate trips based on construction staff and truck traffic to and from the site. Typically, construction staff drive personal vehicles to and from the site. The type and number of trucks are based on the project materials and design conditions. This project is anticipated to utilize semi-tractor trailers for mobilization and demobilization of equipment and delivery of some of the critical key components as well as flatbed trucks, dump trucks, concrete trucks for delivery of supplies or hauling. Estimated off-site trips by vehicle type during construction, based on an aggregation of each phase of project construction are provided in the Transportation/Traffic Memorandum provided in Appendix F.

Construction Staff Trips

Project trips are calculated for the additional employee trips that will be performing the construction. The number of construction worker vehicles is estimated using the average ridership of 1.135 persons per vehicle per the CEQA Air Quality Handbook, South Coast Air Quality Management District (SCAQMD), 1993. It is anticipated that the majority of the construction workers would remain on-site throughout the day and approximately half of the workers would leave and return to the site via their vehicles for lunch. Daily trip generation is based on the number of employees multiplied by the inbound trip and outbound trip of two (2), and an additional amount of trips generated by the off-peak lunch time round-trips. The peak hour trip generation is projected to be negligible as the majority of the construction workers are expected to arrive and depart at the project site during off-peak hours (i.e., arrive prior to 7:00 AM and depart prior to 4:00 PM). For most operations, the on-site construction activity schedules are from 6:30 AM to 3:30 PM, which will allow construction workers to arrive at and depart from the site before the morning peak period (7:00 AM to 9:00 AM) and after the evening peak period (4:00 PM to 6:00 PM).

Project Truck Trips

Project trips are calculated by the projected increase in truck trips that will haul off excess soil, and deliver material to the site. Daily trip generation is based on the number of truck deliveries, multiplied by the inbound trip and outbound trip of two (2), and all trucks are multiplied by a passenger car equivalent factor of two (2.0). The passenger car equivalent factor has been obtained from the Highway Capacity Manual for 3 axle trucks. Whenever possible, off-peak (9:15 AM to 3:30 PM) truck delivery is preferred.

For this project, the off-site trucking of export excavation or debris to local landfills will occur between 9:15AM and 3:30PM, to avoid peak periods. Detailed construction data from LASAN regarding monthly construction phasing, staffing per proposed improvement component and earthwork quantities is provided. Based on the applicant data, truck trips are calculated based on a total of 20,000 CY of material for the Equalization Storage Project. The duration of the Equalization Storage Project is 14 months with approximately 35 construction staff, construction time for the piping excavation and installation as well as the existing pond modification increases the total period of active site work to 16 months. The truck trips associated with the earthwork and the material delivery produce the most intensive construction traffic, therefore the value of this maximum truck trips per day are used for the construction truck trip estimate.

Truck hauling of materials for the LAGWRP will begin after the initial phases of construction and proceed for the entire duration of the project. The project schedule and haul restrictions are designed to not add project related evening peak hour trips on public roadways. There are no anticipated off-site roadway or lane closures; all activity will be on-site.

Information about the truck trips required for each construction phase and the types of heavy equipment to be used is included in Section 5.2.16, Transportation/Traffic, and in the Transportation/Traffic Analysis Memorandum in Appendix F for construction trip generation.

3.5 Project Design Features/Applicant Proposed Measures

The proposed project includes, either as part of the project design or consistent with standard LASAN practices, certain features and measures that would be implemented during project construction and/or operation to minimize potential environmental impacts. Additionally, there are applicable regulatory requirements to which the project will be required to adhere. These project design features, applicant proposed measures, and regulatory requirements are presented below.

Construction/Traffic

- Construction will occur between the hours of 6:30AM to 3:30PM, Monday through Friday. No construction activities would occur on weekends, including Saturday, or federal holidays.

- Provide to the following jurisdictions (Los Angeles County, Caltrans, and the Cities of Los Angeles and Glendale) detailed project descriptions that include:

    a. Identified hours of construction and hours for deliveries.
    b. Identified haul routes.
    c. Identify location of staff parking for the construction period.
    d. Identify the location of material storage.
    e. Details for the work at site access locations.

- The project shall develop procedures to notify the following governmental agencies and public:

    a. Emergency services affected by construction in the study area of possible lane and local access closures and the potential for traffic delays during construction.
        i. Los Angeles Police Department NE 3353 N San Fernando Rd, Los Angeles, CA
        ii. Los Angeles Fire Station #50 at 3036 Fletcher Drive, Los Angeles, CA
        iii. Los Angeles Fire Station #56 2759 Rowena Avenue, Los Angeles, CA
        iv. Glendale Police Department 131 N Isabel St, Glendale, CA
        v. Glendale Fire Station #21 at 421 Oak Street, Glendale, CA
        vi. Glendale Fire Station #22 at 1201 S Glendale Avenue, Glendale, CA
    b. City of Los Angeles Department of Transportation to assist in moderating congestion on local streets and notification of roadworks.

c. City of Glendale Public Works to assist in moderating congestion on local streets and notification of roadworks.
d. Los Angeles Unified School District of possible temporary traffic congestion.
e. Glendale Unified School District of possible temporary traffic congestion.
f. Transit providers of possible temporary traffic congestion (Glendale Station Metrolink, Glendale Beeline Bus Service Routes 6, 12, and 94).
g. The community-at-large of the construction limits/duration and timing.

- The project should schedule the receipt of construction materials during non-peak travel periods (9:15 AM to 3:30 PM), to the extent possible.

- The project should require the construction workers to park at the predetermined off-street parking area specified by the applicant.

Geology/Soils

- All proposed facilities will be designed and built in accordance with all applicable seismic design provisions set forth by both the current California Building Code (CBC), the American Water Works Association (AWWA), and the American Concrete Institute (ACI). Additionally, all facets of excavation, trenching, construction, and design will meet the standards established during final engineering design. Specifically, this will include measures such as the over-excavation of an identified unsuitable base soils and geologic units; the proper composition, placement, and compaction of all construction fill; the use of additional foundation design techniques, as necessary; and the utilization of appropriate construction materials and methods.

Hazards/Hazardous Materials

- Hazardous materials will not be disposed of or released onto the ground, the underlying groundwater, or any surface water. Totally enclosed containment will be provided for all trash. All construction waste, including trash and litter, garbage, or other solid waste, petroleum products, and other potentially hazardous materials, will be removed to a waste facility permitted to treat, store, or dispose of such materials.

Hydrology/Water Quality

- The proposed project will be subject to the typical restrictions (e.g., best management practices) and requirements that address erosion and runoff, including those of the Federal and State Clean Water Act (CWA). Construction and operational BMPs will be implemented, as necessary, and as according to either the City of Los Angeles's Industrial Storm Water Pollution Prevention Plan (SWPPP) that governs the LAGWRP, or the Construction SWPPP that the Contractor will need to furnish for the project. These may include stormwater and sediment source control and treatment control Best Management Practices (BMPs) and will be employed to address erosion, siltation, stormwater, drainage, and water quality issues. Any construction related effluent discharges into the in-plant sewer will conform with the City of Los Angeles's specifications.

Noise

- LASAN will require the employment of numerous noise mitigation techniques to ensure that noise levels within the site, primarily affecting workers and staff, will be controlled. Methods to be used will include: quieter equipment, best available technology (BAT), isolated foundations for vibrating equipment, acoustic panels on walls and ceilings, and isolation connectors for machinery and equipment which has a propensity to vibrate.

Other Design Features

- To maintain the architectural conformity between the existing administration building, the new Personnel Building, and the Equalization Basin Storage, a new master plan is being developed (anticipated September 2017) to include landscape and water features to replace the existing de-chlorination pond, whose process is no longer needed or used. The new building architecture will be integrated with the LA River and public vistas.

Envision Sustainable Infrastructure

- For the Project, LASAN and BOE will utilize Envision as a design tool and guide for implementing sustainable best practices. At each step of the design phase, engineers will consult the Envision design criteria and technical considerations to ensure the best design. Envision guidelines will be used to evaluate and optimize sustainable infrastructure using a transparent system of metrics while its comprehensive scope will ensure that all appropriate aspects of the project are considered. The Project will be designed for the award level of gold and/or platinum or as feasible based on project site constraints to enhance and recognize its sustainability performance.

3.6 Permits

Numerous approvals and/or permits would be required to implement the proposed project. The environmental documentation for the proposed project would be used to facilitate compliance with federal and state laws, as well as granting permits by various state and local agencies having jurisdiction over one or more aspects of the Project.

The approvals and permits may include, the following which will be determined during detailed design:

California Department of Transportation (Caltrans)

- Permit for oversize loads on state highways

City of Los Angeles Department of City Planning

- Design review and approval of structures

City of Los Angeles, Department of Building and Safety

- Permits for building, electrical, green building, geotechnical, excavation, and grading

City of Los Angeles, Department of Public Works

- Permits for excavation
- Permits for construction of driveways, curb ramps, sidewalks, roof and/or site drainage to streets, per City Ordinance 176300
- Approval of Standard Urban Stormwater Mitigation Plan and/or a Site-Specific Mitigation Plan

Los Angeles Regional Water Quality Control Board (RWQCB)

- NPDES Industrial General permit
- General Construction permit

Section 4: Federal Cross-Cutters

4.1 CEQA-Plus

To implement the proposed project, the City of Los Angeles may seek a loan from the Clean Water State Revolving Fund Program administered by the SWRCB, Division of Financial Assistance. As required by SWRCB, a "CEQA-Plus" evaluation was completed for the proposed project. The Clean Water State Revolving Fund requires that projects undergo CEQA-Plus evaluations to comply with federal regulations. The results of this evaluation are provided under the CEQA-Plus evaluation headings within each relevant resource area (e.g., biological resources). Generally, CEQA-Plus evaluations are provided for resource areas where a relevant federal law directly applies to that resources area (e.g., federal Endangered Species Act). These elements are addressed below.

4.1.1 Farmland Protection Policy Act

Is any portion of the project site located on important farmland?

The project site, along with the project vicinity, falls outside of the NRCS soil survey and therefore is not mapped by the CDC Farmland Mapping and Monitoring Program (CDC, 2014). This analysis is based on the most recent data in the California Important Farmland Interactive Map accessed on July 11, 2017, presented in Figure A-9 (see Appendix A). The LAGWRP and project site are fully developed, industrial, urbanized land. Therefore, the proposed project would not convert any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. No impacts would occur.

4.1.2 Clean Air Act

Is the project subject to a State Implementation Plan conformity determination?

The General Conformity Rule requires federal agencies to ensure that actions taken by those agencies conform to the applicable State Implementation Plan (SIP). General Conformity regulations apply only to direct and/or indirect emissions caused by the actions that occur in areas designated as non-attainment or maintenance areas with respect to National Ambient Air Quality Standards (NAAQS). These regulations require an applicability analysis to determine whether the federal action must be supported by a conformity determination.

The General Conformity Rule ensures that actions taken by federal agencies in nonattainment and maintenance areas do not interfere with the State's plans to meet NAAQS. 40 CFR Part 93.153 defines "de minimis" levels, which are the minimum threshold for which a conformity determination must be performed, for various criteria pollutants in various areas. If the Proposed Action's annual emissions are below the applicable de minimis levels, the project is not subject to a general conformity determination.

A conformity analysis was prepared for the project and is provided in Appendix C. The analysis compared the project's total direct and indirect annual emissions, including maximum annual construction emissions and operational emissions, to the applicable de minimis threshold levels

that apply to the South Coast Air Basin (SCAB). The conformity analysis concludes that criteria air pollutant emissions from the project would be below the applicable de minimis thresholds for the SCAB region. Therefore, the general conformity requirements do not apply to these pollutants, and the Proposed Action is exempt from a conformity determination.

4.1.3 Federal Endangered Species Act, Section 7

Does the project involve any direct effects from construction activities, or indirect effects such as growth inducement that may affect federally listed threatened or endangered species that are known, or have a potential, to occur on-site, in the surrounding area, or in the service area?

No federally listed plant or wildlife species have potential to occur on the project site due to the lack of suitable habitat. Construction activities would be restricted to existing roadways and developed/disturbed areas. There would be no removal of riparian vegetation or trees used for foraging or nesting birds. Therefore, no impacts, direct or indirect, would occur to any federally listed species.

4.1.4 National Historic Preservation Act, Section 106

Identify the area of potential effect (APE), including construction, staging areas, and depth of any excavation. (Note that the APE is three-dimensional and includes all areas that may be affected by the project, including the surface area and extending belowground to the depth of any project excavations.)

The proposed project is situated in an area that was subject to major earthwork conducted in the late 1970s and early 1980s for construction of the LAGWRP. As previously mentioned in Section 1, Project Description, the project site contains multiple structures and paved areas. The project site's elevation ranges from approximately 410 feet to 450 feet above mean sea level and is generally flat. A biological field reconnaissance survey of the study area was completed in June 2017 (see Appendix D for the Biological Resources Assessment). The study area is defined to be the entire fenced boundary of the LAGWRP (project site) and an approximate 100 foot buffer (see Figure A-11 in Appendix A). Construction site work is described in Section 3.3.4.2 and includes dimensions of all planned excavation areas and grading areas. The maximum depth for excavation is approximately 22 feet (LASAN, PLEASE CONFIRM).

4.1.5 Floodplain Management – Executive Order Number 11988

Is any portion of the project site located within a 100-year floodplain as depicted on a floodplain map or otherwise designated by FEMA?

Pursuant to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map in Figure A-6 (see Appendix A), the project site is not located within a designated 100-year flood hazard area or any other flood hazard zone.

4.1.6 Wild and Scenic Rivers Act

Is any portion of the project located within a wild and scenic river?

No. The project site is located adjacent to the Los Angeles River. However, this River is not designated as a wild and scenic river according to the U.S. Code Chapter 28, Title 16 Wild and Scenic Rivers. Thus, the proposed project would not impact a wild and scenic river.

Identify watershed where the project is located.

The project site is located within the Los Angeles River Watershed.

4.1.7 Coastal Zone Management Act

Is any portion of the project site located within the coastal zone?

The project site is located over 15 miles northeast of the Pacific Ocean, and thus, the proposed project would not be within the coastal zone.

Section 5: Environmental Checklist

This section describes the environmental setting, significance criteria, direct and indirect impacts, cumulative impacts, and related mitigation measures for each environmental resource topic.

5.1 Evaluation of Environmental Impacts

A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.

"Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level.

5.2 Initial Study Checklist

LASAN, as the CEQA Lead Agency, has prepared this MND to identify potential environmental impacts associated with the proposed project. This document includes a checklist for each resource topic, supporting explanations, and a discussion of mitigation measures that have been incorporated into the proposed project design to minimize potential impacts in each resource area. The MND uses the current 2017 CEQA Guidelines (AEP, 2017) checklist to evaluate resource impacts. It is noted that the City of Los Angeles developed a CEQA Threshold Guide in 2006 (City of Los Angeles, 2006). Where appropriate and helpful, this MND references the 2006 Threshold Guide.

The resource topics considered in this MND include:

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services

- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Recreation
- Transportation and Traffic
- Tribal Cultural Resources
- Utilities and Service Systems

5.2.1 AESTHETICS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

5.2.1.1 Environmental Setting

This section focuses on the existing visual resources at, or in the vicinity of, the proposed components of the LAGWRP project. The potential impacts that could result to visual resources from construction and operation of each of the components are addressed, and the significance of those impacts, if anticipated, is analyzed. Visual resources include the aesthetics of the component sites and their surroundings, valued views, designated scenic highways, corridors or parkways, and lighting.

LAGWRP is located in northeast Los Angeles in the Glendale Narrows area. The site is bordered on the north and east by industrial properties and a few residences (southeastern corner of plant), on the south by the Los Angeles Department of Recreation and Parks offices and maintenance yard, and to the west by a pedestrian and bicycle corridor along the Los Angeles River. No official state or City-designated scenic or historic highways, corridors, or parkways are in the vicinity of LAGWRP.

The road closest to the north border of the LAGWRP is Colorado Boulevard, which is lined with large industrial-use facilities. LAGWRP is set back from the road and is accessible only from a driveway off Colorado Boulevard. Therefore, LAGWRP is not visible from Colorado Boulevard.

The road closest to the east of LAGWRP is San Fernando Road. The Metrolink rail on the east side of San Fernando Road and large industrial-use facilities on the west side block any potential views of LAGWRP from San Fernando Road.

The residential area nearest to LAGWRP is located to the southeast. A number of streets dead end near the eastern border of the Recreation and Parks offices and maintenance yard. Goodwin Avenue is the northernmost street with large industrial-use facilities on its north end

and residences on its south end. LAGWRP is not visible from the residences on Goodwin Avenue.

The streets south of Goodwin Avenue are narrow and lined with a combination of single-family and multifamily residences on both sides. The dead ends at each of these streets typically have a wall and chain-link fence. LAGWRP is not visible from any of these streets or from their western terminus. The Los Angeles River and the asphalt-covered pedestrian and bicycle corridor along the eastern bank of the river abut the western border of LAGWRP. LAGWRP is separated from the Los Angeles River by a locked chain-link fence, trees, and shrubs. Although no public access points are located near the plant, pedestrian and bicycle traffic could travel through this corridor. Between the vegetated areas along the fence line, portions of LAGWRP are visible from the Los Angeles River path. Design elements for the project are not anticipated to impact the Los Angeles River or views of the River. The project will be reviewed by the City of Los Angeles Department of Cultural Affairs to ensure there are no impacts to the design aesthetic of the River.

The southern border of LAGWRP also serves as the northern border for the Los Angeles Recreation and Parks offices and maintenance yard. A chain-link fence separates the south border of LAGWRP and the north border of the maintenance yard. Thus, workers in the maintenance area have a complete view of LAGWRP. No public access is available, and LAGWRP is not visible from the southern boundary of the site.

LAGWRP operates 24 hours a day, 7 days a week, and, for safety and security purposes, is fully lit at night. As described above, the nearest residences are located at the southeastern boundary of the facility. Adjacent to these residences are the large industrial-use areas that are adjacent to the eastern boundary of LAGWRP. Nighttime lighting in the area surrounding LAGWRP is characterized by street and industrial lighting typical of an urbanized area.

Components of the Equalization Storage Project and New Personnel Building would be located in the interior portion of LAGWRP. The New Personnel Building will be designed to integrate with the LA River with the approval of the City's Department of Cultural Affairs. Construction activities would be located entirely in LAGWRP boundaries, mostly out of sight from public view, and would be consistent with the other uses and aesthetic character of the remainder of the LAGWRP. It is likely cranes would be needed for construction and would be visible to users of the bicycle and pedestrian path during construction. Views of these new facilities from the bicycle and pedestrian path along the Los Angeles River would be consistent with the existing view through the landscaped/chain-link fence on the western boundary of LAGWRP.

Construction activities associated with the installation of the new treatment processing facilities would involve site clearance and construction of the new facilities. Views of construction activities would be temporary and would be somewhat similar to the industrial aesthetic character of LAGWRP and the area. Construction activities would not be visible from any public roadways, scenic highways, or scenic corridors.

Construction will occur during the hours of 6:30AM to 3:30PM; therefore no nighttime lighting is associated with construction. Construction activities and the new facilities would not be visible from any state- or City-designated scenic highways, corridors or parkways.

The majority of the new treatment facilities proposed would not be visible to the public (e.g., bicyclist and pedestrians along the Los Angeles River path). In all cases, the proposed improvements would not conflict with the existing plant or surrounding uses. Nighttime lighting of these facilities would be similar to lighting used at the plant and at the facilities in the area.

The new facilities would not be visible from any state- or City-designated scenic highways, corridors, or parkways.

5.2.1.2 Analysis

a) Would the project have a substantial adverse effect on a scenic vista?

No Impact. The Los Angeles County General Plan Conservation and Natural Resources Element discusses the need to preserve natural resources and areas, including undeveloped open space, which are typically associated with scenic resources. However, the project site is not located on or adjacent to an open space area or any other natural topographical feature such as a hillside or ridgeline that are typically considered a scenic vista or visual resource. Instead, the project is located within the fully developed, urbanized area within the LAGWRP. Although construction of the project may temporarily impact the visual environment in the immediate project area, construction would be temporary and construction equipment and materials would not be visible upon completion. Due to the elevation of the project site, the shielding of the project by existing mature trees and bushes along the perimeter of the project site, and the underground nature of most of the Equalization Storage Project elements, implementation of the project would not have a substantial adverse effect on a scenic vista or visual resource. Therefore, no impacts associated with scenic vistas would occur.

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. The project would not be located within the view of a state scenic highway. The Los Angeles County General Plan Conservation and Natural Resources Element identifies three state scenic highways; Angeles Crest Highway Route-2, Mulholland Highway, and Malibu Canyon-Las Virgenes Highway; none of which are located near LAGWRP. Additionally, no locally or City-designated scenic roadways have been identified in the project vicinity. Therefore, no impacts associated with scenic resources within a state scenic highway would occur.

c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Less Than Significant Impact. The project would be located within a fully developed, urbanized area of the City of Los Angeles. All project elements would be contained within the existing LAGWRP site. The Equalization Basin Storage elements (EQ tank, primary clarifiers, aeration tanks, and secondary clarifiers) would be constructed similar to the existing facilities, which are mostly constructed below ground surface or at the ground surface. The new Personnel Building would be an aboveground facility however it would be designed to be consistent with the existing adjacent Administration Building and would share similar architectural characteristics, mass, and scale of this existing building. The building will also incorporate aesthetically pleasing design elements such as landscaping, open spaces, and

windows. Therefore, impacts associated with visual character and quality would be less than significant.

d) Would the project create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?

No impact. Construction activities would not be visible from any public roadways, scenic highways, or scenic corridors. Construction will occur during the hours of 6:30AM to 3:30PM; therefore no nighttime lighting is associated with construction. Post construction operations would be similar to existing and surrounding lighting. Construction activities and the new facilities would not be visible from any state- or City-designated scenic highways, corridors or parkways. Therefore, the project would not create a new source of substantial light or glare.

5.2.1.3 Mitigation Measures

No mitigation measures are necessary.

5.2.1.4 Significance After Mitigation

Not applicable.

5.2.2 AGRICULTURAL AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

5.2.2.1 Environmental Setting

There are no agricultural resources on the LAGWRP property. The location of the project falls outside of the Natural Resources Conservation Service (NRCS) soil survey and therefore are not mapped by the California Department of Conservation (CDC) Farmland Mapping and Monitoring Program in the Los Angeles County Important Farmland [map] presented in Figure A-7 (see Appendix A) (CDC, 2016). Additionally, the project site is not located on any lands under a Williamson Act contract as seen in the State of California Williamson Act Contract Land [map] of 2014 in Figure A-8 (see Appendix A) (CDC, Division of Land Resource Protection 2014).

5.2.2.2 Analysis

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The project site, along with the project vicinity, falls outside of the NRCS soil survey and therefore is not mapped by the CDC Farmland Mapping and Monitoring Program (CDC, 2014). This analysis is based on the most recent data in the California Important Farmland Interactive Map accessed on July 11, 2017, presented in Figure A-7 (see Appendix A). The LAGWRP and project site are fully developed, industrial, urbanized land. Therefore, the proposed project would not convert any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. No impacts would occur.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The Williamson Act, also known as the California Land Conversion Act of 1969 (California Government Code, Section 51200 et seq.), provides protection of agricultural resources by preserving agricultural and open space lands from the conversion to urban land uses through establishing a contract between local governments and private landowners to voluntarily restrict their properties to agricultural or open space use.

Based on the Division of Land Resource Protection's State of California Williamson Act Contract Land map in Figure A-8 (see Appendix A) the project site is on land designated as "Non-Enrolled Land", which is land that is not enrolled in a Williamson Act contract and not mapped by Farmland Mapping and Monitoring Program as "Urban and Built-Up Land" or "Water" (CDC, Division of Land Resource Protection 2014).

The proposed project would be located within an area zoned as Public Facilities (PF) by the Northeast Los Angeles Community Plan, a part of the General Plan, in Figure A-10 (see Appendix A) (City of Los Angeles Department of City Planning, 2014). The County's Planning and Zoning Regulations (Title 22 of Los Angeles County Code of Ordinances) does not permit, conditionally or otherwise, any agricultural uses in this zone. Therefore, the proposed project would not conflict with a Williamson Act contract or existing zoning for agricultural. No impacts would occur.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code (PRC) section 12220(g)), timberland (as defined by PRC section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. The proposed project site does not contain any forest land or substantial native tree coverage. The project site is zoned PF, and the County's Planning and Zoning Regulations (Title 22 of Los Angeles County Code of Ordinances) does not permit nor conditionally permit any timberland production or similar forestry uses. Therefore, the proposed project would not conflict with the zoning or cause the rezoning of forestland or timberland. No impacts would occur.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The proposed project site, in addition to the project vicinity, does not contain forestland. Thus, the proposed project would not result in the loss or conversion of forestland. No impact would occur.

e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. As previously discussed, the proposed project would not affect any agricultural, Williamson Act, forestland, or timberland zoning, land uses, programs, or policies. Thus, the proposed project would not result in the conversion of forestland to non-forest use or the conversion of additional farmland to non-agricultural use. No impact would occur.

5.2.2.3 Mitigation Measures

No mitigation measures are necessary.

5.2.2.4 Significance After Mitigation

Not applicable.

5.2.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

5.2.3.1 Environmental Setting

The project site lies within the northwestern portion of the South Coast Air Basin (SCAB). The basin is a 6,600 square mile area bounded by the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east, and the Pacific Ocean to the west. The SCAB encompasses all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties.

The SCAB is under the jurisdiction of the SCAQMD. As the local air quality management agency, the SCAQMD is required to monitor air pollutant levels to ensure that National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) are met and, if they are not met, to develop strategies to meet the standards. Depending on whether or not the standards are met or exceeded, SCAB is classified as being in “attainment” or “nonattainment.” The health effects associated with criteria pollutants, upon which attainment of state and federal air quality standards is measured, are described in Table 5-1.

Table 5-1: Health Effects Associated with Criteria Pollutants

Pollutant	Adverse Effects
Ozone	(1) Short-term exposures: pulmonary function decrements and localized lung edema in humans and animals, risk to public health implied by alterations in pulmonary morphology and host defense in animals; (2) long-term exposures: risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (3) vegetation damage; and (4) property damage.
Carbon monoxide (CO)	Reduces oxygen delivery leading to: (1) Aggravation of chest pain (angina pectoris) and other aspects of coronary heart disease; (2) decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (3) impairment of central nervous system functions; and (4) possible increased risk to fetuses.
Nitrogen dioxide (NO_2)	(1) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (2) risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (3) contribution to atmospheric discoloration.
Sulfur dioxide (SO_2)	(1) Bronchoconstriction accompanied by symptoms that may include wheezing, shortness of breath, and chest tightness during exercise or physical activity in persons with asthma.
Suspended particulate matter (PM_{10})	(1) Excess deaths from short-term and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease (including asthma).
Suspended particulate matter ($PM_{2.5}$)	(1) Excess deaths from short- and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes, including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children, such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease, including asthma.

Source: United States Environmental Protection Agency (USEPA, 2017a)

The NAAQS and CAAQS attainment statuses for the SCAB are listed in Table 5-2. As shown therein, the SCAB is in nonattainment for both the federal and State standards for ozone and particulate matter less than 2.5 microns in size ($PM_{2.5}$), as well as the federal standard for lead and the State standard for particulate matter less than 10 microns in size (PM_{10}; SCAQMD 2016). Thus, the SCAB currently exceeds several State and federal ambient air quality standards and is required to implement strategies that would reduce pollutant levels to recognized acceptable standards. This non-attainment status is a result of several factors, the primary ones being the naturally adverse meteorological conditions that limit the dispersion and diffusion of pollutants, the limited capacity of the local airshed to eliminate pollutants from the air, and the number, type, and density of emission sources within the SCAB. The SCAQMD has adopted an AQMP that provides a strategy for the attainment of State and federal air quality standards.

Table 5-2: South Coast Air Basin Attainment Status

Pollutant	Standard	Designation
1-Hour Ozone	NAAQS	Nonattainment (Extreme)
	CAAQS	Nonattainment
8-Hour Ozone	NAAQS	Nonattainment (Extreme)(1)
	CAAQS	Nonattainment
CO	NAAQS	Attainment (Maintenance)
	CAAQS	Attainment
NO_2	NAAQS	Attainment (Maintenance)(2)
	CAAQS	Attainment
SO_2	NAAQS	Designations Pending/Unclassifiable/Attainment(3)
PM_{10}	NAAQS	Attainment (Maintenance)
	CAAQS	Nonattainment
$PM_{2.5}$	NAAQS	Nonattainment (Serious)(4)
	CAAQS	Nonattainment
Lead	NAAQS	Nonattainment (Partial)
Hydrogen Sulfide	CAAQS	Attainment
Sulfates	CAAQS	Attainment
Vinyl Chloride	CAAQS	Attainment

NAAQS: National Ambient Air Quality Standards; CAAQS: California Ambient Air Quality Standards; CO: carbon monoxide; PM_{10}: particulate matter less than 10 microns in size; $PM_{2.5}$: particulate matter less than 2.5 microns in size; NO_2: nitrogen dioxide; SO_2: sulfur dioxide

[1] The SCAB is designated Nonattainment (Extreme) for the 1997 and 2008 8-Hour Ozone NAAQS. Designation is pending for the 2015 8-Hour Ozone NAAQS

[2] The SCAB is designated Unclassifiable/Attainment for the 1-Hour NO_2 NAAQS and Attainment (Maintenance) for the Annual NO_2 NAAQS

[3] The SCAB has designations pending for the 1-Hour SO_2 NAAQS and is designated Unclassifiable/Attainment for the Annual SO_2 NAAQS

[4] The SCAB is designated Nonattainment (Serious) for the 2006 24-Hour $PM_{2.5}$ NAAQS, Nonattainment for the 1997 Annual $PM_{2.5}$ NAAQS, and Nonattainment (Serious) for the 2012 Annual $PM_{2.5}$ NAAQS

Source: SCAQMD 2016

5.2.3.2 Methodology

This air quality analysis conforms to the methodologies recommended in the SCAQMD's *CEQA Air Quality Handbook,* as well as supplemental guidance provided by SCAQMD (1993). The project's construction and operational emissions were estimated using the California Emissions Estimator Model (CalEEMod), version 2016.3.1. CalEEMod was developed by SCAQMD and is used by jurisdictions throughout the state to quantify criteria pollutant emissions.

Construction emissions modeled include emissions generated by construction equipment used on-site and emissions generated by vehicle trips associated with construction, such as worker

trips, hauling trips, and concrete deliveries. Construction emissions were calculated for the Equalization Storage Project, Personnel Building Project, and Blower Air Clean-up System Project. Construction emissions were not calculated for renovation of the existing Administration building because renovations would involve interior remodeling only and would not require the use of heavy duty construction equipment. Construction modeling assumed that the project would disturb an approximately 2.4 acre area; this disturbance area conservatively assumes that 1 acre would be disturbed for the Personnel Building component, in addition to the 1.4 acres that would be disturbed by the Equalization Storage and Blower Air Clean-Up System projects. The construction schedule, construction equipment, and estimated grading quantities (including amount of soil that would be exported/imported to and from the site) input into CalEEMod were based on information provided by LASAN. Construction-related hauling trips, worker trips, and concrete delivery trips input into CalEEMod were based on trip counts prepared by Kunzman Associates, Inc. In addition, it was assumed the project would comply with all applicable regulatory standards, such as SCAQMD Rule 403, which requires control measures to reduce fugitive dust emissions. Consistent with measures recommended by SCAQMD to ensure compliance with Rule 403, it was assumed watering of disturbed areas would occur two times per day.

Operational emissions modeled include energy, water, wastewater, and area source emissions associated with operation of the proposed Personnel Building. Emissions attributed to energy use include emissions from natural gas consumption for space and water heating. Area source emissions are generated by landscape maintenance equipment, consumer products, and architectural coating. Operational mobile source emissions (i.e., vehicle emissions) were not calculated because proposed improvements would not generate new employee trips.

5.2.3.3 Significance Thresholds

In this section regional, localized, city, and General Conformity significance thresholds of the proposed project are discussed.

5.2.3.3.1 Regional Significance Thresholds

The SCAQMD provides numerical thresholds to analyze the significance of a project's construction and operational emissions to regional air quality. These thresholds are designed such that a project consistent with the thresholds would not have an individually or cumulatively significant impact to the air quality in the SCAB. These thresholds are listed in Table 5-3.

Table 5-3: SCAQMD Air Quality Significance Thresholds

Pollutant	Mass Daily Thresholds	
	Operation Thresholds (pounds/day)	Construction Thresholds (pounds/day)
NO_X	55	100
ROG[(1)]	55	75
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_X	150	150
CO	550	550
Lead	3	3

NO_X: nitrogen oxides; ROG: reactive organic gases; PM_{10}: particulate matter less than 10 microns in size; $PM_{2.5}$: particulate matter less than 2.5 microns in size; SO_X: sulfur oxides; CO: carbon monoxide

[1] Reactive Organic Gases (ROG) are formed during combustion and evaporation of organic solvents. ROG are also referred to as Volatile Organic Compounds (VOC).

Source: SCAQMD 2015

5.2.3.3.2 Localized Significance Thresholds

The SCAQMD has also developed Localized Significance Thresholds (LSTs). LSTs were devised in response to concern regarding exposure of individuals to criteria pollutants in local communities. LSTs have been developed for NO_X, CO, PM_{10} and $PM_{2.5}$. LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable federal or State ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each source receptor area, project size, and distance to the sensitive receptor. However, LSTs only apply to emissions in a fixed stationary location during project construction and operation. LSTs do not apply to mobile sources such as cars on a roadway (SCAQMD 2008). As such, LSTs are typically applied only to construction emissions, as the majority of operational emissions are associated with project-generated vehicle trips. Additionally, LSTs only apply to projects that are five acres or less.

The project site is located in Source Receptor Area 7 (SRA-7). LSTs are provided for receptors at a distance of 82 to 1,640 feet (25 to 500 meters) from the project site boundary. The sensitive receptors closest to the project site are single-family residential units southeast of the project site, along and south of Goodwin Avenue. The project's disturbance area is approximately 600 feet, or 184 meters, from the nearest sensitive receptor. LSTs for construction in SRA-7 on a 2.4 acre site at a distance of 100 meters from receptors are shown in Table 5-4.

Table 5-4: SCAQMD LSTs for Construction

Pollutant	Allowable emissions from a 2.4 acre site in SRA-7 for a receptor at 100 meters (pounds/day)
Gradual conversion of NO_X to NO_2	128
CO	1,728
PM_{10}	37
$PM_{2.5}$	11

NO_X: nitrogen oxides; NO_2: nitrogen dioxide; CO: carbon monoxide; PM_{10}: particulate matter less than 10 microns in size; $PM_{2.5}$: particulate matter less than 2.5 microns in size.

Source: SCAQMD 2008

5.2.3.3.3 City of Los Angeles Thresholds

The City of Los Angeles *CEQA Thresholds Guide* (2006) provides criteria to screen out projects from further analysis that would not have a significant level of emissions. It also provides guidelines for determining the significance of a project's emissions if the project is not eliminated through the screening process. The screening criteria and guidelines for determining significance are based on the SCAQMD's *CEQA Air Quality Handbook* and incorporate the SCAQMD regional significance thresholds (discussed above) as the City of Lon Angeles's thresholds of significance. Additionally, a project meriting a "no" response to all of the following screening criteria (LA Screening Criteria) would normally not have a significant impact and does not warrant further analysis:

1. Result in a development and/or activity level equal to or greater than the thresholds provided in the *CEQA Air Quality Handbook* Screening Table for Operation – Daily Thresholds of Potential Significance for Air Quality.
2. Conflict with the regional population forecast and distribution in the most recent AQMP.
3. Have the potential to create or be subjected to an objectionable odor or localized CO hot spot that could impact sensitive receptors.
4. Site preparation or construction activities for the proposed project would result in substantial emissions that would not be controlled on site by existing regulations.

The SCAQMD no longer recommends the use of *CEQA Air Quality Handbook* Screening Table for Operation – Daily Thresholds of Potential Significance for Air Quality, and instead recommends the use of regional and LSTs (discussed above).

5.2.3.3.4 General Conformity Thresholds

General Conformity with the State Implementation Plan (SIP) is a Clean Air Act (CAA) regulatory process that applies to most federal actions. For State Revolving Fund (SRF) funded projects, a CAA general conformity analysis applies only to projects in a nonattainment area or an attainment area subject to a maintenance plan, and is required for each criteria pollutant for which an area has been designated nonattainment or maintenance. The General Conformity Rule ensures that actions taken by federal agencies in nonattainment and maintenance areas do not interfere with the State's plans to meet NAAQS. 40 CFR Part 93.153 defines *de minimis*

levels, which are the minimum threshold for which a conformity determination must be performed. If the proposed project's annual emissions are below the applicable *de minimis* levels, the project is not subject to a general conformity determination.

Based on the federal attainment statuses for the SCAB, the *de minimis* levels that apply to the SCAB are listed in Table 5-5. These levels apply to all direct and indirect annual emissions generated during construction and operation of the proposed project.

Table 5-5: General Conformity De Minimis Emission Rates for the SCAB

Pollutant	SCAB NAAQS Attainment Status Designation	De Minimis Emission Rate (tons/year)
Ozone (VOC or NO_X)	Extreme Nonattainment	10
CO	Serious Maintenance	100
PM_{10}	Maintenance	100
$PM_{2.5}$	Serious Nonattainment	100
SO_2 or NO_2	Maintenance	100
Lead	Partial Nonattainment	25

SCAB: South Coast Air Basin; NAAQS: National Ambient Air Quality Standards; VOC: volatile organic compounds; NO_X: nitrogen oxides; CO: carbon monoxide; PM_{10}: particulate matter less than 10 microns in size; $PM_{2.5}$: particulate matter less than 2.5 microns in size; SO_2: sulfur dioxide; NO_2: nitrogen dioxide.

Sources: USEPA, 2017b; SCAQMD, 2016

5.2.3.4 Analysis

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

No Impact. A project may be inconsistent with the AQMP if it would generate population, housing, or employment growth exceeding the forecasts used in the development of the AQMP. The 2016 AQMP relies on local city general plans and the Southern California Association of Governments' (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) forecasts of regional population, housing, and employment growth in its projections for managing SCAB air quality.

As discussed in the Project Description, the Equalization Storage component of the project would not increase the capacity of the plant, increase the amount of influent to be treated at the plant, nor would it increase the amount of effluent discharged to the Los Angeles River or the volume of solids sent to Hyperion for treatment. The Equalization Storage component would not indirectly or directly induce population, housing or employment growth because LAGWRP's permitted capacity would not increase and the improvement would be operated by existing personnel. Similarly, the Personnel Building component would construct a new administrative/operations building and renovate the existing Administration building to serve existing LAGWRP personnel; therefore, this upgrade would not directly generate employment growth. The project would not exceed SCAG's projected growth forecasts, and thus, would not

conflict with or obstruct implementation of the AQMP (LA Screening Criteria #2). No impact would occur.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less Than Significant Impact. The project would generate short-term emissions associated with project construction and long-term emissions associated with operation of the new Personnel Building.

c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?

Construction Emissions

Less Than Significant Impact. Project construction would generate temporary air pollutant emissions. These emissions are associated with fugitive dust and exhaust from heavy construction vehicles, as well as ROG released during the application of architectural coatings. summarizes maximum daily pollutant emissions during construction of the project.

Table 5-6: Construction Emissions (pounds/day) Compared to SCAQMD Thresholds

Construction Phase	Estimated Maximum Daily Emissions (pounds/day)[1]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Maximum pounds/day	11.4	90.2	62.4	0.1	14.2	7.1
SCAQMD Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
Maximum pounds/day (Onsite only)[2]	9.7	84.2	47.8	<0.1	10.7	6.1
Local Significance Thresholds (LSTs) (Onsite only)	*n/a*	*128*	*1,728*	*n/a*	*37*	*11*
Threshold Exceeded?	**n/a**	**No**	**No**	**No**	**No**	**No**

ROG: reactive organic gases; NO_X: nitrogen oxides; CO: carbon monoxide; SO_X: sulfur oxides; PM_{10}: particulate matter less than 10 microns in size; $PM_{2.5}$: particulate matter less than 2.5 microns in size; SCAQMD: South Coast Air Quality Management District

See Appendix C for modeling details and CalEEMod results.

Notes:

1. Emissions presented are the highest of the winter and summer modeled emissions. Numbers may not add up due to rounding. Emission data is pulled from "mitigated" results, which include measures that will be implemented during project construction, such as watering of soils during construction required under SCAQMD Rule 403.

2. Maximum onsite emissions from overlapping phases of construction.

As shown in Table 5-6, project construction emissions would not exceed SCAQMD's regional thresholds or LSTs; therefore, project construction would not have an individually or cumulatively significant impact to air quality in the SCAB. Additionally, neither site preparation nor construction activities for the proposed project would result in substantial emissions (emissions that exceed SCAQMD construction thresholds) that would not be controlled on site by existing regulations (LA Screening Criteria #4). Construction impacts to air quality would be less than significant.

Operational Emissions

Less Than Significant Impact. Table 5-7 summarizes emissions generated by operation of the Personnel Building component of the project. None of the other proposed improvements would increase existing operational emissions at the LAGWRP.

Table 5-7: Operational Emissions (pounds/day) Compared to SCAQMD Thresholds

Emissions Source	Estimated Maximum Daily Emissions (pounds/day)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area	0.4	<0.1	<0.1	<0.1	<0.1	<0.1
Energy	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mobile	0	0	0	0	0	0
Total Operational Emissions	0.4	<0.1	<0.1	<0.1	<0.1	<0.1
SCAQMD Thresholds	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

ROG: reactive organic gases; NO_X: nitrogen oxides; CO: carbon monoxide; SO_X: sulfur oxides; PM_{10}: particulate matter less than 10 microns in size; $PM_{2.5}$: particulate matter less than 2.5 microns in size; SCAQMD: South Coast Air Quality Management District

See Appendix C for modeling details and CalEEMod results.

Notes: Emissions presented are the highest of the winter and summer modeled emissions. Numbers may not add up due to rounding.

As shown in Table 5-7, operation of the project would not exceed SCAQMD's regional thresholds; therefore, project operation would not have an individually or cumulatively significant impact to SCAB's air quality. Operational impacts to air quality would be less than significant.

General Conformity Assessment

No Impact. Table 5-8 summarizes the project's total direct and indirect annual emissions, including maximum annual construction emissions and operational emissions, and compares total annual emissions to the applicable *de minimis* thresholds for the SCAB region.

Table 5-8: Total Annual Project Emissions Compared to De Minimis Threshold

Emissions Source	Estimated Annual Emissions (tons/year)						
	ROG	NO_X	NO_2	CO	PM_{10}	$PM_{2.5}$	SO_2
Maximum Annual Construction Emissions	1.0	8.9	8.9	6.1	1.7	0.8	<0.1
Operational Emissions	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Emissions	1.1	8.9	8.9	6.1	1.7	0.8	<0.1
De Minimis Thresholds	*10*	*10*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**	**No**

ROG: reactive organic gases; NO_X: nitrogen oxides; NO_2: nitrogen dioxide; CO: carbon monoxide; PM_{10}: particulate matter less than 10 microns in size; $PM_{2.5}$: particulate matter less than 2.5 microns in size; SO_2: sulfur dioxide.

See Appendix C for modeling details and CalEEMod results.

As shown in Table 5-8, the project's criteria air pollutant emissions would not exceed the applicable *de minimis* thresholds. Therefore, the general conformity requirements do not apply to these pollutants, and the project is exempt from a conformity determination.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Certain population groups, such as children, the elderly, and people with health problems, are particularly sensitive to air pollution. Sensitive receptors are defined as land uses that are more likely to be used by these population groups and include health care facilities, retirement homes, school and playground facilities, and residential areas. As described above, the nearest sensitive receptors to the project site are residential units located to the southeast of the LAGWRP, along and south of Goodwin Avenue. As discussed under items (b) and (c) above, the project's operational and construction emissions would not exceed the SCAQMD regional thresholds or LSTs, which are designed to be protective of public health.

Further, traffic-congested roadways and intersections have the potential for the generation of localized CO levels (i.e., CO hotspots). In general, CO hotspots occur in areas with poor circulation or areas with heavy traffic. As shown in Table 5-7, the project's operational CO emissions would be negligible and well below the SCAQMD's regional operational thresholds. Furthermore, the proposed project would not generate new employee vehicle trips to the project site. Therefore, the project would not result in CO hotspots on adjacent roadways (LA Screening Criteria #3). The project would not expose sensitive receptors to substantial pollutant concentrations and impacts would be less than significant.

e) Would the project create objectionable odors affecting a substantial number of people?

Less Than Significant Impact. As discussed in the Project Description, the Equalization Storage component of the project would not increase the capacity of the plant, increase the amount of influent to be treated at the plant, nor would it increase the amount of effluent discharged to the Los Angeles River or the volume of solids sent to Hyperion for treatment;

therefore, the project would not generate objectionable odors beyond levels currently generated by the LAGWRP. The project would generate oil or diesel fuel odors during construction from equipment. The odors would be limited to the time that construction equipment is operating and would be temporary. Impacts related to objectionable odors would be less than significant (LA Screening Criteria #3).

5.2.3.5 Mitigation Measures

No mitigation is required.

5.2.3.6 Significance After Mitigation

Not applicable.

5.2.4 BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan?	☐	☐	☐	☒

In July 2017, Rincon Consultants, Inc. (Rincon) completed a Biological Resource Assessment (BRA) for the project site. The analysis below is based largely on the BRA, which includes a literature and database review to characterize the nature and extent of biological resources on and adjacent to the site. Databases reviewed include the California Natural Diversity Data Base (CNDDB; California Department of Fish and Wildlife [CDFW], 2017a), Biogeographic Information and Observation System (CDFW, 2017b), and United States Fish and Wildlife Service (USFWS) Critical Habitat Portal (USFWS, 2017a) to determine if any special-status wildlife, plant, or vegetation communities were previously recorded within the study area or within the immediate vicinity. The *National Wetlands Inventory* (NWI; USFWS, 2017b) was reviewed to determine if any wetland and/or non-wetland waters had been previously documented and mapped on or in the vicinity of the property. Other resources included the California Native Plant Society (CNPS) Online Inventory of Rare, Threatened, and Endangered Plants of California (CDFW, 2017a), CDFW *Special Animals List* (CDFW, 2017c), and CDFW *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW, 2017d).

A field reconnaissance survey was completed in June 2017 of the study area. The study area is defined to be the entire fenced boundary of the LAGWRP (project site) and an approximate 100 foot buffer. The entire BRA can be found in Appendix D of this IS/MND.

5.2.4.1 Environmental Setting

The project site is disturbed and developed for use as a water reclamation plant. As previously mentioned in Section 1, Project Description, the project site contains multiple structures and paved areas. The project site's elevation ranges from approximately 410 feet to 450 feet above mean sea level and is generally flat.

Land Cover and Vegetation

Vegetation communities observed within the study area are classified based on the classification systems provided in *Preliminary Descriptions of the Terrestrial Communities of California* (Holland 1986) and *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009).

The study area includes a developed property consisting of buildings, wastewater facilities, concrete, and asphalt. The project site contains landscaping made up of ornamental trees including some planted sycamore (*Platanus* sp.), pine species (*Pinus* spp.), and juniper species (*Juniperus* spp.). Ruderal vegetation is sparse in areas that were not developed or where the landscaping is not maintained. Adjacent properties to the north, east, and south are also developed and support ornamental vegetation. The Los Angeles River is located immediately to the west of the project site and supports a narrow strip of riparian vegetation, including willows (*Salix* spp.), giant reed (*Arundo donax*), and cattails (*Typha* spp.) (See Figure A-11 in Appendix A).

Wildlife

The project site provides suitable habitat for a variety of wildlife species that commonly occur in urban areas. The wildlife species detected onsite are common, widely distributed, and adapted to living in proximity to human development. Common avian species detected in the study area include mourning dove (*Zenaida macroura*), European starling (*Sturnus vulgaris*), house finch

(*Haemorhous mexicanus*), red-winged blackbird (*Agelaius phoeniceus),* song sparrow *(Melospiza melodia),* black phoebe (*Sayornis nigricans*), cliff swallow (*Hirundo pyrrhonata*), barn swallow (*Hirundo rustica*), bushtit (*Psaltriparus minimus*), and American robin (*Turdus migratorius*). In addition, the western side-blotched lizard (*Uta stansburiana elegans*) was observed. Other wildlife species expected to occur in the study area are described in Section 3.4 of the BRA (see Appendix D).

Special Status Species

Special-status species are those plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered by the USFWS and National Marine Fisheries Service (NMFS) under the federal Endangered Species Act (ESA); those listed or candidates for listing as Rare, Threatened, or Endangered by the CDFW under the California Endangered Species Act (CESA) or Native Plant Protection Act; those listed as Fully Protected under Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code (CFGC), those recognized as Species of Special Concern by the CDFW; and plants listed as Rank 1 and 2 of the CNPS California Rare Plant Rank system.

The species name, status, and habitat requirements for all special-status species with potential to occur within the project vicinity, based on a records search of the CNDDB within a 5-mile radius of the site, are presented in Section 4 of the BRA (see Appendix D). Seventeen special status plant species and19 special status wildlife species have been documented within a 5-mile radius of the site.

Aquatic Resources

The project site does not contain any waters or wetlands as defined by federal or state jurisdictional definitions; however, the Los Angeles River is located outside the fenced project site boundary and to the west. The section of the Los Angeles River within the study area is located within Reach 4: Glendale Narrows. Within this reach, the Los Angeles River has a grouted stone invert with a soft river bottom. During the field survey, water was present within the channel. The channel bed is primarily open water, but a linear strip of vegetation was present, that included mixed native willow, cattail species, and non-native invasive giant reed.

Regulatory Setting

Regulatory authority over biological resources is shared by federal, state, and local authorities under a variety of statutes and guidelines. Primary authority for general biological resources lies with the land use control and planning authority of local jurisdictions. The CDFW is a trustee agency for biological resources throughout the state under CEQA and has direct jurisdiction under the CFGC. Under the ESA and CESA, the USFWS and CDFW, respectively, have direct regulatory authority over species formally listed as Threatened or Endangered.

Sensitive species are classified at federal, state, and local levels in a variety of ways, and the classifications can be both protective and advisory. Protective designations confer statutory or regulatory protection, while advisory designations serve to identify resources that should be considered during project planning and environmental review. Examples of protective designations include listing as Threatened or Endangered by the USFWS or CDFW, respectively, under the ESA or CESA, designation of plants as Rare by CDFW, and statutory protection as California Fully Protected under Sections 3511, 4700, 5050, and 5515 of the

CFGC, as well as other specific legal protection. (For instance, Section 3503.5 of the CFGC protects birds of prey and their nests and eggs against take, possession, or destruction.) Advisory designations include CDFW California Species of Special Concern (a category applied to certain species, roost sites, or nests because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction); or the USFWS list of Candidate taxa. The CDFW and local governmental agencies may also recognize special listings developed by focal groups (e.g., Audubon Society Blue List, CNPS Rare Plant Ranks). These designations are treated as advisory in most cases.

Under the provisions of the Migratory Bird Treaty Act (MBTA), it is unlawful "by any means or manner to pursue, hunt, take, capture (or) kill" any migratory birds except as permitted by regulations issued by the USFWS. The term "take" is defined in USFWS regulations to mean to "pursue, hunt, shoot, wound, kill, trap, capture or collect" any migratory bird or any part, nest, or egg of any migratory bird covered by the conventions, or to attempt those activities. In addition, the CFGC prohibits the needless destruction of birds' nests (CFGC Sections 3503 and 3503.5) and provides analogous state-level protection to species covered by the MBTA (CFGC Section 3513).

Activities affecting aquatic resources, such as lakes, streams, and wetlands, are regulated at the federal and state levels. The United States Army Corps of Engineers (USACE) has regulatory authority over the filling of waters of the United States, including wetlands, under Section 404 of the CWA. California's SWRCB and RWQCB have dual authority over aquatic resources, and have a role in administering Sections 401 and 402 of the CWA as well as asserting state-level jurisdiction over waters of the State under the Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code). Under Sections 1600 *et seq.* of the CFGC, the CDFW regulates activities that would divert, obstruct, or substantially alter lakes or streambeds that support fish or wildlife resources. Any activity that would remove or otherwise alter wetland and riparian habitats is subject to scrutiny by the regulatory agencies through the CEQA review process and through the CDFW, USACE, and RWQCB permitting processes.

More information on regulatory oversight of biological resources can be found in Appendix D.

City of Los Angeles

The City of Los Angeles *CEQA Thresholds Guide* (2006) provides criteria to screen out projects from further analysis that would not have a significant impact on biological resources. The proposed project is located in an unshaded portion of Exhibit C-2 of the City of Los Angeles *CEQA Thresholds Guide*. For a project located in this area, a project meriting a "no" response to all of the following screening criteria (LA Screening Criteria) would normally not have a significant impact and does not warrant further analysis:

- Known individuals of populations of a sensitive species use or inhabit the site during one or more seasons of the year, according to readily available published accounts, the project proponent and/or property owner.
- The project site is immediately adjacent to undeveloped natural open space containing native vegetation or the site appears to serve as a buffer between existing development and more natural habitat areas. Or if the project site is part of a movement corridor or habitat linkage system.

- A natural water source, such as a lake, river, vernal pool, ephemeral stream, marsh or the ocean is present on or adjacent to the site.

The City of Los Angeles *CEQA Thresholds Guide* defines a significant impact on biological resources if the project would result in one or more of the following:

- The loss of individuals, or the reduction of existing habitat, of a state- or federal-listed endangered, threatened, rare, protected, or candidate species, or a Species of Special Concern or federally listed critical habitat.
- The loss of individuals or the reduction of existing habitat of a locally designated species or a reduction in a locally designated natural habitat or plant community.
- Interference with wildlife movement/migration corridors that may diminish the chances for long-term survival of a sensitive species.
- The alteration of an existing wetland habitat.
- Interference with habitat such that normal species behaviors are disturbed (e.g., from the introduction of noise, light) to a degree that may diminish the chances for long-term survival of a sensitive species.

5.2.4.2 Analysis

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations, or by the CDFW or U.S. Fish and Wildlife Service?

Less Than Significant Impact with Mitigation Incorporated. As described in the Environmental Setting, 17 special status plants species and 19 special status wildlife species have been documented within a 5-mile radius of the site.

No special-status species were observed or otherwise detected within the study area during the field survey. No special-status plant species have potential to occur within the project site. The project site is disturbed and developed with a water reclamation facility. Onsite landscaping and ruderal vegetation provide marginal habitat for wildlife species. Additionally, the facility is fenced, providing barriers for many species to access the site. Based on the existing site conditions, no special-status wildlife species have a moderate or high potential to occur within the study area.

The study area does not occur within any USFWS-designated critical habitat and no critical habitat occurs within five miles of the project site.

Although suitable habitat does not occur within the project site, the riparian/riverine habitat occurring along the adjacent Los Angeles River is in the study area and may provide foraging habitat for some special-status wildlife. However, movement into and through the project site is restricted due to existing fencing, the steep slope of the Los Angeles River banks, and other barriers around the project site. Further, the site is developed and does not contain sources of food or water or other features that would encourage wildlife to enter the site.

Current and historical uses within the project site have resulted in regular human disturbance. Species present within the construction footprint, are likely adapted to noise, foot traffic, moderate vehicle traffic or other anthropogenic disturbances. For this reason, long term operational activities of the project are not expected to pose any new direct or indirect significant impacts to special-status species that may occur in the project vicinity.

Birds protected by the CFGC and the Migratory Bird Treaty Act (MBTA) could nest in the construction footprint and adjacent areas. Raptor nesting habitat is present in the larger trees occurring within the property. Nesting birds and raptors could be directly and indirectly impacted by temporary construction activities through the removal of trees and from the generation of dust, noise and vibration would disturb nesting birds and/or raptors resulting in a potentially significant impact. Operation of the proposed project would not impact raptor foraging habitat.

The proposed project would result in potentially significant direct and indirect impacts to protected nesting birds and/or raptors and their nests during the nesting season. Mitigation measures **BIO-1** through **BIO-3** would reduce the impact to a less than significant level through the avoidance of active nests.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

Less Than Significant Impact. As described in the BRA, the study area does not occur within any Los Angeles County-designated Significant Ecological Areas (SEAs). The nearest SEA relative to the study area occurs in Griffith Park, which is located approximately 0.75 mile west of the project site and west of Interstate 5. Further, as explained in the BRA, the project site is developed and does not contain any vegetation communities identified as sensitive. Therefore, construction of the proposed project would not result in any direct loss or removal of sensitive habitat. The Los Angeles River and adjacent riparian corridor is located in the study area but outside the project footprint. Absent mitigation, indirect impacts to the Los Angeles River may occur and could include introduction of pollutants from construction site runoff. As described in Section 5.2.9, a project-specific SWPPP will be developed for the site, and will ensure that runoff is contained or treated in accordance with applicable regulations. Considering this requirement, the impact would be less than significant.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less Than Significant Impact. No drainages/streams occur within the project site. The Los Angeles River is located to the west, immediately adjacent to the project site within the study area. No activities are proposed in the bed or bank of the Los Angeles River. As described in subsection “b” above, indirect impacts to the Los Angeles River may occur and could include introduction of pollutants from construction site runoff. As described in Section 5.2.9, a project-specific SWPPP will be developed for the site, and will ensure that runoff is contained or treated in accordance with applicable regulations. Considering this requirement, the impact would be less than significant.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less Than Significant Impact. Regional and local wildlife movements are expected to be concentrated near topographic or vegetative features that allow convenient passage, including roads, drainages and ridgelines, between areas of suitable habitat. The project site and its surroundings are developed and disturbed, and the project site does connect two or more habitat areas. The Los Angeles River is located adjacent to the project site and is the primary movement corridor through the area for local wildlife. However, wildlife movement from the Los Angeles River onto the project site is restricted due to the presence of a chain-link fence along each bank. Additionally, the study area is adjacent to previously developed areas and roads that restrict wildlife movement.

The study area is located 0.75 mile from the Griffith Park SEA. While this SEA has been identified as an important feature for wildlife movement, the site is separated from the SEA by extensive urban and industrial development, including Interstate 5, and there is no habitat linkage connecting the site to the SEA. Considering this information, the project site is not likely to be used as a wildlife movement route, and the impact to wildlife movement would be less than significant.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less Than Significant Impact with Mitigation Incorporated. Natural resources within the Los Angeles city limits are regulated according to the City of Los Angeles General Plan (General Plan) and City of Los Angeles Municipal Code. The General Plan Conservation and Natural Resources Element contains policies for the protection of open space, biological resources, including Los Angeles County designation of SEAs, and local water resources. The policies anticipate potential impacts to biological resources from the land uses and activities that will occur under the General Plan, and aim to avoid, reduce, and/or mitigate those impacts. The following policies are relevant to the project:

- Policy C/NR 3.6: Assist state and federal agencies and other agencies, as appropriate, with the preservation of special status species and their associated habitat and wildlife movement corridors through the administration of the SEAs and other programs.
- Policy C/NR 3.8: Discourage development in areas with identified significant biological resources, such as SEAs.

As described in subsection “d”, above, the study area is located 0.75 mile from the Griffith Park SEA; however, the project site does not connect with the Griffith Park SEA. Therefore, the project would not conflict with policies regulating SEAs.

City of Los Angeles Municipal Code Chapter IV Public Welfare (2005) and Ordinance No. 153,478, protects native oak tree species which measure eight inches or more in diameter-at breast-height (DBH), and other native tree species four inches or more in DBH (cumulative total for multi-trunks). The field survey within the study area did not include a tree survey that identified tree location, species, and DBH. A preliminary review of the project plans during the field survey was completed and there may be tree impacts (i.e., trimming or removal) necessary for the construction of the New Primary Sedimentation Tanks and the 2.5 MG EQ Tank (see

Figure A-11 in Appendix A). An impact would occur if native trees covered by Ordinance No. 153,478 are removed as part of the project. Impacts would be less than significant with implementation of mitigation measure **BIO-4**, which requires that the project comply with Ordinance No. 153,478 for the removal of any native trees present.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan?

No Impact. The project site is not subject to any Habitat Conservation Plans, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, the proposed project would not conflict with the policies of any conservation plans and no impact would occur.

5.2.4.3 Mitigation Measures

BIO-1 Prior to start of project activities, a qualified biologist should conduct a Worker Environmental Awareness Program training to orient staff with sensitive biological resources that may occur within the project site and adjacent areas and provide information on sensitive work practices.

BIO-2 To avoid impacts to nesting birds, project-related activities should occur outside of the bird breeding season (February 1 to August 31) to the extent practicable. If project activities must occur within the bird breeding season, no more than three days prior to initiation of ground disturbance and/or vegetation removal, a nesting bird and raptor pre-activity survey should be conducted by a qualified biologist within the disturbance footprint plus a 100 foot buffer, where practicable. If the project is phased, a subsequent pre-activity nesting bird and raptor survey may be required prior to each phase of construction. Results of the nesting bird and raptor survey, if applicable, should be documented.

BIO-3 If active nests are found, an avoidance buffer ranging in size from 25 to 50 feet for song birds, and up to 250 feet for raptors depending upon the species and the proposed work activity, should be determined and demarcated by a qualified biologist. A qualified biologist may adjust this buffer size depending on the potential disturbance from the project activities to the nesting birds. Active nests should be monitored at a minimum of once per week until it has been determined that the nest is no longer being used by either the young or adults. No ground disturbance should occur within this buffer until the qualified biologist confirms that the breeding/nesting is completed and all young have fledged. If project activities must occur within the buffer, they should be conducted at the discretion of the qualified biologist.

BIO-4 Trees that occur within the proposed project footprint that may be impacted by trimming, removal, relocation, or may impact the tree's root structure, should be identified on project plans with the associated tree species and DBH. Impacts to native oak tree species, defined to be valley oak (*Quercus lobata*) and California live oak (*Quercus agrifolia*), or any other tree of the oak genus indigenous to California which measures eight inches or more in diameter, four and one-half feet above the

ground level at the base of the tree, should be assessed and a tree removal permit from the City of Los Angeles should be acquired prior to the start of project activities.

5.2.4.4 Significance After Mitigation

Implementation of mitigation measures **BIO-1** through **BIO-4** will reduce impacts to biological resources to a less than significant level.

5.2.5 CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

In July 2017, Rincon conducted a Phase I cultural resources assessment and a paleontological resources assessment of the project site. The Phase I study and paleontological resources assessment can be found in Appendix E and F, respectively. The analysis below is based largely on the Phase I study and paleontological resources assessment. The Phase I study included a cultural resources records search, Native American outreach, and a pedestrian survey of the study area. The paleontological resources assessment included a fossil locality record search at the Natural History Museum of Los Angeles County (LACM), review of existing geologic maps and primary literature regarding fossiliferous geologic units within the proposed project vicinity and region, and assessment of the paleontological sensitivity of the geologic units at the project site.

5.2.5.1 Environmental Setting

5.2.5.1.1 Paleontological Setting

A search of the paleontological locality records at the LACM paleontological collection resulted in no previously recorded fossil localities within the project boundaries. However, the paleontological literature for early-middle Holocene and Pleistocene-aged geologic units in southern California contains an abundant and diverse fossil record as described in Appendix F. The various collections of Pleistocene-aged fossils represent diverse assemblages of vertebrate taxa including amphibians, reptiles, birds and mammals. Important invertebrate and plant fossils have also been recovered from Pleistocene-aged alluvial units, providing important information on the environmental setting of the Pleistocene.

The regional geologic setting of the project site is also described in detail in Appendix F. The project area includes one geologic unit mapped at the surface (Figure 2 in Appendix F):

Quaternary (Holocene) gravel and sand of major stream channels (Qg) (Dibblee and Ehrenspeck 1991). Holocene units are comprised of terrestrial sediments. These alluvial sediments consist primarily of river sand (generally well sorted, with little or no fines), with lenses of gravel and cobbles.

Quaternary (Holocene) alluvial deposits at the surface in the project area are too young to preserve fossil resources and have low paleontological sensitivity, based on the Society for Vertebrate Paleontology's classification system. However, at unknown depths, sediments may transition from too young to support fossils, to early Holocene and/or late Pleistocene in age in which scientifically significant fossils could occur. Ground disturbance deeper than 10 feet has low potential to disturb older alluvium with high paleontological sensitivity.

5.2.5.1.2 Cultural Setting

5.2.5.1.2.1 Ethnographic Setting

The project site is located in an area historically occupied by the Gabrielino (Bean and Smith 1978). Many contemporary Gabrielino use the native term Tongva and this term is used in the remainder of this section to refer to the pre-contact inhabitants of the Los Angeles Basin and their descendants. Tongva lands encompassed the greater Los Angeles Basin and three Channel Islands: San Clemente, San Nicolas, and Santa Catalina. The Tongva established large, permanent, villages in fertile lowlands along rivers and streams (Bean and Smith 1978:540). Tongva subsistence focused on gathering and hunting, with acorns serving as a staple food supplemented by roots, leaves, seeds, and fruits of a wide variety (e.g., islay, cactus, yucca, sages, and agave). Freshwater and saltwater fish, shellfish, birds, reptiles, and insects, as well as large and small mammals, were also consumed (Bean and Smith 1978:546; Kroeber 1925:631-632; McCawley 1996: 119-123, 128-131).

5.2.5.1.2.2 History

Post-contact history for the Los Angeles Basin began in 1769 when the expedition of Captain Gaspar de Portolá reached the area. Two years later, Friar Junípero Serra returned to the valley to establish a Catholic mission, the Mission San Gabriel Arcángel, on September 8, 1771 (Kyle 2002:151). In 1781, a group of 11 families traveled from Mission San Gabriel to establish a new pueblo called El Pueblo de la Reyna de Los Angeles (The Pueblo of the Queen of the Angels). The settlement consisted of a group of adobe-brick houses and streets and would eventually be known as the Ciudad de Los Angeles (City of Angels).

During the Spanish and Mexican periods, extensive lands grants were established in part as rewards to soldiers for their service and in part to increase population and expand settled areas. The project site is located within what was Ranch San Rafael, granted by the Spanish Governor Pedro Fages in 1784 to Jose Maria Verdugo (Shumway, 2007:41). Rancho San Rafael remained in the hands of the Verdugo family throughout the Mexican period and was patented to J. Verdugo by the United States Government in 1882.

The City of Los Angeles incorporated on April 4, 1850, two years after the Mexican-American war and five months prior to California achieving statehood. Settlement continued in the early American period and by 1876 the population had reached 30,000 (Dumke 1944). By the late 1800s, government leaders recognized the need for water to sustain the growing population in

the Los Angeles area. Irish immigrant William Mulholland personified the City of Los Angeles's efforts for a stable water supply (Dumke 1944, Nadeau 1997). By 1913, the City of Los Angeles had purchased large tracts of land in the Owens Valley and Mulholland planned and completed construction of the 240-mile aqueduct that brought the valley's water to the city (Nadeau 1997).

Los Angeles continued to grow in the twentieth century, in part due to the discovery of oil in the area and its strategic location as a wartime port. The county's mild climate and successful economy continued to draw new residents in the late 1900s, with much of the county transformed from ranches and farms into residential subdivisions surrounding commercial and industrial centers.

5.2.5.1.2.3 Existing Conditions

On June 12, 2017, Rincon conducted a search of the California Historical Resources Information System (CHRIS), at the South Central Coastal Information Center (SCCIC) located at California State University, Fullerton. The search was conducted to identify all previous cultural resources work and previously recorded cultural resources within a 0.5-mile radius of the project site. The CHRIS search included a review of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the California Points of Historical Interest list, the California Historical Landmarks list, the Archaeological Determinations of Eligibility list, and the CRHR Inventory list. The records search also included a review of all available historic United States Geological Survey (USGS) 7.5- and 15-minute quadrangle maps. The SCCIC records search identified nine previous studies within a 0.5-mile radius of the project site, none of which are within the project site. The SCCIC records search identified four previously recorded cultural resources within a 0.5-mile radius of the project site, none of which are located within the project site. Each resource located within the 0.5-mile radius consists of a historic built-environment resource.

A review of the *Kirkman-Harriman Pictorial and Historical map of Los Angeles County* (see Figure A-12 in Appendix A), a historic map of the Los Angeles basin that depicts the locations of principal historic sites, highways, and battlefields ca. 1860 A.D. to 1937 A.D., indicates the possible presence of a village site in the vicinity of the project site (Kirkman, 1938). The village is depicted in the area on the east bank of the Los Angeles River east of Griffith Park. The village is not labeled, thus its name is not known and it could not be further researched.

The project site is located within the Northeast Los Angeles River Revitalization Project Area (NELA), which was surveyed in 2012 under SurveyLA protocols established by the Los Angeles Office of Historic Resources (HRG & GPA, 2012). The NELA survey did not identify the current project site as a historic resource due to its age. The neighboring property, 4660 W. Colorado Boulevard, was evaluated as significant under the theme of Mid-Century Modern architecture. The current project will not affect the adjacent property.

Rincon cultural resources specialists conducted a pedestrian survey of the project site on June 16, 2017. No cultural resources were identified within the project site during the survey. The plant itself was constructed in 1972 and is therefore not old enough to be considered a cultural resource at this time. The project site is adjacent to the Los Angeles River, but the river corridor has been developed since the 1940s when the river was fully channelized after a series of serious flooding events. Channelization of the river included widening and lowering the channel as well as straightening the course of the river, which included heavy ground disturbance to

surrounding soils. The project site has also been heavily developed with a pond and other facilities. The channelization of the river and the construction of the existing ponds have heavily disturbed soils within the project site, thus the archaeological sensitivity of the project site is considered to be low.

5.2.5.1.3 Regulatory Setting

5.2.5.1.3.1 Paleontological Resources

National Environmental Policy Act of 1969

NEPA (United States Code, section 4321 et seq.; 40 Code of Federal Regulations, section 1502.25), as amended, directs federal agencies to "Preserve important historic, cultural, and natural aspects of our national heritage (Section 101(b) (4))." The current interpretation of this language has included scientifically important paleontological resources among those resources that may require preservation.

Paleontological Resources Preservation Act of 2009

The Paleontological Resources Preservation Act is part of the Omnibus Public Land Management Act of 2009 (Public Law 111-011 Subtitle D). This Act directs the Secretary of the Interior or the Secretary of Agriculture to manage and protect paleontological resources on federal land, and develop plans for inventorying, monitoring, and deriving the scientific and educational use of such resources. It prohibits the removal of paleontological resources from federal land without a permit issued under this Act, establishes penalties for violation of this Act and establishes a program to increase public awareness about such resources. While specific to activity that occurs on federal lands, some federal agencies may require adherence to the directives outlined in the PRPA for projects on non-federal lands if federal funding is involved, or the project includes federal oversight.

California Environmental Quality Act

CEQA requires that public agencies and private interests identify the potential environmental consequences of their proposed projects on any object or site considered to be a historical resource of California (California PRC, section 21084.1, California Code of Regulations Title 14, section 15064.5). Appendix G of the State CEQA Guidelines (California Code of Regulations Title 14, Chapter 3) provides an Environmental Checklist of questions including a single question related to paleontological resources (Section V.c) as follows: "Would the project directly or indirectly destroy a unique paleontological resource or site…?"

CEQA does not define "a unique paleontological resource or site." However, the Society of Vertebrate Paleontology (SVP) has defined a "significant paleontological resource" in the context of environmental review. The SVP defines a Significant Paleontological Resources as:

> *…fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years).*

The loss of paleontological resources that meet the criteria outlined above (i.e. considered a significant paleontological resource) would be considered a significant impact under CEQA, and the CEQA lead agency is responsible for ensuring that paleontological resources are protected in compliance with CEQA and other applicable statutes.

Public Resources Code Section 5097.5

Section 5097.5 of the PRC states:

> *No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.*

As used in this PRC section, "public lands" means lands owned by, or under the jurisdiction of, the state or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, local agencies are required to comply with PRC 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others.

5.2.5.1.3.2 Cultural Resources

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources (PRC, Section 21084.1). A historical resource is a resource listed in, or determined to be eligible for listing, in the CRHR, a resource included in a local register of historical resources or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (State CEQA Guidelines, Section 15064.5[a][1-3]). A resource shall be considered historically significant if it:

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2) Is associated with the lives of persons important in our past;

3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

4) Has yielded, or may be likely to yield, information important in prehistory or history.

In addition, if it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC, Section 21083.2[a], [b], and [c]).

PRC, Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it:

1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;

2) Has a special and particular quality such as being the oldest of its type or the best available example of its type; or

3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

5.2.5.1.3.3 Local Laws and Regulations Applicable to Cultural and Paleontological Resources

The City of Los Angeles General Plan contains the following policies relating to cultural and paleontological resources that are relevant to the proposed project.

- Policy C/NR 14.1: Mitigate all impacts from new development on or adjacent to historic, cultural, and paleontological resources to the greatest extent feasible.

- Policy C/NR 12.6: Ensure proper notification and recovery processes are carried out for development on or near historic, cultural, and paleontological resources.

5.2.5.2 Analysis

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

No Impact. No historical resources have been identified within the project site following a cultural resources records search, pedestrian survey, or review of local historical information. The plant is not old enough to be considered a historical resource and the project will not impact any resources in the vicinity. Thus, the project will not have a significant impact to historical resources. No mitigation is required.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less Than Significant Impact with Mitigation Incorporated. No archaeological resources have been identified within project site as a result of the cultural resources records search, pedestrian survey, or review of local historical information. The Kirkman-Harriman map in Figure A-12 (see Appendix A) indicated the presence of a Native American village in the project vicinity, but the exact location of the village is unknown and no additional information regarding village sites in the project vicinity was identified. Soils within the project site have been significantly disturbed by the channelization of the Los Angeles River and by the construction of the existing plant facilities. Thus, the project site is considered to have low sensitivity for archaeological resources. However, encountering archaeological resources is always a possibility during ground disturbing activities. Mitigation Measure **CR-1** is required to address unanticipated discoveries. With the incorporation of this measure, impacts would be less than significant.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact with Mitigation Incorporated. Quaternary alluvial sediments mapped at the surface in the area of the project site are late Holocene in age, and as such have low paleontological sensitivity; therefore, shallow ground disturbance in these areas would not impact scientifically significant paleontological resources. At depths over 10 feet, these sediments may transition into early Holocene or Pleistocene aged sediments with high paleontological sensitivity.

Proposed project ground disturbance is expected to occur to maximum depth of 22 feet in some portions of the project site. Ground disturbing activities deeper than 10 feet may result in disturbance of older alluvium with high paleontological sensitivity, and as such could result in significant impacts to paleontological resources. Mitigation Measures **CR-2** through **CR-6** are required to address the potential for impacts to paleontological resources. With the incorporation of this measure, impacts would be less than significant.

d) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Less Than Significant Impact. The potential for recovery of human remains is always a possibility during ground disturbing activities. Human burials outside of formal cemeteries often occur in prehistoric archaeological contexts. In addition to being potential archaeological resources, human burials have specific provisions for treatment in Section 5097 of the PRC. The California Health and Safety Code (Sections 7050.5, 7051, and 7054) additionally has specific provisions for the protection of human burial remains. Existing regulations address the illegality of interfering with human burial remains, and protects them from disturbance, vandalism, or destruction. PRC, section 5097.98 also addresses the disposition of Native American burials, protects such remains, and establishes the Native American Heritage Commission (NAHC) as the entity to resolve any related disputes. With adherence to these existing regulations, the project would have a less than significant impact to human remains. No mitigation is required.

5.2.5.3 Mitigation Measures

CR-1 **Unanticipated Discoveries.** In the event that archaeological resources are encountered during ground-disturbing activities, work in the immediate area shall halt, and an archaeologist meeting the Secretary of Interior's Professional Qualifications Standards for archaeology (NPS 1983) shall be contacted immediately to evaluate the find. Evaluation of significance for the find may include the determination of whether or not the find qualifies as an archaeological site. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for CRHR or NRHP eligibility. If the discovery proves to be significant and cannot be avoided by the project, additional work, such as data recovery excavation, may be warranted to mitigate any significant impacts to archaeological resources. Mitigation of significant impacts to the find may include a damage assessment of the find, archival research, and/or data recovery to remove any identified archaeological deposits, as determined by the qualified archaeologist. After effects to the find have been appropriately mitigated, work in the area may resume. After any cultural resources find during construction, an archaeological monitor shall be retained for the duration of all ground-disturbing activities. In the

event that the discovery is found to be Native American in origin, a Native American monitor shall also be retained for the duration of all ground-disturbing activities.

CR-2 **Retain a Qualified Paleontologist.** Prior to initial ground disturbance, the applicant shall retain a project paleontologist, defined as a paleontologist who meets the SVP standards for Qualified Professional Paleontologist, to direct all mitigation measures related to paleontological resources. A qualified paleontologist (Principal Paleontologist) is defined by the SVP standards as an individual with an M.S. or Ph.D. in paleontology or geology who is experienced with paleontological procedures and techniques, who is knowledgeable in the geology of California, and who has worked as a paleontological mitigation project supervisor for a least one year (SVP 2010).

CR-3 **Paleontological Worker Environmental Awareness Program (WEAP).** Prior to the start of construction, the project paleontologist or his or her designee shall conduct training for construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction staff. The WEAP shall be fulfilled at the time of a preconstruction meeting at which a qualified paleontologist shall attend.

CR-4 **Paleontological Monitoring.** Ground disturbing construction activities (including grading, trenching, foundation work, and other excavations) that exceed 10 feet in depth anywhere on the site should be monitored on a full-time basis by a qualified paleontological monitor during initial ground disturbance. Monitoring should be conducted by a qualified paleontological monitor, who is defined as an individual who has experience with collection and salvage of paleontological resources (SVP 2010). The duration and timing of the monitoring will be determined by the project paleontologist and the location and extent of proposed ground disturbance. If the project paleontologist determines that full-time monitoring is no longer warranted, based on the specific geologic conditions at the surface or at depth, the lead paleontologist may recommend that monitoring be reduced to periodic spot-checking or cease entirely. Ground disturbing activity that does not exceed 10 feet in depth within Quaternary alluvium would not require paleontological monitoring.

CR-5 **Fossil Discovery.** In the event of a fossil discovery by construction personnel, all work in the immediate vicinity of the find shall cease and a qualified paleontologist shall be contacted to evaluate the find before restarting work in the area. If it is determined that the fossil(s) is(are) scientifically significant, the qualified paleontologist shall complete the following conditions to mitigate impacts to significant fossil resources.

If fossils are discovered, the project paleontologist or paleontological monitor should recover them. Typically fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case the paleontologist should have the authority to temporarily direct, divert, or halt construction activity to ensure that the fossil(s) can be removed in a safe and timely manner.

Once salvaged, significant fossils should be identified to the lowest possible taxonomic level, prepared to a curation-ready condition, and curated in a scientific institution with a permanent paleontological collection (such as the Natural History Museum of Los Angeles County), along with all pertinent field notes, photos, data, and maps. Fossils of undetermined significance at the time of collection may also warrant curation at the discretion of the project paleontologist.

CR-6 **Final Paleontological Mitigation Report.** Upon completion of ground disturbing activity (and curation of fossils, if necessary) the qualified paleontologist should prepare a final mitigation and monitoring report outlining the results of the mitigation and monitoring program. The report should include discussion of the location, duration and methods of the monitoring, stratigraphic sections, any recovered fossils, and the scientific significance of those fossils, and where fossils were curated.

5.2.5.4 Significance After Mitigation

Implementation of mitigation measures **CR-1** through **CR-6** will reduce impacts to a less than significant level.

5.2.6 GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

5.2.6.1 Environmental Setting

General

The fault classification system adopted by the California Department of Mines and Geology (CDMG), relative to State legislation delineating Earthquake Fault Zones along active or potentially active faults (Alquist-Priolo Act), is used for structures. CDMG defines an active fault (or fault zone) as a fault that has moved within Holocene time (about the last 11,000 years).

Faults with no known displacement within Holocene time that showed evidence of movement during Quaternary time (the last 1.6 million years) have been defined as potentially active.

In addition, the State has also established a Seismic Hazard Mapping Act to provide statewide seismic hazard mapping and technical advisory program. The purpose of this legislation was to assist cities and counties in fulfilling their responsibilities for protecting the public health and safety from the effects of strong ground shaking, liquefaction,
landslides, or other ground failure hazards caused by earthquakes.

Ground surface rupturing along faults, ground shaking and liquefaction are three of the important seismic considerations for properties in Southern California. The site is not located within an Alquist-Priolo Earthquake Fault Zone. Based on the Alquist-Priolo Earthquake Fault Zone map in Figure A-13 (see Appendix A), the potential for ground surface rupture impacting the site is considered low. The site lies within Seismic Zone 4 of the 2013 CBC. Based on the current understanding of the geologic framework of the site area, the seismic hazard which is expected to have the highest probability of affecting the site is ground shaking resulting from an earthquake occurring along any of several major active and potentially active faults in Southern California. Known regional faults that could produce significant ground shaking at the site include the Hollywood Fault, Verdugo, Raymond and Sierra Madre, among others.

Geological Investigation Report

A geological investigation was conducted for the project (City of Los Angeles Department of Public Work BOE, Geotechnical Engineering Group, March 7, 2017). The investigation involved drilling four exploratory borings on the project site to evaluate geological conditions. Environmental testing was performed to identify the presence or absence of volatile organic compounds (VOCs) to evaluate whether fuel spills or other contamination of the soil has occurred in the boring areas. Laboratory tests were conducted on selected samples to characterize certain engineering (physical) properties of the earth materials. Laboratory tests were conducted in general accordance with appropriate American Section of the International Association for Testing Materials (ASTM) or Caltrans standards as indicated.

The Geotechnical Engineering group included detailed geotechnical engineering recommendations addressing the surficial soils, site preparation, site earthwork, and foundations for the project. Recommendations based on the properties of the materials encountered in the exploratory borings and field and laboratory test results were made for site clearing, temporary excavations, temporary shoring, site earthwork, structural foundation, retaining walls, and cement type and corrosion measures.

All grading and foundation plans and specifications will be required to implement the recommendations presented in the Geological Investigation Report (City of Los Angeles Department of Public Work BOE, Geotechnical Engineering Group, March 7, 2017). All grading, excavation, fill placement and construction of foundations will be required to be performed under the observation and testing of the Geotechnical Engineer.

5.2.6.2 Analysis

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

No Impact. The site is not located within an Alquist-Priolo Earthquake Fault Zone as indicated in Figure A-13 in Appendix A. Based on the Alquist-Priolo Earthquake Fault Zone map, the potential for ground surface rupture impacting the site is considered low. Based on the current understanding of the geologic framework of the site area, the seismic hazard which is expected to have the highest probability of affecting the site is ground shaking resulting from an earthquake occurring along any of several major active and potentially active faults in Southern California. Known regional faults that could produce significant ground shaking at the site include the Hollywood Fault, Verdugo, Raymond and Sierra Madre, among others. However, none of these known faults occur in the immediate proximity of the project site, and no evidence of faulting is found on the site. Therefore, no impacts associated with rupture of a known earthquake fault would occur.

ii. Strong seismic ground shaking?

Less Than Significant Impact. Like other projects located in the tectonically active Southern California region, the project would likely experience shaking effects from surrounding faults during seismic events. However, the project site is not located within an Alquist-Priolo Earthquake Fault Zone, and the site would not be affected by ground shaking more than any other area in the seismically active region. Additionally, the project elements would be designed in accordance with all applicable design provisions set forth by the current CBC requirements and AWWA and ACI standards, which dictate specifications to ensure that facilities and mechanical units would be able to withstand specified seismic forces. Therefore, impacts associated with strong seismic ground shaking would be less than significant.

iii. Seismic-related ground failure, including liquefaction?

Less Than Significant Impact. According to the State of California Seismic Hazard Zones Map in Figure A-14 in Appendix A (cited in City of Los Angeles Department of Public Work BOE, Geotechnical Engineering Group, March 7, 2017), the site is located within an area that has potential for liquefaction. Liquefaction is a process that occurs when saturated sediments are subjected to repeated strain reversals during a seismic event. The strain reversals cause an increase in pore water pressure such that the internal pore pressure approaches the overburden pressure and the shear strength approaches a low residual value. Liquefied soils are subject to flow, consolidation, or excessive strain. Liquefaction typically occurs in loose to medium dense sand and silty sand soils below the groundwater table. Predominately fine-grained soils, such as silts and clays are less susceptible to liquefaction.

Soil testing was conducted as part of the geological investigation (City of Los Angeles Department of Public Work BOE, Geotechnical Engineering Group, March 7, 2017) to better understand the specific qualities of the underlying soils on the project site. A liquefaction analysis was performed for the Maximum Considered Earthquake Geometric Mean ground

acceleration of 1.1 g and a ground acceleration of 0. 73g (2/3 of the Maximum Considered Earthquake-Geometric Mean ground acceleration of 1.1 g). The analysis considered soil particle size and plasticity through laboratory testing and measured groundwater levels. The result of the analysis indicates the subgrade material is not potentially susceptible to liquefaction.

Additionally, the project elements would be designed in accordance with all applicable design provisions set forth by the current CBC requirements and AWWA and ACI standards, which dictate specifications to ensure that facilities and mechanical units would be able to withstand specified soil characteristics, including liquefaction and other seismic-related ground failure. Therefore, impacts associated with liquefaction would be less than significant.

iv. Landslides?

Less Than Significant Impact. According to the CDC Landslide Inventory Map, Burbank Quadrangle, (see Figure A-15 in Appendix A) the project is in an area where this no historic occurrence of, or the local geologic conditions indicate that, there is a potential for earthquake induced landslides. The project components will be constructed upon a previously graded, relatively flat area. Additionally, the project would be designed in accordance with all applicable design provisions set forth by both the current CBC requirements and AWWA and ACI standards which dictate specifications to ensure that facilities and mechanical units would be able to withstand specified soil characteristics, including landslides. Therefore, impacts associated with landslides would be less than significant.

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

Less Than Significant Impact. Excavation and grading will occur during construction of the project. Refer to Table 3-1 for estimated construction volumes. Soils underlying hardscape land covers and landscaped areas would be temporarily exposed, increasing the potential for erosion. The minimize the potential for wind or water erosion during construction, the project would be subject to the typical construction related BMPs that address erosion and runoff, including those of the CWA and the NPDES. Construction and operational BMPs would be implemented, as necessary, and may include stormwater and sediment source control BMPs and treatment control BMPs. The final list of BMPs to be implemented will be determined by LASAN in conjunction with the construction contractor and will be employed to address erosion, siltation, stormwater, drainage, and water quality issues. Additionally, upon completion of construction, all exposed areas would be returned to conditions similar to those prior to groundbreaking activities (i.e., hardscape areas would be repaved and landscaped areas would be revegetated). Where possible, excavated soils from the Equalization Storage Project will be used to turn the existing, in-active, de-chlorination pond into a landscape and water feature. Overall, following completion of construction, the project would not have increased the amount of exposed soils on the project site. Therefore, impacts associated with soil erosion would be less than significant.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?

Less Than Significant Impact. As previously discussed, while the broader project site may be susceptible to certain soil instability, the project would be designed in accordance with all applicable design provisions set forth by both the current CBC requirements and AWWA and

ACI standards, which dictate specifications to ensure that facilities and mechanical units would be able to withstand specified soil characteristics, including instability.

Soil testing was conducted as part of the Geological Technical Report (City of Los Angeles Department of Public Work BOE, Geotechnical Engineering Group, March 7, 2017) to better understand the specific qualities of the underlying soils on the project site. The analysis was performed with consideration to soil particle size and plasticity information obtained through laboratory testing, and the measured and anticipated high groundwater levels. The result of the analysis indicates the subgrade material on the site is not potentially susceptible to liquefaction.

Therefore, impacts associated with unstable soils would be less than significant.

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

Less Than Significant Impacts. The CDC Seismic Hazard Zone Maps in Figure A-14 (see Appendix A) do not identify locations of expansive soils. Expansive soils have a significant amount of clay particles, which can shrink and swell with water, exerting stress on infrastructure within or above the surface. The occurrence of these soils is often associated with geologic units having marginal stability. The project site is in an area where geologic conditions are generally suitable to support a substantial amount of develop and land uses, including the existing residential and commercial uses and local roadways.

Additionally, the project elements would be designed in accordance with all applicable design provisions set forth by the current CBC requirements and AWWA and ACI standards, which dictate specifications to ensure that facilities and mechanical units would be able to withstand specified soil characteristics, including expansive soils.

Soil testing was conducted as part of the Geological Technical Report (City of Los Angeles Department of Public Work BOE, Geotechnical Engineering Group, March 7, 2017) to better understand the specific qualities of the underlying soils on the project site. The analysis considered soil particle size, plasticity, and groundwater levels. The result of the analysis indicated that subgrade materials on the project site are native soils consisting primarily of sands and gravels with varying percentages of silt and cobbles; which are not expressive of expansive soils like that of clay. Therefore, impacts associated with expansive soils would be less than significant.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact. The project does not include the development or use of septic tanks. Therefore, no impacts associated with septic tanks would occur.

5.2.6.3 Mitigation Measures

No mitigation measures are required.

5.2.6.4 Significance After Mitigation

Not applicable.

5.2.7 GREENHOUSE GAS EMISSIONS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?	☐	☐	☒	☐

Climate change is the observed increase in the average temperature of the earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period. The past 10,000 years have been marked by incremental warming across the globe. However, scientists have observed a considerable acceleration in the rate of warming during the past 150 years. According to the United Nations Intergovernmental Panel on Climate Change (IPCC), the scientific understanding of anthropogenic contributions to climate has led to a high confidence (95% or greater chance) that the global average net effect of human activities has been the dominant cause of warming since the mid-20th century (IPCC 2013).

Radiation from the sun hits the earth's surface and warms it. The surface, in turn, radiates that heat as infrared radiation back towards the atmosphere. Gases and clouds in the atmosphere trap and prevent some of this heat from escaping into space and re-radiate it in all directions. By retaining infrared radiation in the atmosphere, these gases create a "greenhouse effect," a natural occurrence that helps regulate the temperature of the planet. Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs).

GHGs occur naturally and from human activities. Human activities that produce GHGs include fossil fuel burning (e.g., coal, oil, and natural gas for heating and electricity, gasoline and diesel for transportation), methane generated by landfill wastes and raising livestock, deforestation activities, and some agricultural practices. GHGs produced by human activities include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6). Emissions from human activities since the beginning of the industrial revolution (approximately 250 years ago) are adding to the natural greenhouse effect, thereby contributing to an average increase in the earth's temperature.

Since 1750, estimated concentrations of CO_2, CH_4, and N_2O in the atmosphere have increased by over 36 percent, 148 percent, and 18 percent, respectively, primarily due to human activity. Emissions of GHGs affect the atmosphere directly by changing its chemical composition. Changes to the land surface indirectly affect the atmosphere by changing the way in which the earth absorbs gases from the atmosphere.

Potential impacts in California of global warming may include loss of snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CEC, 2009).

5.2.7.1 Environmental Setting

The project site lies within the northwestern portion of the SCAB. The SCAB is a 6,600-square mile area bounded by the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east, and the Pacific Ocean to the west. The SCAB encompasses all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties.

Regulatory Setting

Federal

The United States Environmental Protection Agency (USEPA) issued a Final Rule for mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons (MT) of carbon dioxide equivalent, also called CO_2E, per year in October 2009.[1] This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines, and requires annual reporting of emissions. The first annual reports for these sources were due in March 2011. Additionally, the reporting of emissions is required for owners of SF_6- and PFC-insulated equipment when the total nameplate capacity of these insulating gases is above 17,280 pounds.

On May 13, 2010, the USEPA issued a Final Rule that took effect on January 2, 2011, setting a threshold of 75,000 MT CO_2E per year for GHG emissions. New and existing industrial facilities that meet or exceed that threshold require a permit after that date. On November 10, 2010, the USEPA published the "PSD and Title V Permitting Guidance for Greenhouse Gases." The USEPA's guidance document is directed at state agencies responsible for air pollution permits under the Clean Air Act to help them understand how to implement GHG reduction requirements while mitigating costs for industry.

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[1] Different types of GHGs have varying global warming potentials (GWPs). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent" (CO_2E), and is the amount of a GHG emitted multiplied by its GWP. Carbon dioxide has a 100-year GWP of one. By contrast, methane (CH_4) has a GWP of 25, meaning its global warming effect is 25 times greater than carbon dioxide on a molecule per molecule basis (IPCC, 2007).

On January 2, 2011, the USEPA implemented the first phase of the Tailoring Rule for GHG emissions Title V Permitting. Under the first phase of the Tailoring Rule, all new sources of emissions are subject to GHG Title V permitting if they are otherwise subject to Title V for another air pollutant and they emit at least 75,000 MT CO_2E per year. Under Phase 1, no sources were required to obtain a Title V permit solely due to GHG emissions. Phase 2 of the Tailoring Rule went into effect July, 1, 2011. At that time new sources were subject to GHG Title V permitting if the source emits 100,000 MT CO_2E per year, or they are otherwise subject to Title V permitting for another pollutant and emit a least 75,000 MT CO_2E per year.

State

In response to an increase in man-made GHG concentrations over the past 150 years, California has implemented Assembly Bill (AB) 32, the "California Global Warming Solutions Act of 2006." AB 32 requires achievement by 2020 of a statewide GHG emissions limit equivalent to 1990 emissions (essentially a 15 percent reduction below 2005 emission levels) and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions. On September 8, 2016, the governor signed Senate Bill (SB) 32, which requires the California Air Resources Board (ARB) to ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by 2030. While the State has adopted the AB 32 Scoping Plan and multiple regulations to achieve the AB 32 year 2020 target, there is no currently adopted State plan to meet post-2020 GHG reduction goals. The Association of Environmental Professionals' (AEP) Climate Change Committee published a white paper in 2015 recommending that CEQA analyses for most land use development projects continue to rely on current adopted thresholds for the immediate future (AEP 2015).

SB 375, signed in August 2008, enhances the State's ability to reach AB 32 goals by directing ARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles for 2020 and 2035. In addition, SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPO) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). SB 375 also provides the option for the coordinated development of subregional plans by the subregional councils of governments and the county transportation commissions to meet SB 375 requirements.

SB 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in CEQA documents. In March 2010, the California Natural Resources Agency adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts.

Regional

As discussed above, SB 375 requires MPOs to prepare an RTP/SCS that will achieve regional emission reductions through sustainable transportation and growth strategies. The SCAG adopted the 2016-2040 RTP/SCS on April 7, 2016. It includes a number of strategies and objectives to encourage transit-oriented and infill development and use of alternative transportation to minimize vehicle use.

Local

On April 8, 2015, the City of Angeles adopted the *Sustainable City Plan*, which serves as a roadmap for achieving a more sustainable Los Angeles. The document includes qualitative goals and quantitative targets, as well as strategies and initiatives to achieve goals pertaining to GHG emissions, water conservation, renewable energy use, energy efficiency, transit-oriented development, and other action items. The *Plan* also states the City of Los Angeles's latest GHG emission reduction targets: 45 percent below 1990 levels by 2025, 50 percent below 1990 levels by 2035, and 80 percent below 1990 levels by 2050. Although the *Plan* sets reduction targets for GHG emissions, it does not provide detailed strategies to achieve the targets with quantified reductions and does not qualify as a GHG reduction plan under CEQA.

5.2.7.2 Significance Thresholds

The majority of individual projects do not generate sufficient GHG emissions to directly influence climate change. However, physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (*State CEQA Guidelines*, Section 15064[h][1]).

According to the *State CEQA Guidelines*, projects can tier off of a qualified GHG reduction plan, which allows for project-level evaluation of GHG emissions through the comparison of the project's consistency with the GHG reduction policies included in a qualified GHG reduction plan. This approach is considered by the AEP (2016) in its white paper, *Beyond Newhall and 2020*, to be the most defensible approach presently available under CEQA to determine the significance of a project's GHG emissions. The City of Los Angeles does not currently have a qualified GHG reduction plan and thus this approach is not currently feasible.

To evaluate whether a project may generate a quantity of GHG emissions that may have a significant impact on the environment, a number of operational bright-line significance thresholds have been developed by State agencies. Significance thresholds are numeric mass emissions thresholds which identify the level at which additional analysis of project GHG emissions is necessary. Projects that attain the significance target, with or without mitigation, would result in less than significant GHG emissions. Many significance thresholds have been developed to reflect a 90 percent capture rate tied to the 2020 reduction target established in AB 32. These targets have been identified by numerous lead agencies (including the City of Los Angeles) as appropriate significance screening tools for projects with horizon years before 2020.

The AEP (2016) *Beyond Newhall and 2020* white paper identified seven thresholds for operational emissions. The following four methods described are the most widely used evaluation criteria.

1. **Consistency with a qualified GHG reduction plan**. For a project located within a jurisdiction that has adopted a qualified GHG reduction plan (as defined by State CEQA Guidelines Section 15183.5), GHG emissions would be less than significant if the project

is anticipated by the plan and fully consistent with the plan. However, projects with a horizon year beyond 2020 should not tier from a plan that is qualified up to 2020.

2. **Efficiency thresholds**. Land use sector efficiency thresholds are currently based on AB 32 targets and should not be used for projects with a horizon year beyond 2020. Efficiency metrics should be adjusted for 2030 and include applicable land uses.

3. **Bright line thresholds**. There are two types of bright line thresholds:

    a. **Standalone thresholds**: Emissions exceeding standalone thresholds would be considered significant.

    b. **Screening thresholds**: Emissions exceeding screening thresholds would require evaluation using a second-tier threshold, such as an efficiency threshold or other threshold concept to determine whether project emissions would be considered significant.

    However, projects with a horizon year beyond 2020 should take into account the type and amount of land use projects and their expected emissions out to the year 2030.

4. **Percent below "Business as Usual" (BAU)**. GHG emissions would be less than significant if the project reduces BAU emissions by the same amount as the statewide 2020 reductions. However, this method is no longer recommended following the Newhall Ranch ruling.

The proposed project is located within the City of Los Angeles. The City's *Sustainable City Plan* is not a qualified greenhouse gas reduction plan, and therefore, is not applicable. At this time the State's Updated Scoping Plan is still in draft form and the final State reduction measures and methodologies are not clear. Therefore, there is no applicable per person efficiency threshold. Furthermore, due to the findings of the Newhall Ranch ruling, a business as usual approach was not followed for this analysis. In this instance, an applicable bright line threshold was chosen. The SCAQMD threshold, which was adopted in December 2008 and is designed to achieve emission reductions in the SCAB consistent with statewide GHG reductions codified under AB 32, considers emissions of over 10,000 MT CO_2E/year to be significant (SCAQMD 2008). The SCAQMD's threshold specifically applies to stationary sources for which SCAQMD is the lead agency. While in this case SCAQMD is not the lead agency, this threshold is appropriate for stationary sources such as the LAGWRP and has been applied in this analysis. Because the previously established threshold of 10,000 MT CO_2E was not developed to meet the targets established by SB 32, it must be adjusted to meet the new, more conservative, emission reduction target of 40 percent below the 1990 level by 2030. As such, to be consistent with SB 32, the project would need to emit no more than 9,600 MT CO_2e in 2021 to be on trajectory to meet the 2040 reduction established by SB 32. Therefore, the threshold for this project is 9,600 MT of CO_2E per year.

5.2.7.3 Analysis

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less Than Significant Impact. As described under subsection 5.2.3.2, Methodology, in Section 5.2.3, Air Quality, construction and operational emissions were modeled using CalEEMod version 2016.3.1. Construction emissions are confined to a relatively short period of time in relation to the overall life of the proposed project, as the construction period is only projected to be 24 months. In accordance with the SCAQMD's recommendation, GHG emissions from project construction were amortized over a 30-year period and added to annual operational emissions to determine the project's total annual GHG emissions. As shown in Table 5-9, construction activities would generate 1,737 MT of CO_2E per year, which amortized over 30 years is 58 MT of CO_2E per year, and operation of the Personnel Building component of the project would generate 160 MT of CO_2E per year. In total, the project would generate 218 MT of CO_2E per year, which is well below the SCAQMD significance threshold adjusted to be consistent with SB 32, of 9,600 MT per year of CO_2E. Therefore, impacts related to operational and construction GHG emissions would be less than significant.

Table 5-9: Estimated Construction GHG Emissions

Year	Emissions (CO_2E)
2018	468 MT
2019	1,225 MT
2020	43 MT
Total Construction Emissions	1,737 MT
Amortized Construction Emissions (over 30 Years)	58 MT/year
Total Annual Operational Emissions	160 MT/year
Total Annual Emissions	218 MT/year
SCAQMD Recommended Threshold (Adjusted for SB 32)	*9,600 MT/year*
Exceed Threshold?	**No**

CO_2E: carbon dioxide equivalent; MT: metric tons; SCAQMD: South Coast Air Quality Management District

See Appendix C for CalEEMod results.

Note: Values are approximations and have been rounded.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?

Less Than Significant Impact. The City of Los Angeles adopted the *Sustainable City Plan* in 2015, outlining visions, strategies, and specific priority initiatives to promote citywide sustainability. The *Plan* identifies strategies and initiatives to achieve GHG emissions reduction targets, including water conservation strategies, such as decreasing municipal water consumption, reducing per capita potable water use, and increasing recycled water. One initiative in the *Plan* aimed at supporting these targets is reducing imported water use and associated GHG emissions (City of Los Angeles 2015). The City of Los Angeles receives half of

the recycled water produced by the LAGWRP and distributes it for non-potable uses, such as landscape irrigation or industrial purposes. This reuse conserves an estimated one billion gallons of potable water annually (City of Los Angeles 2017). The proposed project would promote the delivery of this recycled water supply by upgrading the LAGWRP to improve the facility's operational flexibility and reliability, in turn reducing the City of Los Angeles's dependence on imported water and its associated GHG emissions. As such, the project is consistent with water conservation and GHG reduction strategies outlined in the *Sustainable City Plan*. Furthermore, the project would not generate any new vehicle trips; therefore, it is consistent with the SCAG 2016-2040 RTP/SCS.

The USEPA issued a Final Rule for mandatory reporting of GHG emissions for facilities that emit more than 25,000 MT CO_2E per year in October 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicle engines, and requires annual reporting of emissions. Additionally, the reporting of emissions is required for owners of SF_6 and PFC-insulated equipment when the total nameplate capacity of these insulating gases is above 17,280 pounds. The project would not emit CO_2E, SF_6, or PFCs in these volumes, and therefore would not trigger the GHG reporting required by this regulation.

Phase 2 of the Tailoring Rule for GHG emissions Title V Permitting went into effect July 1, 2011. Since that time, new sources are subject to GHG Title V permitting of the source emits 100,000 MT CO_2E per year, or they are otherwise subject to Title V permitting for another pollutant and emit at least 75,000 MT CO_2E per year. The project would not emit GHGs in these volumes, and therefore would not trigger the Prevention of Significant Deterioration permitting required by this regulation.

Finally, as described under item (a) above, the project would emit 218 MT CO_2E annually, which is well below the SCAQMD threshold adjusted for SB 32 of 9,600 MT CO_2E per year.

The proposed project would help the City of Los Angeles reach goals set forth in the *Sustainable City Plan* relating to reducing imported water use and GHG emissions reduction. The proposed project would not conflict with an applicable regional, state, or federal plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses. Impacts would be less than significant.

5.2.7.4 Mitigation Measures

No mitigation is required.

5.2.7.5 Significance After Mitigation

Not applicable.

5.2.8 HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

5.2.8.1 Environmental Setting

Hazards and hazardous materials include those actions and materials affecting health and safety of the public and the release of hazardous materials into the environment. Hazards discussed in this section include naturally occurring contamination (i.e., oil fields and soil gas), man-made contamination in soil, hazardous waste, and public nuisances (vector problems).

In the Los Angeles area, naturally occurring contamination could exist at oil and gas fields, and man-made contamination is a function of the types of land uses and activities in any given area. The LAGWRP overlies the San Fernando Valley Superfund area, but it is not in an oil field or methane zone.

Records from the City of Los Angeles Fire Department show that in 2004, LAGWRP stored, used, and/or disposed of reportable quantities of motor oil, diesel fuel, kerosene, sodium hypochlorite, and sulfuric acid. Existing treatment processes at LAGWRP use some materials that could be considered hazardous such as sodium hypochlorite (for disinfections through chlorination) and sodium bisulfite (for de-chlorination prior to effluent discharge). Both of these substances come in either a solid or liquid form, and neither poses a safety risk to the public.

5.2.8.2 Analysis

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less Than Significant Impact. During construction of the project potentially hazardous materials would be handled in small quantities on the project site. These materials would include gasoline, diesel fuel, lubricants, and other petroleum-based products sued to operate and maintain construction equipment. Handling of these potentially hazardous materials would be temporary and would coincide with the short-term construction phase of the project. Although these materials may be stored on the project site, only the quantities needed are expected to be kept on site, and excessive amounts are not expected to be stored. Once operational, the project would require hazardous materials such as chlorine and citric/hydrochloric acid to be transported and used on the project site.

Consistent with federal, state, and local requirements, removal and disposal of hazardous materials from the project site would be conducted by a permitted and licensed service provider. Any handling, transport, use or disposal would comply with all applicable policies and programs set forth by federal, state, and local agencies and regulations, including the EPA, California Department of Toxic Substances Control, Caltrans, California Occupational Safety and Health

administration, Resource Conservation and Recovery Act, Los Angeles Environmental Health Division, and the Los Angeles Fire Department.

Additionally, as required by the U.S. Occupational Safety and Health Administration, all hazardous materials stored on site would be accompanied by a material safety data sheet, which would inform on-site personnel as to the necessary remediation procedures in the case of accidental release.

Therefore, construction and operational impacts associated with the routine transport, use, or disposal of hazardous materials would be less than significant.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less Than Significant Impact. Any handling, transport, use, and disposal of hazardous materials would comply with all applicable federal, state, and local requirements. Both construction and operation of the project would adhere to the policies and programs established by all applicable federal, state, and local agencies, including the EPA, California Department of Toxic Substances Control, Caltrans, California Occupational Safety and Health Administration, Resource Conservation and Recovery Act, Los Angeles Environmental Health Division, and the Los Angeles Fire Department. Adherence with these applicable provisions would ensure that any handling of hazardous materials would occur in the safest possible manner, reducing the opportunity for the accidental release of hazardous materials into the environment. Further, as required by the U.S. Occupational Safety and Health Administration, all hazardous materials stored on site would be accompanied by a material safety data sheet, which would inform on-site personnel as to the necessary remediation procedures in the case of accidental release. Therefore, impacts associated with the release of hazardous materials into the environment would be less than significant.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. There are no schools located within one-quarter mile of the LAGWRP site. Additionally, as previously discussed, the project would not emit hazardous emissions or handle excessive amounts of hazardous or acutely hazardous materials, substances, or waste. Therefore, no impacts associated with emitting or handling hazardous emissions or materials within 0.25 mile of a school would occur.

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. The current Hazardous Waste and Substances Sites (Cortese) List was reviewed (available at http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm) and revealed no listing of the LAGWRP site. Therefore, no impacts would occur.

e) Would the project for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport,

would the project result in a safety hazard for people residing or working in the project area?

No Impact. The closest airport to the project site is the Bob Hope Airport, located approximately 6 miles northwest of the LAGWRP. The Santa Monica Airport and Los Angeles International Airport (LAX) are located approximately 10 and 15 miles, respectively, southwest of the LAGWRP. As such, the project would not be located in a 2-mile public airport influence area. The project is also not located within and airport land use plan. Therefore, the project would not result in a safety hazard for people residing or working in the project area.

f) Would the project for a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No Impact. The project site is not located within the vicinity of a private airstrip. The closest airport to the project site is the Bob Hope Airport, located approximately 6 miles northwest of the LAGWRP. The Santa Monica Airport and LAX are located approximately 10 and 15 miles, respectively, southwest of the LAGWRP (see Figure A-16 in Appendix A). Therefore, the project would not result in a safety hazard for people residing or working in the project area.

g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. Construction at the LAGWRP temporarily would alter the configuration of the facility. The City of Los Angeles has developed emergency response plans and emergency evacuation plans for the facility. Substantial interference with implementation of emergency response plans or emergency evacuation plans would be avoided by adhering to the minimum requirements of the Los Angeles Fire Department and California Occupational Safety & Health Administration (CalOSHA). As part of the operation of LAGWRP, emergency response plans and emergency evacuation plans would be reviewed and amended as necessary.

h) Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

No Impact. According to the Los Angeles County General Plan Fire Hazard Severity Zone Policy Map (May 2014) in Figure A-17 (see Appendix A), the project site is located adjacent to, but outside, of a very high fire hazard area. However, the project does not propose housing and the LAGWRP site is restricted from public use. The project is located within a fully developed, urbanized area within the existing LAGWRP boundary and no wildland-urban interface areas occur in the project vicinity. The project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

5.2.8.3 Mitigation Measures

No mitigation measures are required.

5.2.8.4 Significance After Mitigation

Not applicable.

5.2.9 HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or offsite?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

5.2.9.1 Environmental Setting

Hydrology and water quality includes surface water hydrology (flood hazards), surface water, and groundwater quality.

According to the City of Los Angeles Hazardous Mitigation Plan, LAGWRP is not in a flood zone (City of Los Angeles 2017). All onsite stormwater is collected and treated with the influent stream onsite.

LAGWRP treats influent to meet tertiary treatment requirements in accordance with Title 22 prior to discharge to the Los Angeles River and for recycled water distribution. All solids are returned to the sewer for treatment downstream at the Hyperion treatment facility.

Discharge of treated effluent from LAGWRP is split between the Los Angeles River and recycled water storage. Treated effluent enters the Los Angeles River at the eastern bank of the river and the LAGWRP western boundary, which is an unlined portion of the river approximately 5 miles upstream of the Los Angeles Narrows. Water destined for recycled use is conveyed to a 2-million-gallon storage tank for recycled water located across the Los Angeles River in Griffith Park. From the storage tank, recycled water is pumped into the recycled water distribution system delivering water to over 40 users. LADWP and the City of Glendale Public Service Department distribute the recycled water. Users of the recycled water include, but are not limited to, the Griffith Park golf course, Forest Lawn – Hollywood Hills, Verdugo School Project, and the Glendale Power Plant.

Currently, no requirements exist for nitrogen discharge limitations in the LAGWRP NPDES Permit, but future permits will have a nitrogen requirement.

LAGWRP overlies the southeastern portion of the San Fernando Basin. This portion of the Basin is within the Crystal Springs portion of the Superfund area. In 1989, elevated levels of VOCs were found in the Crystal Springs area. Hexavalent chromium is also present in the groundwater in this area. Groundwater withdrawn from the area is currently treated to remove VOCs. Groundwater flow in this region is in a southerly direction towards the Los Angeles Narrows (CH:CDM 2005).

5.2.9.2 Analysis

a) Would the project violate any water quality standards or waste discharge requirements?

Less Than Significant Impact. The project will be subject to the typical restrictions (e.g., BMPs) and requirements that address erosion and runoff, including those of the CWA and NPDES. A project specific SWPPP will be developed for the project site, and will ensure that runoff is contained or treated in accordance with applicable regulations. Construction and operational BMPs will be implemented, as necessary, and may include stormwater and sediment source control and treatment control BMPs. The final list of BMPs to be implemented will be determined by the project engineer in conjunction with the construction contractor and will be employed to address erosion, siltation, stormwater, drainage, and water quality issues. Therefore, short-term construction impacts associated with water quality standards would be less than significant.

All recycled water from the LAGWRP permitted for non-potable use is highly treated (tertiary) effluent that meets and exceeds the water quality standards for recycled water for irrigation and industrial uses. The project will continue to meet or exceed standards established by Title 22. Therefore, long-term operational impacts associated with water quality standards would be less than significant.

The Equalization Storage Project will provide improvements for existing uses at the LAGWRP, provide EQ for influent diurnal flow, provide for enhanced operational flexibility and reliability, and add a total of 5.64 MG of storage required for the collection system to provide the required relief at the downstream reaches of the LAGWRP. The proposed upgrades are for existing uses and therefore will not increase the capacity of the plant, increase the amount of influent to be treated at the plant, nor will it increase the amount of effluent discharged to the Los Angeles River and the volume of solids sent to Hyperion for treatment. The LAGWPR NPDES permit will not change due to installation of structures for existing uses under this project. Permitted capacity of 20 MGD will remain. LAGWRP capacity is limited by process systems and existing structures including disinfection, distribution and control systems. Therefore, impacts associated with waste discharge requirements would be less than significant.

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

No Impact. Under existing conditions, the majority of the LAGWRP project site contains pervious surfaces that encourage stormwater flows to percolate into subsurface soils, and eventually, to the stormdrain system discharged to the Los Angeles River. While the project would introduce new impervious surfaces and structures onto the project site, the ratio of new impervious surfaces to the existing, is minor. Due to the large presence of above ground, impervious structures on the project site, direct groundwater recharge within the project area is already impeded. Therefore, no impacts with groundwater recharge would occur.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or offsite?

Less Than Significant Impact. Although excavation and other earthwork activities would occur on the project site, the site's topography would be returned to its existing condition following construction of the proposed project. Thus, implementation of the project would not substantially alter the existing drainage pattern of the project site or the surrounding area. The proposed upgrades are for existing uses and therefore will not increase the capacity of the plant, increase the amount of influent to be treated at the plant, nor will it increase the amount of effluent discharged to the Los Angeles River.

The project will be subject to the typical restrictions (e.g., BMPs) and requirements that address erosion and runoff, including those of the CWA and NPDES. Construction and operational BMPs will be implemented, as necessary, and may include stormwater and sediment source control and treatment control BMPs. The final list of BMPs to be implemented will be determined by the project engineer in conjunction with the construction contractor and will be employed to address erosion, siltation, stormwater, drainage, and water quality issues. Therefore, impacts associated with erosion and siltation would be less than significant.

d) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

Less Than Significant Impact. As previously discussed, while excavation and other earthwork activities would occur on the project site, the site's topography would be returned to its existing condition following construction of the proposed project. Thus, implementation of the project would not substantially alter the existing drainage pattern of the project site or the surrounding area. The proposed upgrades are for existing uses and therefore will not increase the capacity of the plant, increase the amount of influent to be treated at the plant, nor will it increase the amount of effluent discharged to the Los Angeles River.

Because the components of the Equalization Storage project would be underground, implementation would not result in the conversion of previous areas to impervious. Thus runoff levels would not increase beyond existing levels within this project component nor contribute to exposure of people or property to flooding. The overall runoff volume generated by the additional impervious areas associated with the new Personnel Building would be minimal compared to the overall impervious area within the Los Angeles River watershed tributary to the point of discharge.

The project will be subject to the typical restrictions (e.g., BMPs) and requirements that address erosion and runoff, including those of the CWA and NPDES. Construction and operational BMPs will be implemented, as necessary, and may include stormwater and sediment source control and treatment control BMPs. The final list of BMPs to be implemented will be determined by the project engineer in conjunction with the construction contractor and will be employed to address erosion, siltation, stormwater, drainage, and water quality issues. Therefore, impacts associated with flooding would be less than significant.

e) Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less Than Significant Impact. Under the existing conditions, the project site drains to existing stormwater culverts that lead to the Los Angeles River, all located on site. These stormwater drainages convey runoff to a series of off-site stormwater drainage facilities that ultimately connect to the municipal stormwater system and then to the Los Angeles River. The project would be constructed within the confines of the already-developed project site and would not increase the amount of on-site stormwater runoff that is conveyed to off-site drainage facilities. No increase in either stormwater flow quantities or rates is expected as a result of the proposed project. The project will be subject to the typical restrictions (e.g., BMPs) and requirements that address erosion and runoff, including those of the CWA and NPDES. Construction and operational BMPs will be implemented, as necessary, and may include stormwater and sediment source control and treatment control BMPs. The final list of BMPs to be implemented will be determined by the project engineer in conjunction with the construction contractor and will be employed to address erosion, siltation, stormwater, drainage, and water quality issues. Therefore, impacts associated with runoff and stormwater drainage systems capacity would be less than significant.

f) Would the project otherwise substantially degrade water quality?

Less than Significant Impact. All recycled water from the LAGWRP permitted for non-potable use is highly treated (tertiary) effluent that meets and exceeds the water quality standards for recycled water for irrigation and industrial uses. The project will continue to meet or exceed standards established by Title 22. The project proposes no change in treatment levels, rather the improvements will increase operational efficiency at the site. Therefore, impacts associated with water quality would be less than significant.

g) Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. Pursuant to FEMA National Flood Hazard map in Figure A-18 (see Appendix A), the project site is in an area defined as having minimal flood hazard; and noted as Hazard Zone X. FEMA defines Zone X as "flood insurance rate zones that correspond to areas outside the 100-year floodplains, areas of 100-year sheet flow flooding where average depths are less than 1 foot, areas of 100-year stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from 100-year flood by levees."

Additionally, areas of minimal flood hazard, including Zone X, are areas outside the Special Flood Hazard Area (SFHA) and higher than the elevation of the 0.2-percent-annual-chance (500-year flood).

As the project site is not located within a designated 100-year flood hazard area or any other flood hazard zone, and the project does not include housing, no impacts associated with placing housing with a 100-year flood hazard area would occur.

h) Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

No Impact. As previously discussed, the project site is not located within a designated 100-year flood hazard area or any other flood hazard zone (CH:CDM 2005). Therefore, no impacts associated with placing structures with a 100-year flood hazard area would occur.

i) Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

Less Than Significant Impact. The closest dams to LAGWRP are the Sepulveda Dam, and the Hansen Dam, both located approximately 12 miles from the project site. Due to the location of the project site, it would not represent a substantial impediment to flood water in the highly unlikely event of a dam failure. Therefore, impacts associated with flooding would be less than significant.

j) Would the project inundation by seiche, tsunami, or mudflow?

Less than Significant Impact. As discussed below, the project would not be susceptible to seiche, tsunami, or mudflow. Impacts would be less than significant.

Seiche is generally associated with oscillation of enclosed bodies of water typically caused by ground shaking associated with a seismic event. The Los Angeles River is adjacent to the LAGWRP site. However, the project does not include housing and the new Personnel Building will be for existing staff and thus would not increase the risk of injury or death involving seiche.

Flooding from tsunami conditions is not expected since the project site is located over 15 miles northeast of the Pacific Ocean.

Debris and mudflows are rivers of rock, earth, and other debris saturated with water that develop when water rapidly accumulates in the ground. Mudflows typically occur on steep slopes were vegetation is not protective of erosion, but can also occur on gentler slopes if other conditions are present such as heavy precipitation in a short period of time and easily erodible material. The project site and surrounding area have been previously developed and generally lack the characteristics typically associated with mudflows. Adjacent hillsides have been engineered and vegetated, in part to reduce the potential for both landslides and mudflows.

5.2.9.3 Mitigation Measures

No mitigation measures are necessary.

5.2.9.4 Significance After Mitigation

Not applicable.

5.2.10 LAND USE AND PLANNING

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

5.2.10.1 Environmental Setting

The project site would be consistent with the land use and planning within the area. The proposed project would be located within an area zoned as PF by the Los Angeles County General Plan (LA County Board of Supervisors, 2015), and is zoned as PF by the Northeast Los Angeles Community Plan map (see Figure A-10 in Appendix A) (City of Los Angeles Department of City Planning, 2014).

5.2.10.2 Analysis

a) Would the project physically divide an established community?

No Impact. The project is located on a site currently owned and operated by LASAN, and operates as a water reclamation plant. The components associated with the project would be located entirely within the boundary of the existing LAGWRP site. Improvements typically associated with division of an established community, including construction of a highway or freeway, installation of a long fence or wall, or removal of a bridge, are not proposed. Therefore, no impacts associated with physically diving an established community would occur.

b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The proposed project would be located within an area zoned as PF by the Los Angeles County General Plan (LA County Board of Supervisors, 2015), and is zoned as PF by the Northeast Los Angeles Community Plan map (see Figure A-10 in Appendix A) (City of Los Angeles Department of City Planning, 2014). According to the Land Use Element in the County's General Plan, the PF designation includes public buildings and campuses, schools,

hospitals, cemeteries, and fairgrounds; airports and other major transportation facilities. Other major public facilities include planned facilities that may be public-serving but may not be publicly accessible, such as landfills, solid and liquid waste disposal sites, multiple use storm water treatment facilities, and major utilities. Similarly, the County's Planning and Zoning Regulations (Title 22 of Los Angeles County Code of Ordinances), the PF zone is intended to provide areas for public service and facilities other than public right-of-way, parking and open space (Section 22.46.1580).

The project has been designed to be harmonious with the character of the surrounding project area, and would adhere to all applicable provisions in the Los Angeles County Code of Ordinances, when feasible. As such, the proposed project would be compatible with the surrounding land use mix, and thus, consistent with policies, plans, and regulations that guide these adjacent uses. Therefore, there are no impacts associated with applicable land use plans, policies, and regulations that would occur as a result of this proposed project.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. The proposed project site is not located within the plan area boundaries for the Natural Community Conservation Plans/Habitat Conservation Plans (NCCPs/HCPs) as indicated the California Regional Plans Map (CDFW 2017). Therefore, the proposed project is not in conflict with any applicable habitat conservation plan or natural community conservation plan. Therefore, no impact would occur.

5.2.10.3 Mitigation Measures

No mitigation measures are necessary.

5.2.10.4 Significance After Mitigation

Not applicable.

5.2.11 MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

5.2.11.1 Environmental Setting

The Los Angeles County 2035 General Plan identifies Mineral Resource (MR) Zones as "commercially viable mineral or aggregate deposits, such as sand, gravel, and other construction aggregate". California is not only the largest sand and gravel consumer in the United States, but also a major manufacturer of these mineral resources, as the state produces around one billion dollars-worth every year. More construction aggregate is generated and consumed in Los Angeles than any other metropolitan area in the US. Therefore, maintaining a constant supply of aggregate materials for the construction of urban infrastructure is crucial to the economy of Southern California (LA County Board of Supervisors 2015).

The following analysis is based on the General Plan Update Program – Interactive Map (GP-NET) application, which is a companion of the General Plan document that contains all of the GIS data used to create the figure maps in the General Plan. This GIS data is presented in the Mineral Resource Zones map from the General Plan in Figure A-19 (see Appendix A). A review of the GP-NET on July 6, 2017 indicated that the project site was within a Mineral Resource Zone-2 (MRZ-2) area (LA County Department of Regional Planning, GIS Section, 2017). According to the Department of Conservation State Mining and Geology Board (SMGB) and Division of Mines and Geology *California Surface Mining and Reclamation Policies and Procedures – Guidelines for Classification and Designation of Mineral Lands*, "lands classified MRZ-2 are areas that contain identified mineral resources" (SMGB 2000).

5.2.11.2 Analysis

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

Less Than Significant Impact. The project site is located within an area designated as MRZ-2, which is said to contain identified mineral resources. However, the project is situated in an area that was subject to major earthwork conducted in the late 1970s and early 1980s for construction of the LAGWRP. The site work and excavation activities are described in Section 3.3.4.2. Construction of the project elements are not anticipated to unearth any mineral

resources of significance, and no such materials were identified in the Geological Technical Report for the project (City of Los Angeles Department of Public Work BOE, Geotechnical Engineering Group, March 7, 2017). Therefore, impacts are less than significant.

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. the project is situated in an area that was subject to major earthwork conducted in the late 1970s and early 1980s for construction of the LAGWRP. The LAGWRP is not a mineral resource recovery site delineated on any general, specific, or land use plan. Therefore, no impacts would occur.

5.2.11.3 Mitigation Measures

No mitigation measures are necessary.

5.2.11.4 Significance After Mitigation

Not applicable.

5.2.12 NOISE

Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above level, existing without the project?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

5.2.12.1 Environmental Setting

The following analysis is based in part on ambient noise monitoring conducted by Rincon Consultants and included in Appendix G of this document.

Ambient noise measurements were conducted on July 7, 2017. The measurement was taken closest to the most identifiable 'sensitive receptor', south of the plant near the residential community. This location was found to be substantially louder than near the fence adjacent to the 5-freeway (southwest property). The measurements were taken between the hours of approximately 9:40AM and 10:00AM. Short-term (1 hour or less), attended sound-level measurements were taken with an American National Standards Institute (ANSI) Type II

integrating sound level meter, Extech 407780 sound level meter. The sound-level meter measures the current ANSI standard for a Type 1 precision sound-level meter. The measured daytime minimum sound level was 52.2 A-weighted decibels (dBA), and the maximum was 81.9 dBA. See Appendix G for complete noise measurement results.

5.2.12.2 Analysis

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact. The Los Angeles County General Plan includes noise criteria to regulate potential noise impacts from certain types of activities (Land Use Compatibility for Community Noise Environmental Matrix, LA General Plan, LA County Board of Supervisors 2015). The Plan allows a local jurisdiction to clearly delineate the compatibility of sensitive uses with various incremental levels of noise. The County has adapted this matrix to develop the County's exterior noise standards, as seen in Table 5-10 below.

Table 5-10: Los Angeles County Community Noise Criteria

Noise Zone	Land Use of Receptor Property	Time	Level (dBA) Std 1L5030 min/hr (a)	Std 2L2515 min/hr (b)	Std 3L8.35 min/hr (c)	Std 4L1.71 min/hr (d)	Std 5L0 at no time (e)
1	Noise Sensitive	Anytime	45	50	55	60	65
2	Residential	10PM to 7AM	45	50	55	60	65
		7AM to 10PM	50	55	60	65	70
3	Commercial	10PM to 7AM	55	60	65	70	75
		7AM to 10PM	60	65	70	75	80
4	Industrial	Anytime	70	75	80	85	90

Source: Section 12.08.390 of the Los Angeles County Code (a portion of the Noise Control Ordinance)

(a) Standard No. 1 shall be the exterior noise level which may not be exceeded for a cumulative period of more than minutes in any 30 minute period. If the ambient L_{50} exceeds the foregoing level, then the ambient L_{50} becomes the exterior noise level for Standard No. 1.

(b) Standard No. 2 shall be the exterior noise level which may not be exceeded for a cumulative period of more than minutes in any 30 minute period. If the ambient L_{25} exceeds the foregoing level, then the ambient L_{25} becomes the exterior noise level for Standard No. 2.

(c) Standard No. 3 shall be the exterior noise level which may not be exceeded for a cumulative period of more than minutes in any 30 minute period. If the ambient $L_{8.3}$ exceeds the foregoing level, then the ambient $L_{8.3}$ becomes th exterior noise level for Standard No. 3.

(d) Standard No. 4 shall be the exterior noise level which may not be exceeded for a cumulative period of more than seconds in any 30 minute period. If the ambient $L_{1.7}$ exceeds the foregoing level, then the ambient $L_{1.7}$ becomes th exterior noise level for Standard No. 4.

(e) Standard No. 5 shall be the exterior noise level which may not be exceeded for any period of time. If the ambient L_0 exceeds the foregoing level then the ambient L_0 becomes the exterior noise level for Standard No. 5.

Noise would be produced during the construction phase of the project. Construction activities would occur Monday through Friday, from 6:30AM to 3:30PM (refer to Section 3.4.1). Noise would also be produced from related off-site activities, primarily truck trips.

Project construction would temporarily increase noise levels at noise-sensitive receptors near the project site. The closest noise-sensitive receptor is the residential area located south of the LAGWRP, and to the southeast on the portion of a bikeway that runs adjacent to the site. The magnitude of the increases would depend on the type of construction activity, the noise level generated by various pieces of construction equipment, and the distance between the noise source and the receiver.

Noise from construction activity is generated by a broad array of powered, noise-producing mechanical equipment used in the construction process. This equipment ranges from hand-held pneumatic tools to bulldozers, dump trucks, and excavators. The exact complement of noise-producing equipment that would be in use during any particular construction period has

not been determined, but the noise levels from construction activity during various phases of a typical construction project have been assessed, and their use provides an acceptable prediction of a project's potential noise impacts.

To assess the potential noise effects from construction, this noise analysis used date from a detailed field study of various types of construction projects, including public works projects (EPA 1971). In the report, noise levels associated with various construction phases where all pertinent equipment is presenting and operating was presented. The information in the report, assuming the loudest construction phase, indicated that the overall average noise level generated on a construction site could be 89 dBA at a distance of 50 feet during excavation and finishing phases.

This construction noise level of 89 dBA is greater than the maximum ambient noise level measured at the LAGWRP of 81.9 dBA, an increase of about 9 percent. Noise level increases of this magnitude, although temporary, would be readily audible and may at times dominate the noise environment in the area during construction operations. Reduction measures are recommended to control and reduce the noise levels to the extent practicable. Construction noise would be temporary and limited to the duration of project construction. Therefore, with incorporation of mitigation measures NOI-1 to NOI-7 below, impacts would be less than significant.

b) Would the project result in exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?

Less Than Significant Impact. Ground-borne vibration is a small, rapidly fluctuating motion transmitted through the ground that diminishes (attenuates) fairly rapidly over distance. Ground-borne vibration from heavy equipment operations during construction of the project was evaluated and compared with relevant vibration impact criteria using the Federal Transmit Administration's Transit Noise and Vibration Assessment, which provides vibration impact criteria and recommended methodologies and guidance for assessment of vibration effects (FTA 2006).

As a distance of approximately 150 feet, the vibration level from heavy equipment machinery (such as a loaded truck or large bulldozer) would be between approximately 0.005 an 0.006 peak particle velocity in inches per second. Vibration levels of this magnitude would likely be imperceptible at nearby residences, would be well below the Federal Transit Administration threshold of potential damage for normal structures (0.20 peak particle velocity in inches per second), and would not be considered excessive.

Further, based on the nature of the project and an understanding of the project process and equipment to be implemented on the project site, operation of the project would not generate discernable vibration levels at nearby residences. Therefore, impacts associated with vibration would be less than significant.

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

Less Than Significant Impact with Mitigation Incorporated. Ambient noise levels taken at the LAGWRP averaged 67.05 dBA. As shown in Table 5-10 above, the standard 1-hour ambient

for residential uses is 50 dBA, ranging upwards to 70 dBA instantaneously, for the period that construction would be occurring in. Noise level increases of this magnitude, although temporary, would be readily audible and may at times dominate the noise environment in the area during construction operations. Reduction measures are recommended to control and reduce the noise levels to the extent practicable. Construction noise would be temporary and limited to the duration of project construction. Therefore, with incorporation of mitigation measures **NOI-1** to **NOI-7** below, impacts would be less than significant.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above level, existing without the project?

Less Than Significant Impact with Mitigation Incorporated. This construction noise level of 89 dBA is greater than the maximum ambient noise level measured at the LAGWRP of 81.9 dBA, an increase of about 9 percent. Noise level increases of this magnitude, although temporary, would be readily audible and may at times dominate the noise environment in the area during construction operations. Reduction measures are recommended to control and reduce the noise levels to the extent practicable. Construction noise would be temporary and limited to the duration of project construction. Therefore, with incorporation of mitigation measures **NOI-1** to **NOI-7** below, impacts would be less than significant.

e) Would the project result in for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The closest airport to the project site is the Bob Hope Airport, located approximately 6 miles northwest of the LAGWRP. The Santa Monica Airport and LAX are located approximately 10 and 15 miles, respectively, southwest of the LAGWRP. As such, the project would not be located in a 2 mile public airport influence area. The project is also not located within and airport land use plan. Therefore, the project would not expose people residing or working in the project area to excessive noise levels and there would be no impact.

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

No Impact. The project site is not located within the vicinity of a private airstrip. Therefore, the project would not expose people residing or working in the project area to excessive noise levels, and there would be no impact.

5.2.12.3 Mitigation Measures

NOI-1 The on-site construction activity schedules are from 6:30 AM to 3:30 PM, Monday through Friday. The hours of construction, including noisy maintenance activities and all spoils and materials transport, shall be restricted to the periods and days permitted by the local noise or other applicable ordinance. Noise-producing project activity shall comply with local noise control regulations affecting construction activity or obtain exemptions therefrom.

NOI-2 All noise-producing project equipment and vehicles using internal combustion engines (including haul trucks) shall be professionally fitted with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features. These devises shall be professionally maintained in good operating condition so as to meet or exceed original factory specification.

NOI-3 All mobile or fixed noise-producing equipment used that is regulated for noise output by a local, state, or federal agency shall comply with such regulation while in the course of project activity.

NOI-4 Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

NOI-5 Construction site and access road speed limits shall be established and enforced during the construction period.

NOI-6 The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only.

NOI-7 Electrically powered equipment instead of pneumatic or internal combustion powered equipment shall be used, where feasible.

5.2.12.4 Significance After Mitigation

Implementation of mitigation measures **NOI-1** through **NOI-7** will reduce impacts to a less than significant level.

5.2.13 POPULATION AND HOUSING

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

5.2.13.1 Environmental Setting

The project is to provide for better existing operations at the LAGWRP. The project will not increase the capacity of the plant, increase the amount of influent to be treated at the plant, nor will it increase the amount of effluent discharged to the Los Angeles River or the volume of solids sent to Hyperion for downstream treatment. The LAGWRP would not deliver to any uses located outside of the existing service area, nor would the proposed project extend water conveyance infrastructure into any area currently not served by such utilities. Operations and maintenance of the plant would be conducted by existing LASAN staff, thus no new employees would be required to relocate into the area.

5.2.13.2 Analysis

a) Would the project Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No impact. The purpose of this proposed project is to maximize the efficiency of the existing process at the LAGWRP, provide for enhanced operations and reliability, and add storage required for the collection system to provide the required relief at the downstream reaches of the LAGWRP. The proposed upgrades will not increase the capacity of the plant, increase the amount of influent to be treated at the plant, nor will it increase the amount of effluent discharged. As currently planned, the proposed project would serve existing recycled water uses and would not serve any uses located outside of the existing service area. The proposed project would not extend water conveyance infrastructure into any area currently not served by such utilities. Additionally, operations and maintenance of the proposed project would be conducted by existing LAGWRP staff. As such, no new employees would be required to

relocate into the area as a result of this proposed project. Therefore, no impacts associated with population growth would occur.

b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No impact. The proposed project site has already been developed and would neither displace existing housing nor necessitate the construction of replacement housing. Therefore, no impact would occur.

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No impact. No housing is currently located on the project site. Thus, the site does not support a residential population. Therefore, no impacts would occur.

5.2.13.3 Mitigation Measures

No mitigation measures are necessary.

5.2.13.4 Significance After Mitigation

Not applicable.

5.2.14 PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	☐	☐	☐	☒
ii. Police protection?	☐	☐	☐	☒
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

5.2.14.1 Environmental Setting

The project components consist of the Equalization Storage Project, the new Personnel Building, and the rehabilitation of the existing Administration Building. A related project, the Blower Air Clean-up System, may also take place in a similar timeframe as the proposed project. The proposed Equalization Storage Project will serve to improve the existing process at the LAGWRP, provide for enhanced operations, and add 5.64 MG of storage required for the collection system to provide the required relief at the downstream reaches of the LAGWRP. The proposed upgrades will not increase the capacity of the plant, increase the amount of influent to be treated at the plant, nor will it increase the amount of effluent discharged to the Los Angeles River or the volume of solids sent to Hyperion for downstream treatment. The LAGWRP would not deliver to any uses located outside of the existing service area, nor would the proposed project extend water conveyance infrastructure into any area currently not served by such utilities. The new Personnel Building Project includes the construction of a new administrative/operations building and an interior remodel of the existing Administration building. However, operations and maintenance of the plant would be conducted by existing LAGWRP staff, thus no new employees would be required to relocate into the area.

5.2.14.2 Analysis

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

i. Fire protection?

No Impact. The proposed project would not directly or indirectly result in an increase in population, and therefore, would not increase demand for fire protection services. The project site is currently served by the Central Bureau of the Los Angeles County Fire Department (LAFD). Calls for LAFD services to the project site are not anticipated to increase following construction of the proposed project. Thus, no impacts associated with fire protection services would occur.

ii. Police protection?

No Impact. The proposed project would not directly or indirectly result in an increase in population, and therefore, would not increase demand for police protection services. The project site is currently served by the Central Bureau of the Los Angeles Police Department (LAPD). Calls for LAPD services to the project site are not expected to increase following construction of the proposed project. Thus, no impacts associated with police protection services would occur.

iii. Schools?

No Impact. The proposed project would not directly or indirectly result in an increase in population. Operations and maintenance of the proposed project would be conducted by existing LASAN staff. Therefore, no new employees (or their children) would need to relocate into the area. Thus, the proposed project would not result in an increase in students in the project area. Thus, no impacts associated with schools would occur.

iv. Parks?

No Impact. The proposed project would not directly or indirectly result in an increase in population. As a result, the proposed project would not result in an increase in park patronage in the project area. Thus, no impacts associated with parks would occur.

v. Other public facilities?

No Impact. The proposed project would not directly or indirectly result in an increase in population. Thus, the proposed project would not result in an increase in library, community center, or other public facility use in the project area. Thus, no impacts associated with public facilities would occur.

5.2.14.3 Mitigation Measures

No mitigation measures are necessary.

5.2.14.4 Significance After Mitigation

Not applicable.

5.2.15 RECREATION

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

5.2.15.1 Environmental Setting

Griffith Park, which is located west of the LAGWRP and bisected by the Los Angeles River and Interstate-5, is the most prominent recreational resource in the vicinity of the LAGWRP. Recreational opportunities at Griffith Park include golfing, bicycling, hiking, jogging, walking, playing tennis, and horseback riding. Additionally, visitors have access to the John Ferraro Soccer Fields; Pote Field (baseball field); playgrounds; picnic areas; and a bike path along Crystal Springs Drive and Zoo Drive. Other points of interest at Griffith Park are the Griffith Observatory, Griffith Merry-Go-Round, Los Angeles Equestrian Center, Travel Town Museum, Los Angeles Zoo, Autry Museum of Western Heritage, and the Greek Theatre.

The maintenance facility for the City of Los Angeles Department of Recreation and Parks is located south of LAGWRP, and North Atwater Park is south of the maintenance facility on Chevy Chase Drive. This park offers recreational facilities, such as a baseball field, basketball courts, volleyball courts, and a play area for children. The Los Angeles River, directly west of LAGWRP, provides recreational opportunity in the form of a bike trail. The southwest corner of the parking lot Los Feliz Municipal Golf Course (approximately 0.6-mile south of LAGWRP) is the nearest access point to the portion of the bike trail that traverses the western boundary of LAGWRP.

5.2.15.2 Analysis

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. The project would not directly or indirectly result in an increase in population, nor is the project creating new recreational facilities. As such, the project would not result in an increase in park patronage in the project area. Therefore, no impacts associated with an increase in use of park and recreational facilities would occur.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Less Than Significant Impact. As previously addressed, the project would not result in an increase in park usage or increase recreational use in the project area. As a result, the project would not warrant construction or expansion of recreational facilities. The only recreational facility that exists in the immediate vicinity of the LAGWRP is the Los Angeles River bike path. There is fence separating this area from the LAGWRP site. It is possible that during construction, proposed from 6:30AM to 3:30PM, there will be higher than ambient levels of noise which could temporarily impact users of this breeze-way. Construction activities would not reduce access to the bike path. Any impacts would be temporary, and not impede on the use of the area. As such, impacts would be less than significant.

5.2.15.3 Mitigation Measures

No mitigation measures are necessary.

5.2.15.4 Significance After Mitigation

Not applicable.

5.2.16 TRANSPORTATION/TRAFFIC

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

5.2.16.1 Environmental Setting

A traffic analysis has been prepared for the project, and is contained in Appendix H of this report. LAGWRP is located at 4600 Colorado Boulevard adjacent to the Los Angeles River and

I-5 Freeway within the Glendale Narrows area of the northeast portion of the City of Los Angeles. As described in Section 3, Project Description, multiple project elements are anticipated to be implemented on the LAGWRP site; construction details are located in Section 3.4, and the construction schedule is shown on Figure A-5, in Appendix A. In general, the project elements would be implemented in mid to late year 2018 and would extend for 2 years through the beginning of 2021.

The project site has access to the regional freeway system from a number of local roadways and wherever possible designated truck routes are used to and from the freeways. The freeways located on the haul routes are the I-5 Freeway and SR-134 Freeway. The LAGWRP and the associated truck hauling routes cover two jurisdictional areas which include the City of Los Angeles and the City of Glendale.

The traffic impact analysis (provided in Appendix H) contains documentation of existing traffic conditions, trips generated by the project, distribution of the project trips to roads outside the project, determination of "existing plus project" traffic conditions, calculation of construction years traffic conditions without and with the project. For the construction period (2018 to 2021), the year with the highest trip generation was analyzed. Once completed, these proposed projects do not increase the number of staff or traffic volume trips, so there is no additional trip generation to be considered for current conditions.

5.2.16.2 Analysis

a) Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Less Than Significant Impact. The traffic volumes are based on employee and truck data provided by the City of Los Angeles staff. Detailed construction data from LA Sanitation regarding monthly construction phasing, staffing per proposed improvement component, and earthwork quantities are provided in Section 3. The project schedule is designed to not add project related evening peak hour trips onto the public roadways. For most operations, the on-site construction activity schedules are from 6:30 AM to 3:30 PM, which will allow construction workers to arrive at and depart from the site before the morning peak period (7:00 AM to 9:00 AM) and evening peak period (4:00 PM to 6:00 PM).

Project trips are calculated for the additional trips during construction. The number of construction worker vehicles is estimated using the average ridership of 1.135 persons per vehicle per the CEQA Air Quality Handbook, SCAQMD, 1993. It is anticipated that the majority of the construction workers would remain on-site throughout the day and approximately half of the workers would leave and return to the site via their vehicles for lunch. Daily trip generation is based on the number of employees multiplied by the inbound trip and outbound trip of two (2), and an additional amount of trips generated by the off-peak lunch time round-trips. The peak hour trip generation is projected to be negligible as the majority of the construction workers are expected to arrive and depart at the project site during off-peak hours (i.e., arrive prior to 7:00 AM and depart prior to 4:00 PM).

Project trips include truck trips to haul off excess soil and todeliver material to the site. Daily trip generation is based on the number of truck deliveries, multiplied by the inbound trip and outbound trip of two (2), and all trucks are multiplied by a passenger car equivalent factor of two (2.0). The passenger car equivalent factor has been obtained from the Highway Capacity Manual for 3 axle trucks. When possible, off-peak (9:15 AM to 3:45 PM) truck delivery is preferred.

For this project, tucks will haul excess soil and debris to local landfills during the morning peak period and during non-peak hours. Based on the predesign construction estimate for earthwork excavation and concrete materials, truck trips have been calculated based on a total of 20,000 CY of excavation and approximately 10,800 CY of material for each of the major components (Equalization Storage and Personnel Building Projects). The duration of the Personnel Building Project is 22 months with 20 construction staff. The duration of the Equalization Storage Project is 14 months with 35 construction staff and additional construction time for the piping excavation and installation as well as the existing pond modification increases the total period of active earthwork work to 16 months. The detailed construction sequencing schedule provided by LASAN has earthwork (excavation or grading) scheduled from the fifth month to the eighteenth month of the 24 month project. The new Personnel Building is estimated to also generate approximately 20,000 CY of excavated soil which will not be exported but will be used as on-site fill and re-grading of the existing dichlorination pond and new circulation roadway for maintenance and delivery access to the rear of the property.

During the construction period, the number of truck trips is estimated based on the export of excavated soil and concrete material. The CIP projects (4170, 4176 and 4187) are projected to generate approximately 33.4 one-way truck trips daily or 67 daily Passenger Car Equivalents trips and 8 Passenger Car Equivalents trips during the morning peak hour. No truck trips are anticipated during the evening peak-period.

Truck hauling of materials for the LAGWRP will begin after the initial phases of construction and proceed for the entire duration of the project. The project schedule and haul restrictions are designed to not add project related trips during the evening peak hour on public roadways. There are no anticipated off-site roadway or lane closures; all activity will be on-site.

As supported by the Traffic Analysis in Appendix H, the project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the circulation system. Impacts would be less than significant.

b) Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Less than Significant Impact. Please see answer to Question a). As supported by the Traffic Analysis in Appendix H, the project would not conflict with an applicable congestion management program. Impacts would be less than significant.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

No Impact. The closest airport to the project site is the Bob Hope Airport, located approximately 6 miles northwest of the LAGWRP. The Santa Monica Airport and LAX are located approximately 10 and 15 miles, respectively, southwest of the LAGWRP. As such, the project would not be located within the influence areas for these airports. The project would not include any improvements that would occur at heights that would potentially interfere with air traffic. Therefore, the project would not result in a change in air traffic patterns, and there would be no impact.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less Than Significant Impact. The project would not involve permanent alteration of existing public roadways, nor would it require incompatible vehicular access. There are no anticipated off-site roadway or lane closures; all activity will be on-site. The primary access entry to the site is proposed to be located on the north side of the existing site. Temporary access to the backside of the site will be required for some material and chemical deliveries, so the truck turning movements should be reviewed to ensure adequate clearance exists on the temporary access driveway to/from the rear of the construction site, such that truck-trailer combination vehicles can adequately enter and leave the site without any access restrictions. Therefore, because onsite traffic is being designed to minimize impacts, impacts associated with hazardous design features are anticipated to be less than significant.

e) Would the project result in inadequate emergency access?

No Impact. The design for the project has been reviewed and following all construction all roadways will still meet emergency requirements. Therefore, there would be no impact related to inadequate emergency access.

f) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

No Impact. The project would not involve permanent alteration of existing public roadways, nor would it require incompatible vehicular access. There are no anticipated off-site roadway or lane closures; all activity will be on-site. No changes to public transit, bicycle or pedestrian facilities would result from the project, nor would the project decrease the performance or safety of such facilities. The primary access entry to the site is proposed to be located on the north side of the existing site. Temporary access to the backside of the site will be required for some material and chemical deliveries, so the truck turning movements should be reviewed to ensure adequate clearance exists on the temporary access driveway to/from the rear of the construction site, such that truck-trailer combination vehicles can adequately enter and leave the site without any access restrictions, but none of these access points would affect transit, bicycle or pedestrian facilities. Therefore, impacts would be less than significant.

5.2.16.3 Mitigation Measures

No mitigation measures are necessary.

5.2.16.4 Significance After Mitigation

Not applicable.

5.2.17 TRIBAL CULTURAL RESOURCES

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☐	☒
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☐	☒

5.2.17.1 Environmental Setting

In accordance with Assembly Bill (AB) 52, LASAN prepared and mailed notification letters regarding the proposed project on June 28, 2017. As of July 28, 2017, the end of the 30-day response period required under AB 52, no tribes have responded to the notification letters to request consultation.

Rincon requested a search of the Sacred Lands File (SLF) from the NAHC on June 2, 2017. The NAHC responded via email on June 7, 2017 stating that a search of the SLF was conducted with negative results.

5.2.17.1.1 Regulatory Setting

As of July 1, 2015, California AB 52 was enacted and expands CEQA by establishing a formal consultation process for California tribes within the CEQA process. The bill specifies that any project that may affect or cause a substantial adverse change in the significance of a tribal cultural resource would require a lead agency to "begin consultation with a California Native

American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." According to the legislative intent for AB 52, "tribes may have knowledge about land and cultural resources that should be included in the environmental analysis for projects that may have a significant impact on those resources." Section 21074 of AB 52 also defines a new category of resources under CEQA called "tribal cultural resources." Tribal cultural resources are defined as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and is either listed on or eligible for the CRHR or a local historic register, or if the lead agency chooses to treat the resource as a tribal cultural resource. See also PRC 21074 (a)(1)(A)-(B).

5.2.17.2 Analysis

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

    a. Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC section 5020.1(k), or

    b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

No impact. No tribal cultural resources were identified within the project site as a result of AB 52 consultation or the SLF search. Thus, the project will not impact tribal cultural resources.

5.2.17.3 Mitigation Measures

No mitigation measures are necessary.

5.2.17.4 Significance After Mitigation

Not applicable.

5.2.18 UTILITIES AND SERVICES SYSTEMS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the projects projected demand in addition to the providers existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the projects solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

5.2.18.1 Environmental Setting

The project components consist of the Equalization Storage Project, the new Personnel Building, and the rehabilitation of the existing Administration Building. A related project, the Blower Air Clean-up System, may also take place in a similar timeframe as the proposed project. The proposed Equalization Storage Project will serve to improve the existing process at

the LAGWRP, provide for enhanced operations, and add 5.64 MG of storage required for the collection system to provide the required relief at the downstream reaches of the LAGWRP. The proposed upgrades will not increase the capacity of the plant, increase the amount of influent to be treated at the plant, nor will it increase the amount of effluent discharged to the Los Angeles River or the volume of solids sent to Hyperion for downstream treatment. The LAGWRP would not deliver to any uses located outside of the existing service area, nor would the proposed project extend water conveyance infrastructure into any area currently not served by such utilities. The new Personnel Building Project includes the construction of a new administrative/operations building and an interior remodel of the existing Administration building. However, operations and maintenance of the plant would be conducted by existing LAGWRP staff, thus no new employees would be required to relocate into the area.

5.2.18.2 Analysis

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Less Than Significant Impact. The LAGWRP is designed to treat average wet and dry weather flow of 20 MGD. Treatment consist of preliminary and primary treatment processes, biological nitrogen removal activated sludge process, filtration treatment and disinfection (chloramination) and dichlorination for product water discharged to the Los Angeles River. The plant's product water is pumped to the "Title 22" recycled water distribution system for landscape irrigation; to Griffith Park, the Los Angeles Greenbelt Project and other uses and the balance flows by gravity to the Los Angeles River. Treatment level "Title 22" standards for water reclamation are established under Title 22, Division 4, Environmental Health, California's Water Recycling Criteria. All solids removed from the treatment process are discharged to the sewer for conveyance to the Hyperion Water Reclamation Plant for treatment and beneficial use.

All recycled water from the LAGWRP permitted for non-potable use is highly treated (tertiary) effluent that meets and exceeds the water quality standards for recycled water for irrigation and industrial uses. The plant is highly automated and staff controls and monitors processes from the Plant DCS from the onsite control room or at remote locations.

The proposed upgrades are to improve operational flexibility and will not increase the capacity of the plant, do not increase the amount of influent to be treated at the plant, nor increase the amount of effluent discharged to the Los Angeles River or the volume of solids sent to Hyperion for treatment. The LAGWRP NPDES permit will not change due to installation of structures for existing uses under this project. Permitted capacity of 20 MGD will remain. LAGWRP capacity is limited by process systems and existing structures including disinfection, distribution and control systems. Therefore, impacts associated with wastewater treatment requirements would be less than significant.

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less Than Significant Impact. The project involves construction of operational upgrades at the LAGWRP including a new Personnel Building and rehabilitation of the existing Administration Building. The proposed upgrades are to improve existing operations and do not expand plant

capacity or production. The LAGWRP NPDES permit will not change due to installation of structures for existing uses under this project. Permitted capacity of 20 MGD will remain.

The potential environmental effects resulting from construction and operation of the project are discussed and analyzed throughout this IS/MND. No additional environmental impacts outside of those already addressed and evaluated herein would occur as a result of the proposed project. Therefore, with incorporation of mitigation outlined throughout this IS/MND, impacts associated with water treatment facilities would be less than significant.

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less than Significant Impact. The majority of the project site where the Equalization Storage Project and Blower Air System will be constructed has been previously disturbed, and is either concrete or asphalt. The project would involve a slight increase in impervious surfaces due to the introduction of the new Personnel Building. However, on-site drainage would be similar to the existing condition since the new water feature and landscaped area would compensate for any increase in impervious area. Therefore, impacts associated with stormwater drainage facilities would be less than significant.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

No Impact. Recycled water treated by the project would be supplied by the existing recycled water system provided by LASAN. No new water supplies would be required as part of the project. Therefore, no impacts associated with water supplies would occur.

e) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the projects projected demand in addition to the providers existing commitments?

No Impact. The proposed upgrade is to benefit the wastewater utility and does not increase demand for wastewater treatment The LAGWRP NPDES permit will not change due to installation of structures for existing uses under this project. Permitted capacity of 20 MGD will remain. There will be no impact related to wastewater treatment capacities.

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the projects solid waste disposal needs?

Less Than Significant Impact. Any solid waste generated during either construction or operation of the project that cannot be otherwise diverted and reused/recycled would be transported by a permitted waste hauler to the Bradley West or the Sunshine Canyon landfills. Hazardous waste from LAG is disposed at the Kettleman Hills Landfill. LAGWRP does not produce or handle biosolids.

Based on the nature of the proposed project, as well as the fact that no residential, commercial, or other land use typically associated with the generation of substantial quantities of solid waste would occur, the project is expected to produce only a nominal amount of refuse over its lifespan. Considering the regional landfills permitted daily throughput, no adverse effects related

to solid waste are expected. Therefore, impacts associated with permitted landfill capacities would be less than significant.

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

No Impact. All collection, transportation, and disposal of any solid waste generating by the proposed project would comply with all applicable federal, state, and local statutes and regulations. In particular, Assembly Bill 939 requires that at least 50% of solid waste generated by a jurisdiction be diverted from landfill disposal through source reduction, recycling, or composting. Cities, counties, and regional agencies are required to develop a waste management plan that would achieve a 50% diversion from landfills (California PRC, Section 40000 et seq.).

Solid waste generated in the City of Los Angeles is collected and transported by the City's solid waste removal franchisee, which is permitted and licensed to collect and transport solid waste. Once collected, solid waste is transported to sorting/disposal facilities permitted to accept residential and commercial solid waste, with each facility's operations routinely inspected by regional and state regulatory agencies for compliance with all applicable statutes and regulations. Therefore, no impacts associated with statutes and regulations related to solid waste would occur.

5.2.18.3 Mitigation Measures

No mitigation measures are necessary.

5.2.18.4 Significance After Mitigation

Not applicable.

5.3 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less than Significant with Mitigation Incorporated. As discussed in Section 5.2.4, Biological Resources, the project would not degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered species.

However, as discussed, the project could result in potentially significant direct and indirect impacts to protected nesting birds and/or raptors and their nests during the nesting season. Mitigation measures BIO-1 through BIO-3 would reduce the impact to a less than significant level through the avoidance of active nests.

Further, an impact may occur if native trees covered by Ordinance No. 153,478 are removed as part of the project. Impacts would be less than significant with implementation of mitigation measure BIO-4, which requires that the project comply with Ordinance No. 153,478 for the removal of any native trees present.

As discussed in Section 5.2.5, Cultural Resources, potentially significant impacts related to archaeological/Native American resources would be reduced to less than significant levels with implementation of mitigation measures CR-1 through CR-6. Therefore, with the incorporation of mitigation, impacts associated with important examples of the major periods of California history or prehistory would be less than significant.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less Than Significant with Mitigation Incorporated. As discussed herein, project construction and operation could potentially result in significant impacts to biological resources, cultural resources, and noise without the incorporation of mitigation. Thus, when coupled with impacts related to the implementation of other related projects within the project area, the project could potentially result in cumulative-level impacts if these significant impacts are left unmitigated. However, with the incorporation of mitigation identified throughout this evaluation, project's potential impacts would be result to less than significant levels and would not considerably contribute to regional cumulative impacts in the region. Additionally, any other projects within the project site would be required by LASAN (or applicable agency) to both comply with all applicable federal, state, and local regulatory requirements and also incorporate all feasible mitigation measures to further ensure potentially cumulative impacts would be reduced to less than significant. Therefore, the project would not result individually limited but cumulatively considerable impacts.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant with Mitigation Incorporated. As discussed herein, with the incorporation of mitigation, environmental impacts associated with project construction and operation would be reduced to less than significant levels. Therefore, the project would not directly or indirectly cause substantial adverse effects on human beings.

Section 6: Mitigation Monitoring and Reporting Plan

LASAN is the lead agency responsible for authorizing construction of the project. The MND prepared for the project provides analysis of the environmental effects resulting from the construction and operation of the project.

After considering the environmental analysis provided for in the MND and public comments on the MND, LASAN will determine whether or not to approve the project.

This Mitigation Monitoring and Reporting Program (MMRP) has been prepared pursuant to CEQA and the State CEQA Guidelines to provide for monitoring of the mitigation measures required by certification of the Project. Section 21081.6 of the Public Resources Code and Section 15091(d) of the CEQA Guidelines require public agencies to "adopt a reporting or monitoring program for changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment." The lead agency must define specific reporting and/or monitoring requirements to be enforced during Project implementation prior to final approval of the Project.

Mitigation measures have been included into the project to reduce or avoid potential environmental impacts associated with project construction and operation. The MMRP stipulates how all required mitigation measures are to be implemented and completed during the appropriate project phase. It also facilitates documentation necessary to verify that mitigation measures were in fact properly implemented.

This MMRP gives LASAN responsibility for actions necessary to implement the mitigation measures according to the specifications provided for each measure and for demonstrating that the action has been successfully completed. LASAN is primarily responsible for the work at the LAGWRP. A designated environmental monitor will track and document compliance with mitigation measures, note any problems that may result, and take appropriate action to remedy problems. LASAN, at its discretion, may delegate responsibility for measure implementation and monitoring, or portions thereof, to other responsible individuals, such as a licensed contractor. Specific responsibilities include:

- Coordination of all mitigation monitoring activities
- Management of the preparation, approval, and filing of monitoring or permit compliance reports
- Maintenance of records concerning the status of all approved mitigation measures
- Quality control assurance of field monitoring personnel
- Coordination with other agencies regarding compliance with mitigation or permit requirements
- Reviewing and recommending acceptance and certification of implementation documentation
- Acting as a contact for interested parties or surrounding property owners who wish to register concerns regarding environmental issues; verifying any such circumstances; and developing any necessary corrective actions

The MMRP is organized in a matrix format. The first column identifies the mitigation measure number. The second column identifies the mitigation measure. The third column, entitled "Time Frame for Implementation," refers to when monitoring will occur. The timing for implementing mitigation measures and the definition of the approval process has been provided to assist LASAN staff to plan for monitoring activities. The fourth column, entitled "Responsible Monitoring Agency," refers to the agency responsible for ensuring that the mitigation measure is implemented. The fifth column, entitled "Verification of Compliance," has subcolumns for initials, date, and remarks. This last column will be used to document the person who verified that the mitigation measure was satisfactorily implemented, the date on which this verification occurred, and any other notable remarks. The mitigation measures are presented by environmental issue area.

MITIGATION AND MONITORING REPORTING PLAN

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification of Compliance		
				Initials	Date	Remarks
Biological Resources (recommended mitigation measures)						
BIO-1 Prior to start of project activities, a qualified biologist should conduct a Worker Environmental Awareness Program training to orient staff with sensitive biological resources that may occur within the project site and adjacent areas and provide information on sensitive work practices.	Initial Study and Appendix D	This shall be implemented prior to construction.	Project Authority[a]			
BIO-2 To avoid impacts to nesting birds, project-related activities should occur outside of the bird breeding season (February 1 to August 31) to the extent practicable. If project activities must occur within the bird breeding season, no more than three days prior to initiation of ground disturbance and/or vegetation removal, a nesting bird and raptor pre-activity survey should be conducted by a qualified biologist within the disturbance footprint plus a 100 foot buffer, where practicable. If the project is phased, a subsequent pre-activity nesting bird and raptor survey may be required prior to each phase of construction. Results of the nesting bird and raptor survey, if applicable, should be documented.	Initial Study and Appendix D	This shall be implemented during construction.	Project Authority[a]			
BIO-3 If active nests are found, an avoidance buffer ranging in size from 25 to 50 feet for song birds, and up to 250 feet for raptors depending upon the species and the proposed work activity, should be determined and demarcated by a qualified biologist. A qualified biologist may adjust this buffer size depending on the potential disturbance from the project activities to the nesting birds. Active nests should be monitored at a minimum of once per week until it has been determined that the nest is no longer being used by either the young or adults. No ground disturbance should occur within this buffer until the qualified biologist confirms that the breeding/nesting is completed and all young have fledged. If project activities must occur within the buffer, they should be conducted at the discretion of the qualified biologist.	Initial Study and Appendix D	This shall be implemented during construction.	Project Authority[a]			
BIO-4 Trees that occur within the proposed project footprint that may be impacted by trimming, removal, relocation, or may impact the tree's root structure, should be identified on project plans with the associated tree species and DBH. Impacts to native oak tree species, defined to be valley oak (*Quercus lobata*) and California live oak (*Quercus agrifolia*), or any other tree of the oak genus indigenous to California which measures eight inches or more in diameter, four and one-half feet above the ground level at the base of the tree, should be assessed and a tree removal permit from the City of Los Angeles should be acquired prior to the start of project activities.	Initial Study and Appendix D	This shall be implemented during construction.	Project Authority[a]			
Cultural Resources (recommended mitigation measures)						
CR-1 Unanticipated Discoveries. In the event that archaeological resources are encountered during ground-disturbing activities, work in the immediate area shall halt, and an archaeologist meeting the Secretary of Interior's Professional Qualifications Standards for archaeology (NPS 1983) shall be contacted immediately to evaluate the	Initial Study and Appendix E	This shall be implemented during construction.	Project Authority[a]			

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification of Compliance		
				Initials	Date	Remarks
find. Evaluation of significance for the find may include the determination of whether or not the find qualifies as an archaeological site. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for CRHR or NRHP eligibility. If the discovery proves to be significant and cannot be avoided by the project, additional work, such as data recovery excavation, may be warranted to mitigate any significant impacts to archaeological resources. Mitigation of significant impacts to the find may include a damage assessment of the find, archival research, and/or data recovery to remove any identified archaeological deposits, as determined by the qualified archaeologist. After effects to the find have been appropriately mitigated, work in the area may resume. After any cultural resources find during construction, an archaeological monitor shall be retained for the duration of all ground-disturbing activities. In the event that the discovery is found to be Native American in origin, a Native American monitor shall also be retained for the duration of all ground-disturbing activities.						
CR-2 Retain a Qualified Paleontologist. Prior to initial ground disturbance, the applicant shall retain a project paleontologist, defined as a paleontologist who meets the SVP standards for Qualified Professional Paleontologist, to direct all mitigation measures related to paleontological resources. A qualified paleontologist (Principal Paleontologist) is defined by the SVP standards as an individual with an M.S. or Ph.D. in paleontology or geology who is experienced with paleontological procedures and techniques, who is knowledgeable in the geology of California, and who has worked as a paleontological mitigation project supervisor for a least one year (SVP 2010).	Initial Study and Appendix E	This shall be implemented prior to construction.	Project Authority[(a)]			
CR-3 Paleontological Worker Environmental Awareness Program (WEAP). Prior to the start of construction, the project paleontologist or his or her designee shall conduct training for construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction staff. The WEAP shall be fulfilled at the time of a preconstruction meeting at which a qualified paleontologist shall attend.	Initial Study and Appendix E	This shall be implemented prior to construction.	Project Authority[(a)]			
CR-4 Paleontological Monitoring. Ground disturbing construction activities (including grading, trenching, foundation work, and other excavations) that exceed 10 feet in depth anywhere on the site should be monitored on a full-time basis by a qualified paleontological monitor during initial ground disturbance. Monitoring should be conducted by a qualified paleontological monitor, who is defined as an individual who has experience with collection and salvage of paleontological resources (SVP 2010). The duration and timing of the monitoring will be determined by the project paleontologist and the location and extent of proposed ground disturbance. If the project paleontologist determines that full-time monitoring is no longer warranted, based on the specific geologic conditions at the surface or at depth, the lead paleontologist may recommend that monitoring be reduced to periodic spot-checking or cease entirely. Ground disturbing activity that does not exceed 10 feet in depth within Quaternary alluvium would not require paleontological monitoring.	Initial Study and Appendix E and F	This shall be implemented during construction.	Project Authority[(a)]			
CR-5 Fossil Discovery. In the event of a fossil discovery by construction personnel, all work in the immediate vicinity of the find shall cease and a qualified paleontologist shall be contacted to evaluate the find before restarting work in the area. If it is determined that	Initial Study and Appendix E and F	This shall be implemented during	Project Authority[(a)]			

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification of Compliance		
				Initials	Date	Remarks
the fossil(s) is(are) scientifically significant, the qualified paleontologist shall complete the following conditions to mitigate impacts to significant fossil resources. If fossils are discovered, the project paleontologist or paleontological monitor should recover them. Typically fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case the paleontologist should have the authority to temporarily direct, divert, or halt construction activity to ensure that the fossil(s) can be removed in a safe and timely manner. Once salvaged, significant fossils should be identified to the lowest possible taxonomic level, prepared to a curation-ready condition, and curated in a scientific institution with a permanent paleontological collection (such as the Natural History Museum of Los Angeles County), along with all pertinent field notes, photos, data, and maps. Fossils of undetermined significance at the time of collection may also warrant curation at the discretion of the project paleontologist.		construction.				
CR-6 Final Paleontological Mitigation Report. Upon completion of ground disturbing activity (and curation of fossils, if necessary) the qualified paleontologist should prepare a final mitigation and monitoring report outlining the results of the mitigation and monitoring program. The report should include discussion of the location, duration and methods of the monitoring, stratigraphic sections, any recovered fossils, and the scientific significance of those fossils, and where fossils were curated.	Initial Study and Appendix E and F	This shall be implemented after construction.	Project Authority[(a)]			
Noise (recommended mitigation measures)						
NOI-1 The on-site construction activity schedules are from 6:30 AM to 3:30 PM, Monday through Friday. The hours of construction, including noisy maintenance activities and all spoils and materials transport, shall be restricted to the periods and days permitted by the local noise or other applicable ordinance. Noise-producing project activity shall comply with local noise control regulations affecting construction activity or obtain exemptions therefrom.	Initial Study	This shall be implemented during construction.	Project Authority[(a)]			
NOI-2 All noise-producing project equipment and vehicles using internal combustion engines (including haul trucks) shall be professionally fitted with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features. These devises shall be professionally maintained in good operating condition so as to meet or exceed original factory specification.	Initial Study	This shall be implemented during construction.	Project Authority[(a)]			
NOI-3 All mobile or fixed noise-producing equipment used that is regulated for noise output by a local, state, or federal agency shall comply with such regulation while in the course of project activity.	Initial Study	This shall be implemented during construction.	Project Authority[(a)]			
NOI-4 Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.	Initial Study	This shall be implemented during construction.	Project Authority[(a)]			

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification of Compliance		
				Initials	Date	Remarks
NOI-5 Construction site and access road speed limits shall be established and enforced during the construction period.	Initial Study	This shall be implemented during construction.	Project Authority[(a)]			
NOI-6 The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only.	Initial Study	This shall be implemented during construction.	Project Authority[(a)]			
NOI-7 Electrically powered equipment instead of pneumatic or internal combustion powered equipment shall be used, where feasible.	Initial Study	This shall be implemented during construction.	Project Authority[(a)]			

Notes:

(a) Project Authority: Engineer of Record, Construction Manager, Contract Administration, LASAN Team.

Section 7: List of Preparers

7.1 City Agencies

Roshanak Aflaki	Water Reclamation Division Manager	LASAN, Water Reclamation Division
Joline Muñoz, M.S., P.E.	Environmental Engineer	LASAN, Water Reclamation Division
Cyrous Gilani, P.E.	Group Manager, Odor Control	LASAN, Wastewater Collections Systems Division
Hamed Haddad-Zadegan, Ph.D., P.E.	Environmental Engineering Associate	LASAN, Wastewater Collections Systems Division
Al Bazzi	Assistant Division Engineer	LA Sanitation Bureau of Engineering EED
Michael Sarulio	Division Engineer	LA Sanitation Bureau of Engineering EED
Slavica Hammond	Project Manager	LA Sanitation Bureau of Engineering EED
Ali Poosti	Division Manager	LASAN, Wastewater Collections Systems Division

7.2 Consultant Team

Meredith Clement	Water Resources Project Manager and QA/QC	Kennedy/Jenks Consultants
Lauren Everett Smith	Water Resources Project Manager	Kennedy/Jenks Consultants
Rachel Erin Druffel-Rodriguez	Staff Engineer	Kennedy/Jenks Consultants

7.3 Technical Team

Jennifer Haddow, PhD, Principal	Project Manager	Rincon Consultants, Inc.
Lindsey Sarquilla, MESM, Senior Environmental Planner Amanda Silver-Westrick, MESM, Associate Environmental Planner	Air Quality/Greenhouse Gases	Rincon Consultants, Inc.
Heather Imgrund, Biologist/Project Manager Thea Benson, Senior Biologist /Project Manager Steven J. Hongola, Principal / Senior Ecologist	Biological Resources	Rincon Consultants, Inc.
Meagan Szromba, M.A., RPA, Associate Archaeologist Hannah Haas, M.A., RPA, Archaeologist & Project Manager Christopher Duran, M.A., RPA, Archaeological Resources Program Manager & Principal Investigator	Cultural Resources and Tribal Cultural Resources	Rincon Consultants, Inc.
David Daitch, PhD, Program Manager/Senior Biologist	Paleontological Resources	Rincon Consultants, Inc.
Perrie Ilercil, P.E.	Senior Associate, Project Manager, Traffic and Transportation	Kunzman and Associates

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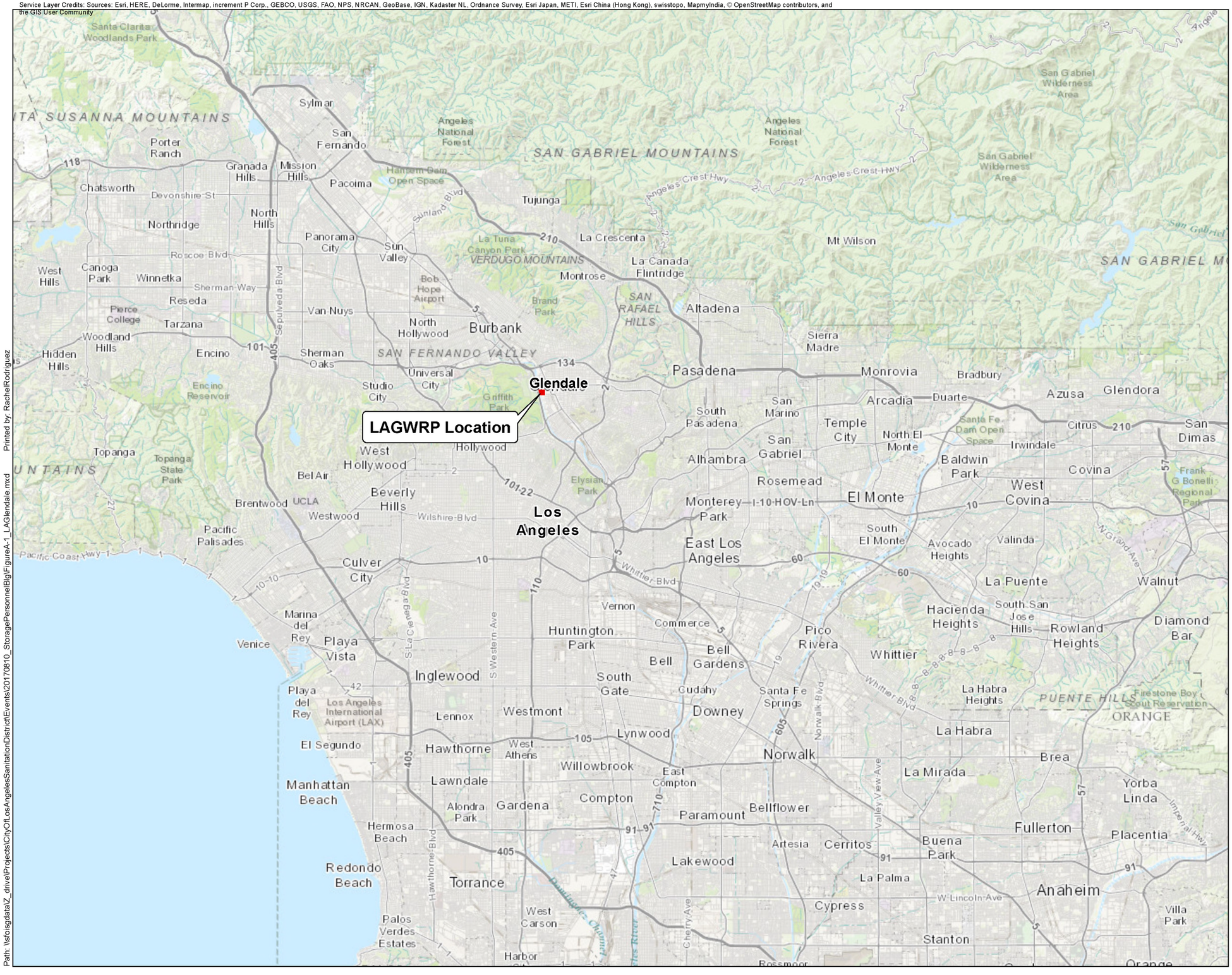
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Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community



Index Map

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City of Los Angeles Sanitation District
Equalization Storage and Personnel Building Project CEQA

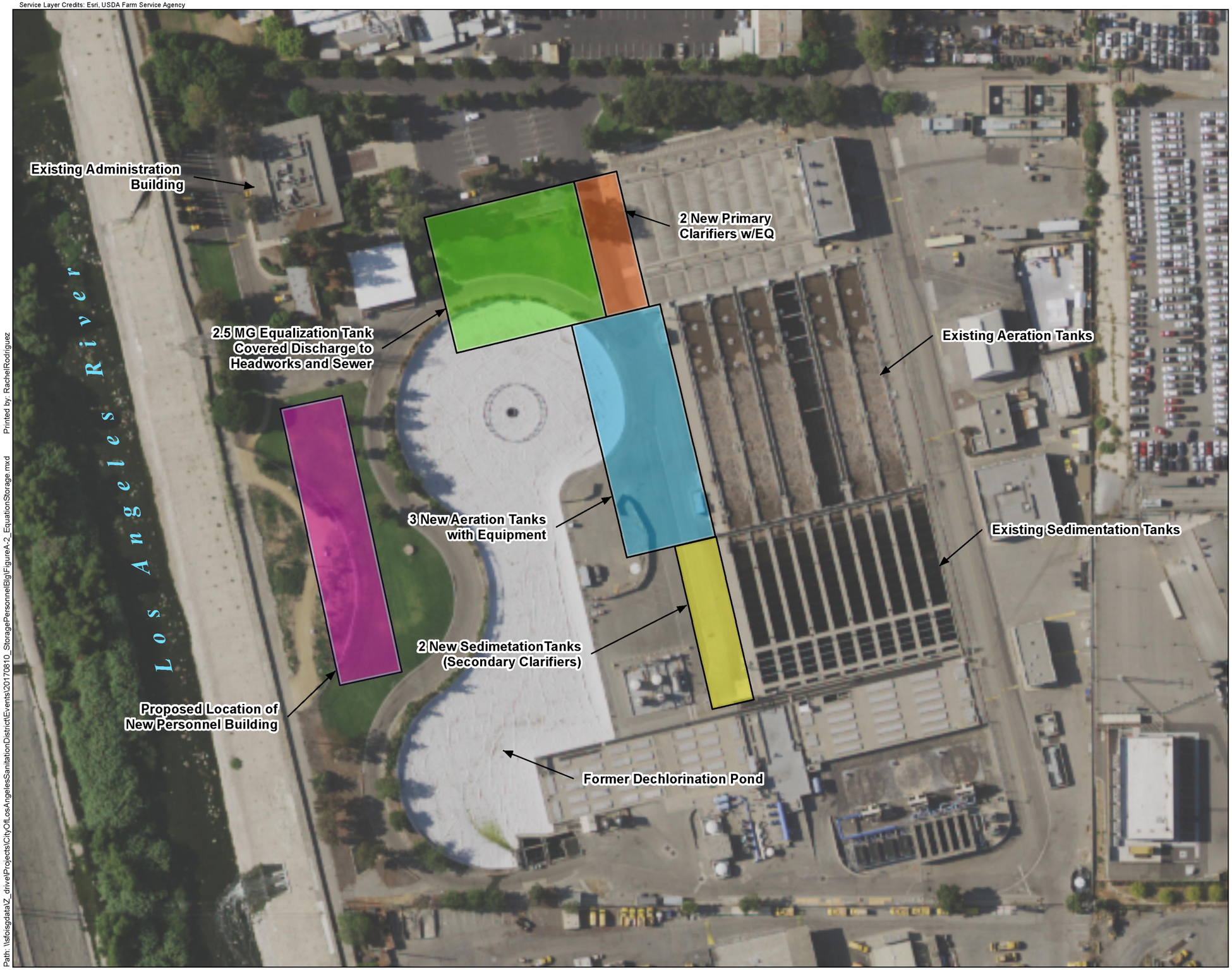
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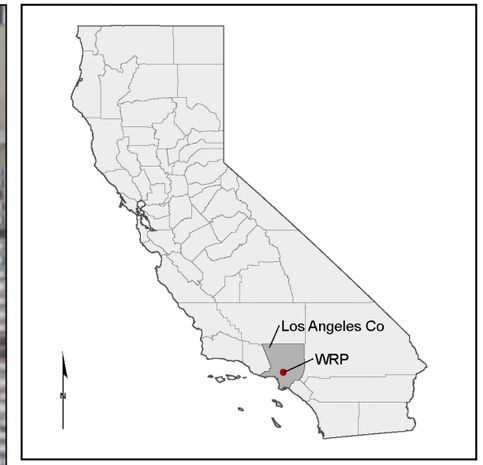
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Figure A-1

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Index Map

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Feet

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Equalization Storage and Personnel Building Project CEQA

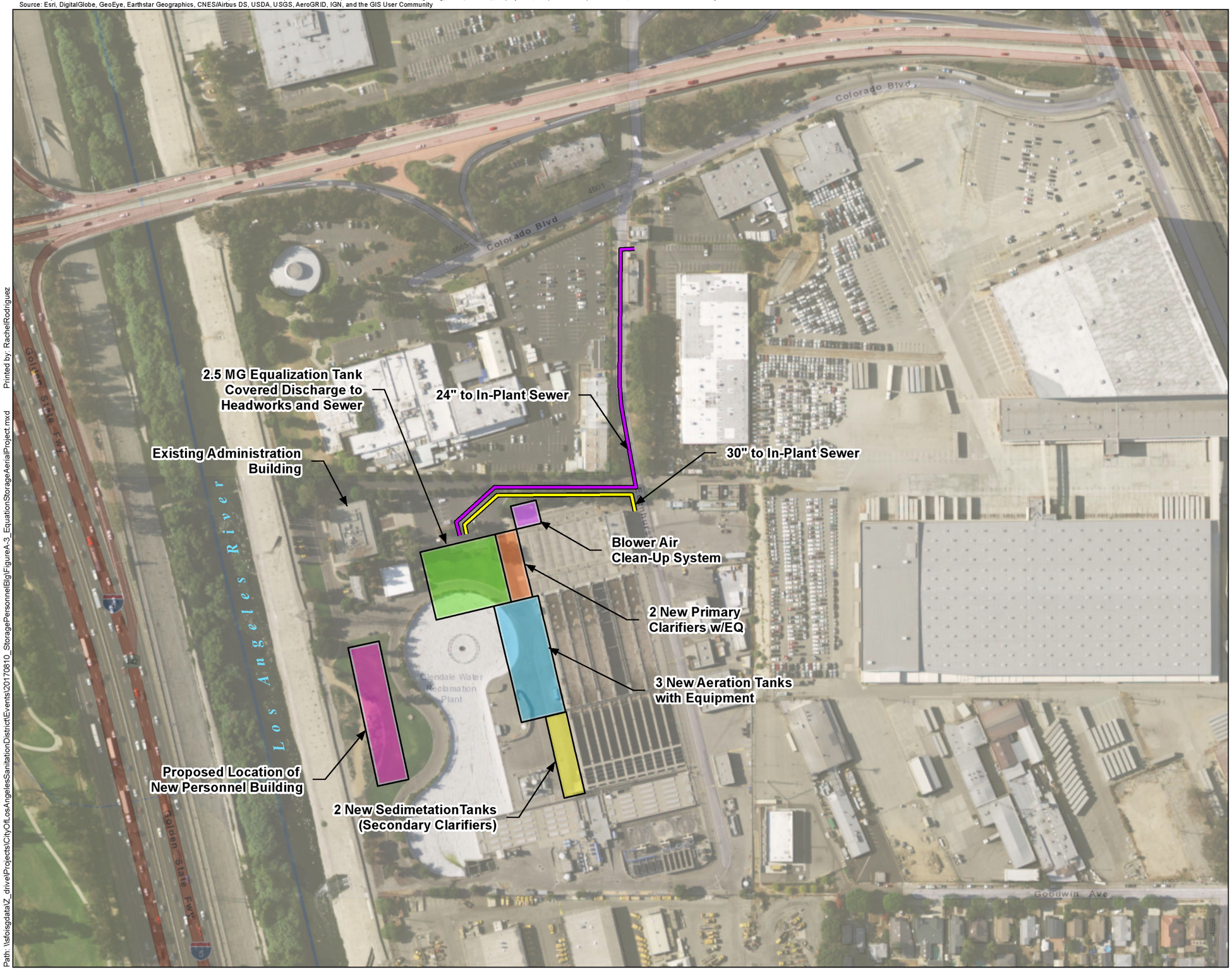
Equalization Storage Project

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Figure A-2

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Index Map

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Kennedy/Jenks Consultants

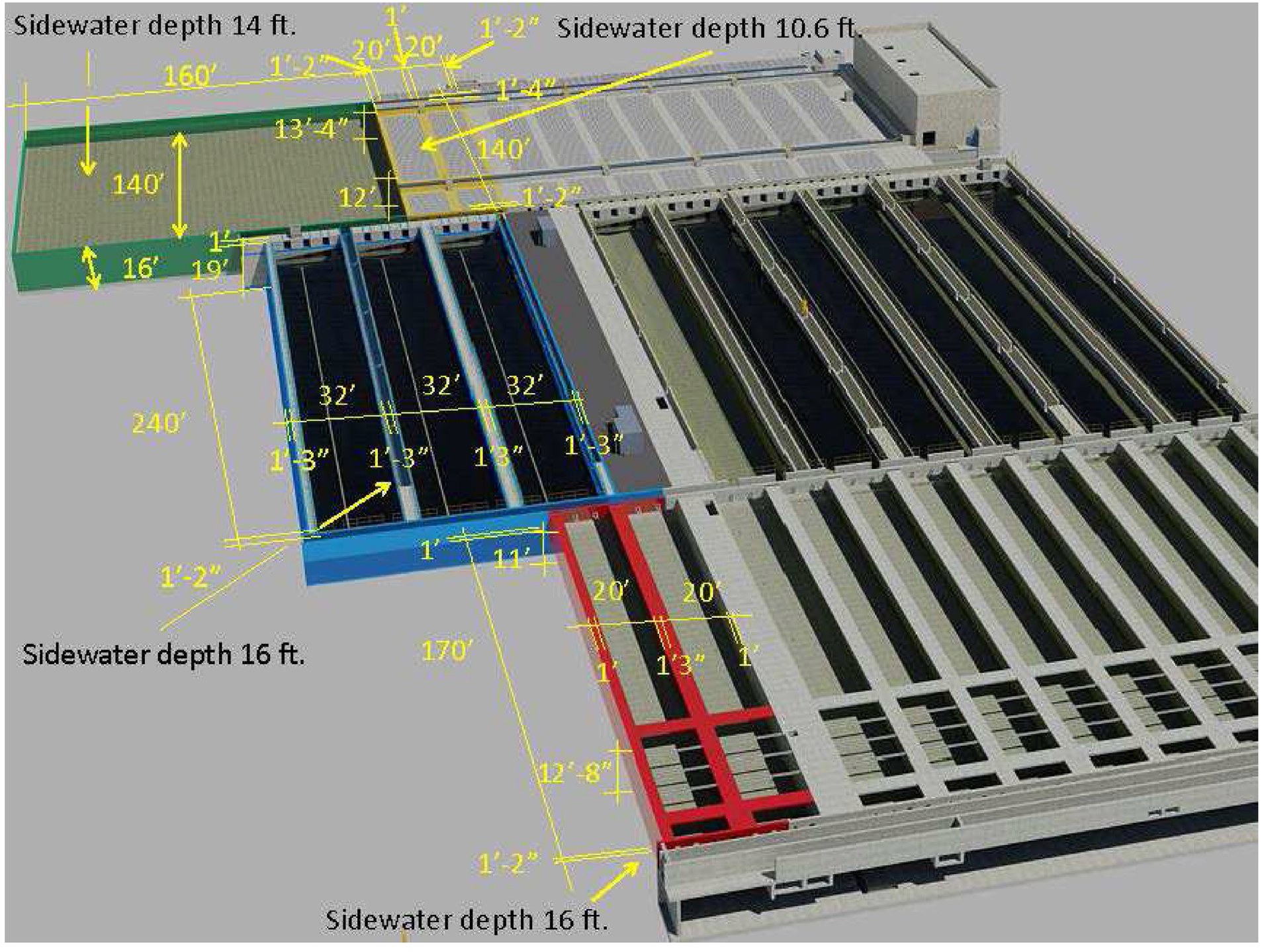
City of Los Angeles Sanitation District
Equalization Storage and Personnel Building Project CEQA

Equalization Storage Project Aerial View

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August 2017

Figure A-3

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Source: Provided by City of Los Angeles/Bureau of Sanitation, July 2017

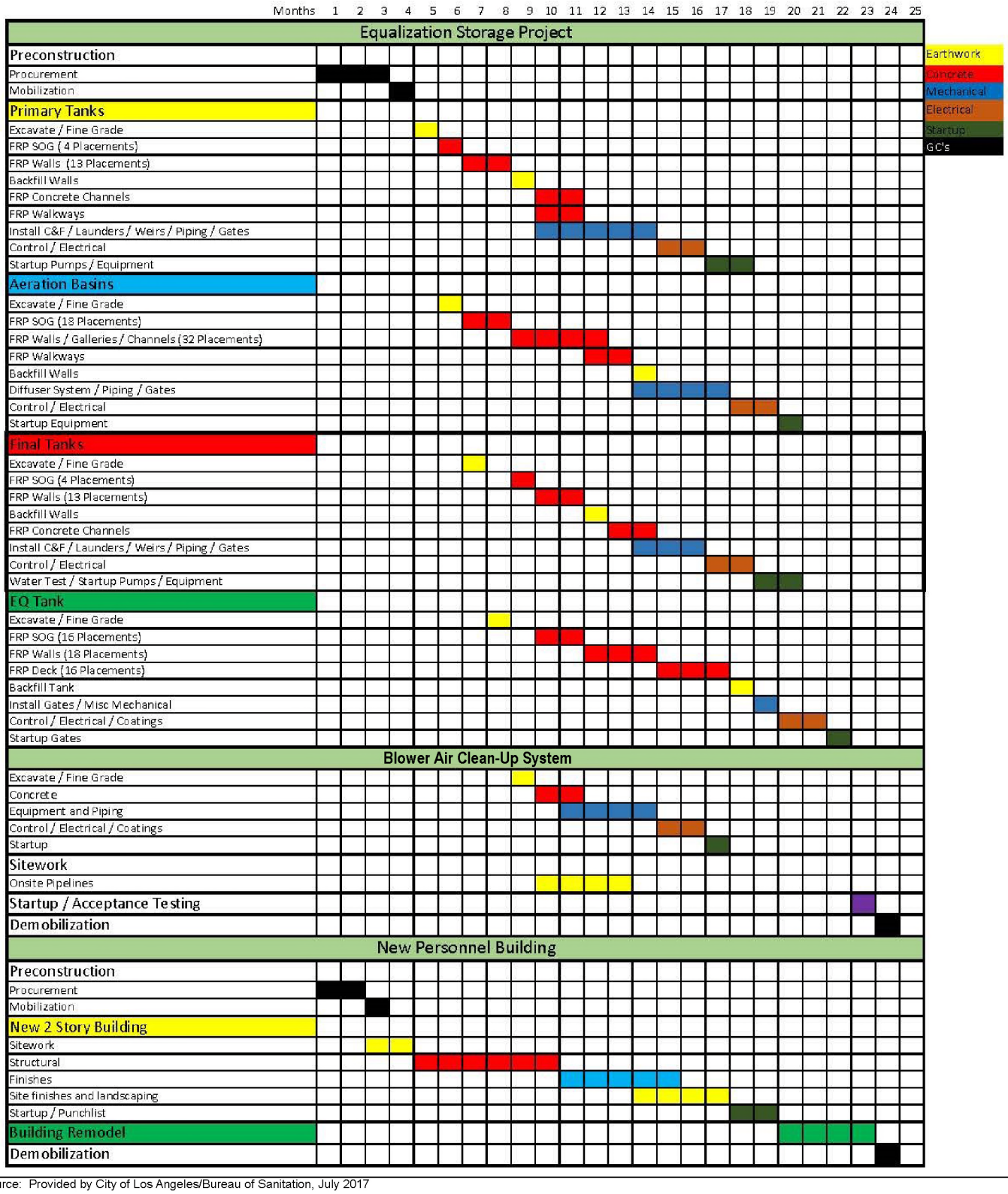
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City of Los Angeles Sanitation District
Equalization Storage and Personnel Building Project CEQA

Equalization Storage Project 3-D Rendering

1744511*00
August 2017
Figure A-4



Source: Provided by City of Los Angeles/Bureau of Sanitation, July 2017

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City of Los Angeles Sanitation District
Equalization Storage and Personnel Building Project CEQA

Summary Cost Construction Schedule

K/J 1744511*00
August 2017

Figure A-5

Source: Federal Emergency Management Agency Flood Insurance Rate Map Panel No.1345F

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 11. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, NINGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242,** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was derived from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from photography dated 1994 or later and from National Geospatial Intelligence Agency imagery produced at a scale of 1:4,000 from photography dated 2003 or later.

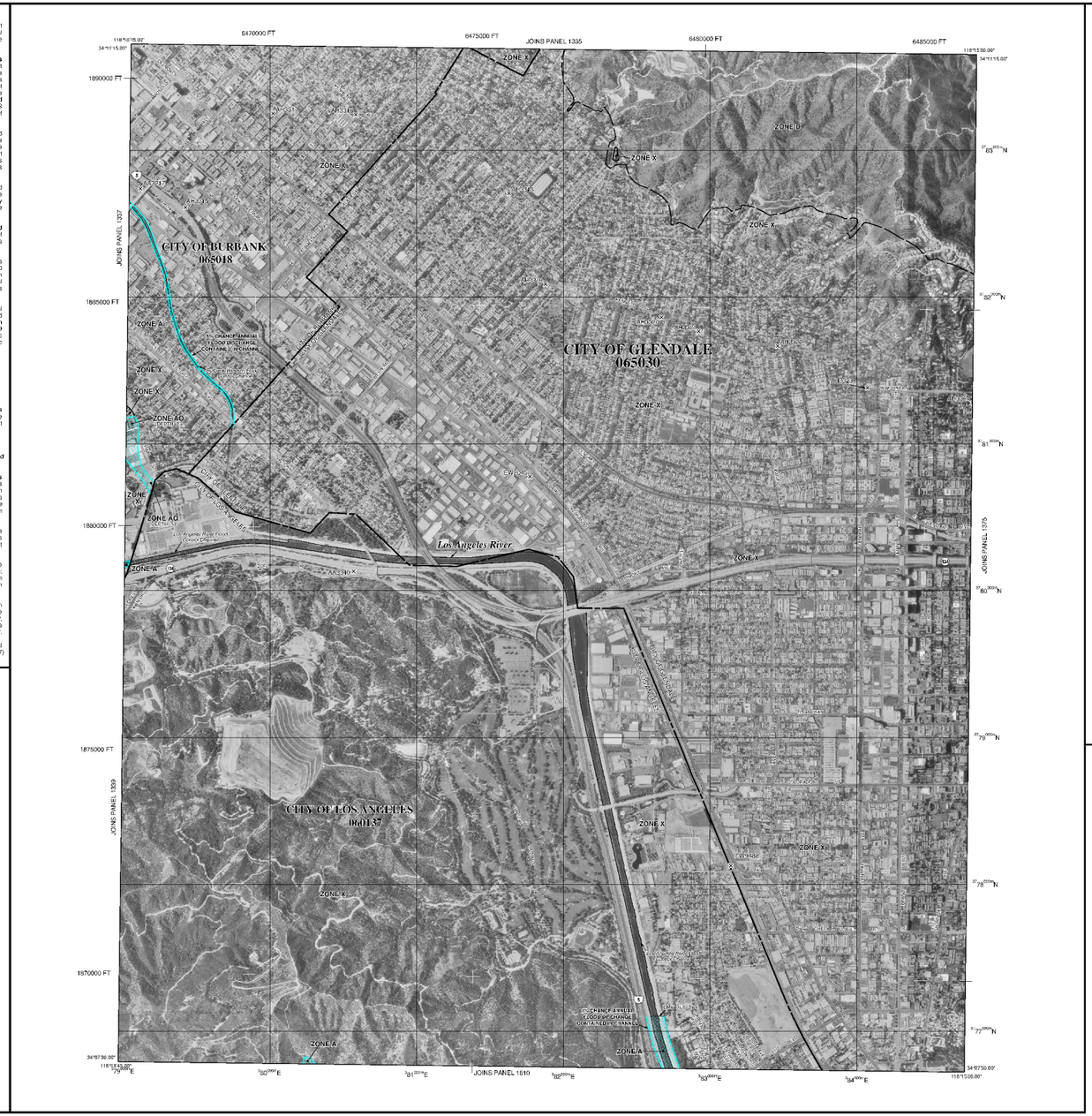
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the *Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a *Flood Insurance Study report*, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- **ZONE A** No Base Flood Elevations determined.
- **ZONE AE** Base Flood Elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- **ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- **ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- **ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The Floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood

OTHER AREAS

- **ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- A — A — Cross section line
- 23 — 23 — Transect line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4276000mN — 1000-meter Universal Transverse Mercator grid values, zone 11
- 6900000 FT — 5000-foot grid ticks: California State Plane coordinate system, V zone (FIPSZONE 0405), Lambert Conformal Conic
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 26, 2008
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1345F

FIRM
FLOOD INSURANCE RATE MAP
LOS ANGELES COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 1345 OF 2350
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BURBANK, CITY OF	060018	1345	F
GLENDALE, CITY OF	060030	1345	F
LOS ANGELES, CITY OF	060137	1345	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06037C1345F
EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

Kennedy/Jenks Consultants

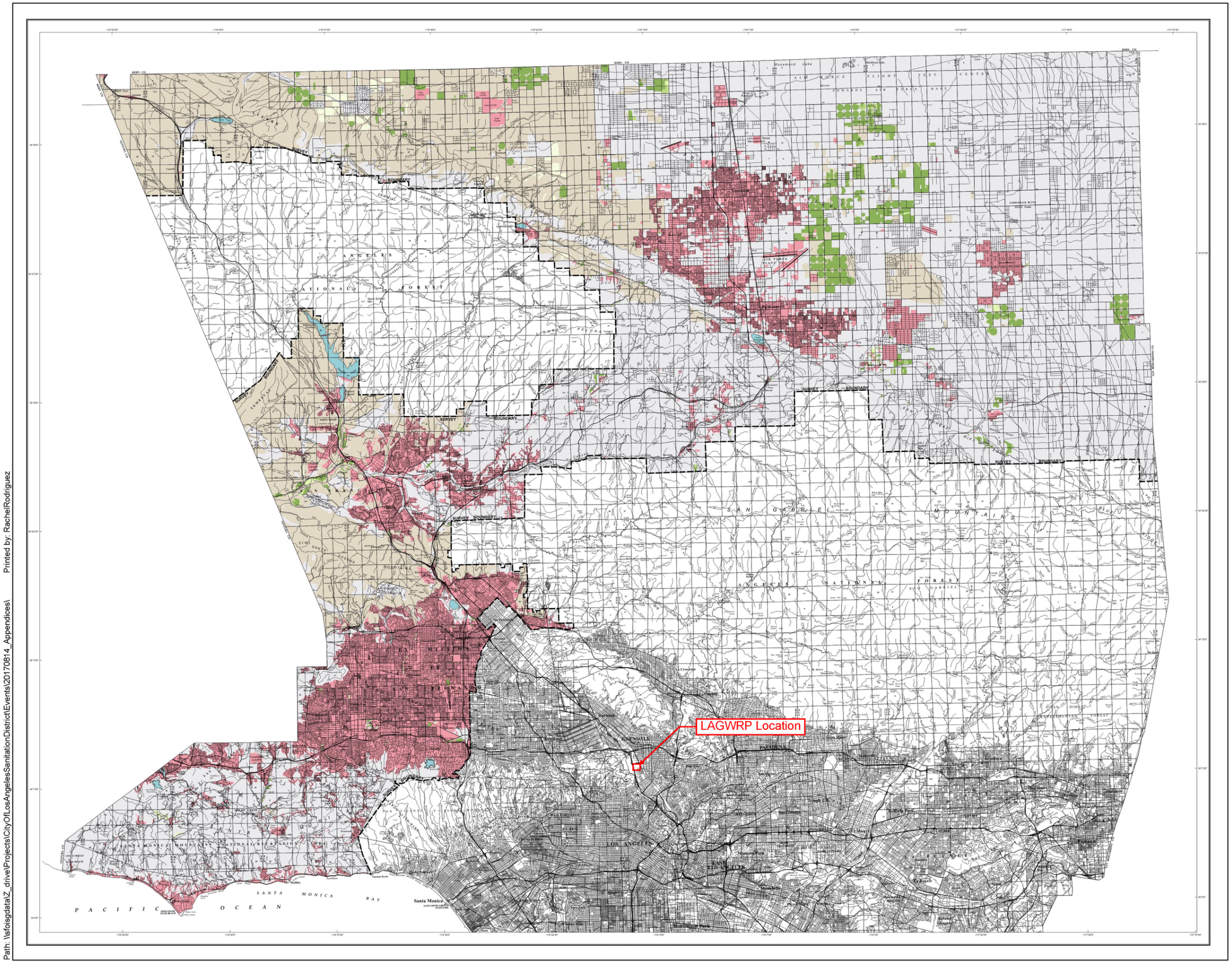
City of Los Angeles Sanitation District
Equalization Storage and Personnel Building Project CEQA

Federal Emergency Management Agency
Flood Insurance Rate Map
Panel No. 1345F

K/J 1744511*00
August 2017
Appendix A-6

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Source: California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program. Los Angeles County Important Farmland 2014 [map]. ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2014/los14.pdf. Updated 2016.



PRIME FARMLAND

PRIME FARMLAND HAS THE BEST COMBINATION OF PHYSICAL AND CHEMICAL FEATURES ABLE TO SUSTAIN LONG TERM AGRICULTURAL PRODUCTION. THIS LAND HAS THE SOIL QUALITY, GROWING SEASON, AND MOISTURE SUPPLY NEEDED TO PRODUCE SUSTAINED HIGH YIELDS. LAND MUST HAVE BEEN USED FOR IRRIGATED AGRICULTURAL PRODUCTION AT SOME TIME DURING THE FOUR YEARS PRIOR TO THE MAPPING DATE.

FARMLAND OF STATEWIDE IMPORTANCE

FARMLAND OF STATEWIDE IMPORTANCE IS SIMILAR TO PRIME FARMLAND BUT WITH MINOR SHORTCOMINGS, SUCH AS GREATER SLOPES OR LESS ABILITY TO STORE SOIL MOISTURE. LAND MUST HAVE BEEN USED FOR IRRIGATED AGRICULTURAL PRODUCTION AT SOME TIME DURING THE FOUR YEARS PRIOR TO THE MAPPING DATE.

UNIQUE FARMLAND

UNIQUE FARMLAND CONSISTS OF LESSER QUALITY SOILS USED FOR THE PRODUCTION OF THE STATE'S LEADING AGRICULTURAL CROPS. THIS LAND IS USUALLY IRRIGATED, BUT MAY INCLUDE NONIRRIGATED ORCHARDS OR VINEYARDS AS FOUND IN SOME CLIMATIC ZONES IN CALIFORNIA. LAND MUST HAVE BEEN CROPPED AT SOME TIME DURING THE FOUR YEARS PRIOR TO THE MAPPING DATE.

FARMLAND OF LOCAL IMPORTANCE

PRODUCING LANDS THAT WOULD MEET THE STANDARD CRITERIA FOR PRIME OR STATEWIDE BUT ARE NOT IRRIGATED.

GRAZING LAND

GRAZING LAND IS LAND ON WHICH THE EXISTING VEGETATION IS SUITED TO THE GRAZING OF LIVESTOCK.

URBAN AND BUILT-UP LAND

URBAN AND BUILT-UP LAND IS OCCUPIED BY STRUCTURES WITH A BUILDING DENSITY OF AT LEAST 1 UNIT TO 1.5 ACRES, OR APPROXIMATELY 6 STRUCTURES TO A 10-ACRE PARCEL. COMMON EXAMPLES INCLUDE RESIDENTIAL, INDUSTRIAL, COMMERCIAL, INSTITUTIONAL FACILITIES, CEMETERIES, AIRPORTS, GOLF COURSES, SANITARY LANDFILLS, SEWAGE TREATMENT, AND WATER CONTROL STRUCTURES.

OTHER LAND

OTHER LAND IS LAND NOT INCLUDED IN ANY OTHER MAPPING CATEGORY. COMMON EXAMPLES INCLUDE LOW DENSITY RURAL DEVELOPMENTS, BRUSH, TIMBER, WETLAND, AND RIPARIAN AREAS NOT SUITABLE FOR LIVESTOCK GRAZING, CONFINED LIVESTOCK, POULTRY, OR AQUACULTURE FACILITIES, STRIP MINES, BORROW PITS, AND WATER BODIES SMALLER THAN 40 ACRES. VACANT AND NONAGRICULTURAL LAND SURROUNDED ON ALL SIDES BY URBAN DEVELOPMENT AND GREATER THAN 40 ACRES IS MAPPED AS OTHER LAND.

WATER

PERENNIAL WATER BODIES WITH AN EXTENT OF AT LEAST 40 ACRES.

SCALE: 1:120,000
1 inch represents approximately 2 miles

1 0 1 2 3 4 5 6 7 8 9 10 Kilometers
1 0 1 2 3 4 5 Miles

The minimum land use mapping unit is 10 acres, except Water, which is mapped to a minimum of 40 acres.
1 square mile = 640 acres.

Total County Area - 2,812,674 acres
Mapped Area - 1,124,062 acres

Important Farmland Maps are compiled by the Farmland Mapping and Monitoring Program (FMMP) pursuant to Section 65570 of the California Government Code. To create the maps, FMMP combines current land use information with U.S. Department of Agriculture-Natural Resources Conservation Service (NRCS) soil survey data. Soil units qualifying for Prime Farmland and Farmland of Statewide Importance are determined by the NRCS. Changes to soil profiles subsequent to publication of NRCS soil surveys are not reflected on this map. This map was developed using NRCS digital soil data (SSURGO) and may contain individual soil units as small as one acre.

Land use status is determined using current and historic aerial imagery, supplemental GIS data, and field verification. Imagery sources may include public domain datasets, web-based information, and commercially purchased data, depending on data availability. Supplemental data on land management status is obtained from federal, state, and local governments. Map reviewers at the local level contribute valuable information with their comments and suggestions. Please refer to FMMP field analyst reports for each county to obtain specific citations.

Cultural base information for the Important Farmland Maps was derived from public domain data sets, based upon design of the U.S. Geological Survey, with updates generated by digitizing over current imagery.

This map should be used within the limits of its purpose – as a current inventory of agricultural land resources. This map does not necessarily reflect general plan or zoning designations, city limit lines, changing economic or market conditions, or other factors which may be taken into consideration when land use policies are determined. This map is not designed for parcel-specific planning purposes due to its scale and the ten-acre minimum land use mapping unit. Classification of important farmland and urban areas on this map is based on best available data. The information has been delineated as accurately as possible at 1:24,000-scale, but no claim to meet 1:24,000 National Map Accuracy Standards is made due to variations in the quality of source data.

The Department of Conservation makes no warranties as to the suitability of this product for any particular purpose.

Additional data is available at www.conservation.ca.gov/dlrp/fmmp, including detail on the program, full size PDF maps, map categories, statistics, field summaries, and GIS data for download. Contact the:

Farmland Mapping and Monitoring Program
801 K Street, MS 14-15
Sacramento, CA 95814
Phone: (916) 324-0850
e-mail: fmmp@conservation.ca.gov

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Map published April 2016.

Kennedy/Jenks Consultants

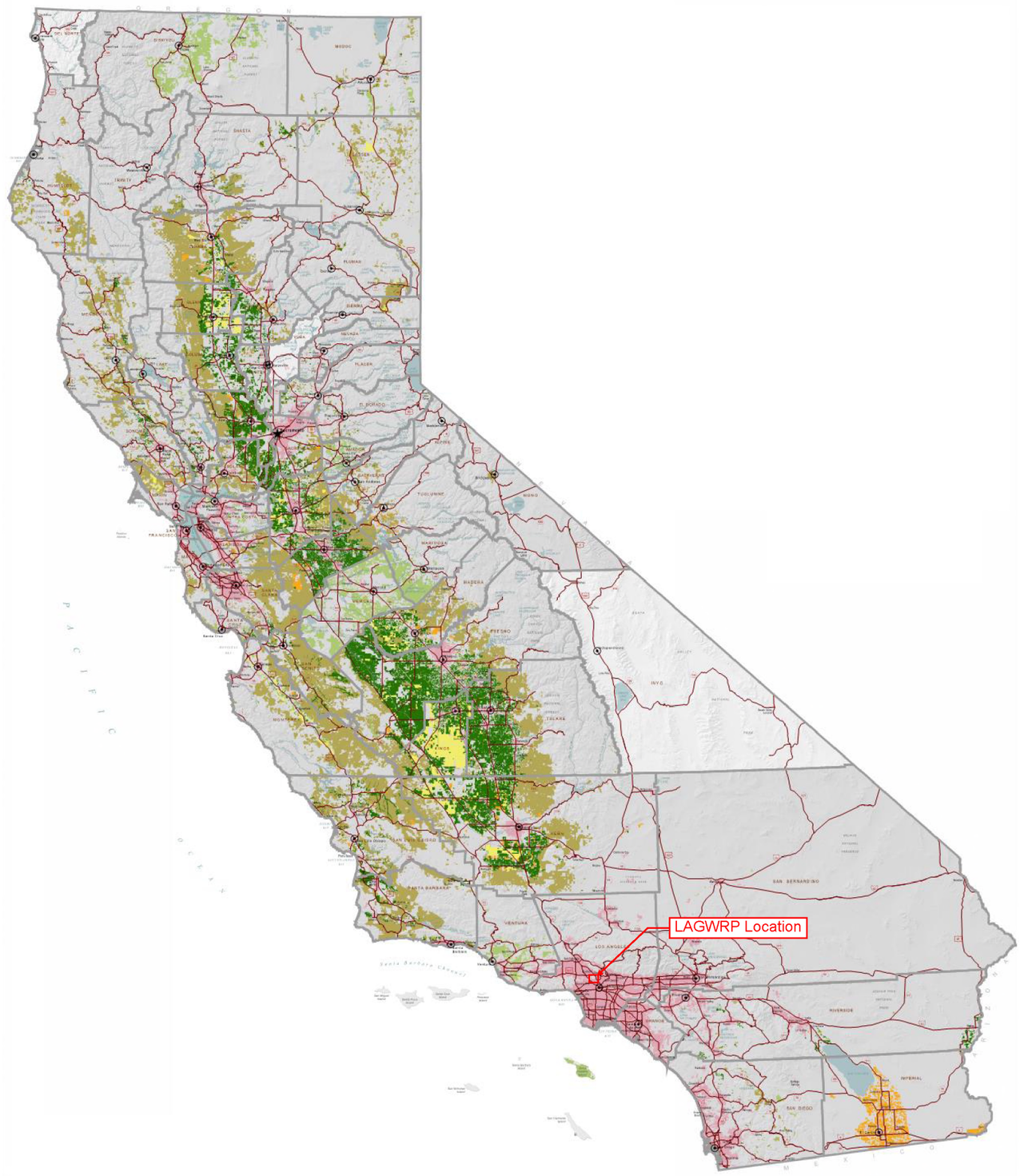
City of Los Angeles Sanitation District
Equalization Storage and Personnel Building Project CEQA

Los Angeles County Important Farmland 2014

K/J 1744511*00
August 2017
Figure A-7

Path: \\sfoisgdataZ_drive\Projects\CityOfLosAngelesSanitationDistrict\Events\20170814_Appendices\ Printed by: RachelRodriguez

Source: California Department of Conservation, Division of Land Resource Protection, Conservation Program Suport. State of California Williamson Act Contract Land [map]. ftp://ftp.consrv.ca.gov/pub/dlrp/wa/2014%20Statewide%20Map/WA_2014_11x17.pdf. Data submissions current to 2014.



WILLIAMSON ACT- PRIME AGRICULTURAL LAND

Land which is enrolled under California Land Conservation Act contract and meets any of the following criteria (as set forth under California Government Code Section 51201):
1. Land which qualifies for rating as class I or class II in the Natural Resources Conservation Service land use capability classifications;
2. Land which qualifies for rating 80 to 100 in the Storie Index Rating;
3. Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture;
4. Land planted with fruit or nut-bearing trees, vines, bushes or crops which have a nonbearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than two hundred dollars per acre;
5. Land which has returned from the production of unprocessed agricultural plant production and has an annual gross value of not less than two hundred dollars per acre for three of the previous five years.

WILLIAMSON ACT- NON - PRIME AGRICULTURAL LAND

Land which is enrolled under California Land Conservation Act contract and does not meet any of the criteria for classification as Prime Agricultural Land. Non Prime Land is defined as Open Space Land of Statewide Significance under the California Open Space Subvention Act (see California Government Code Section 16143), and may be identified as such in other documents. Most Non Prime Land is in agricultural uses such as grazing or non-irrigated crops. However, Non Prime Land may also include other open space uses which are compatible with agriculture and consistent with local general plans.

WILLIAMSON ACT- FARMLAND SECURITY ZONE (FSZ)

Enrolled parcels containing either Prime or Non-Prime agricultural land restricted by a 20 year contract pursuant to Government Code Section 51296.

WILLIAMSON ACT- MIXED ENROLLMENT AGRICULTURAL LAND

Enrolled lands containing a combination of Prime, Non-Prime, Open Space Easement, or other contracted or enrolled lands not yet delineated by the county.

WILLIAMSON ACT- NON-RENEWAL

Enrolled lands for which non-renewal has been filed pursuant to Government Code Section 51245. Upon the filing of non-renewal, the existing contract remains in effect for the balance of the period remaining on the contract. During the non-renewal process, the annual tax assessment gradually increases. At the end of the 9 year non-renewal period (or 18-year non-renewal period if FSZ), the contract expires and the land is no longer extensively restricted.

NON-ENROLLED LAND

Land not enrolled in a Williamson Act contract and not mapped by Farmland Mapping & Monitoring Program (FMMP) as Urban and Built-Up Land or Water.

URBAN AND BUILT-UP LAND

Urban and Built-Up Land is occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. Common examples include residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control structures. This definition and extent of mapping is derived from the latest Farmland Mapping and Monitoring Program Important Farmland Maps.

WATER

Perennial water bodies with an extent of at least 40 acres. This definition and extent of mapping is derived from the latest Farmland Mapping and Monitoring Program Important Farmland Maps.

OTHER FEATURES

NON-PARTICIPATING COUNTIES

COUNTY LINE

MAJOR ROAD

COUNTY SEAT

Scale: 1:3,520,000
1 inch represents approximately 56 miles

The California Land Conservation Act of 1965 - commonly referred to as the Williamson Act - is the State's primary program for the conservation of private land in agricultural and open space use. It is a voluntary, locally administered program that offers preferential property taxes on lands which have enforceable restrictions on their use via contracts between individual landowners and local governments. For more information on the Williamson Act please contact:

Department of Conservation
Division of Land Resource Protection
801 K Street, MS 18-01
Sacramento, CA 95814

Phone (916) 324-0850;
email: dlrp@conservation.ca.gov;
web page: www.conservation.ca.gov/dlrp/lca

Maps depicting Williamson Act enrollment are produced by the California Department of Conservation, Division of Land Resource Protection, in cooperation with participating local jurisdictions. Data reflects the most recent Geographic Information Systems (GIS) or hardcopy maps submitted to the Department by county planning agencies and/or assessor offices. While most data reflects enrollment status as of January 2014, actual dates vary by county. As the status of enrolled lands may change throughout the year, please contact the local jurisdictions directly to obtain current site specific information.

Cultural base information was derived from public domain data sets, based upon design of the U.S. Geological Survey, with updates generated by digitizing over current imagery.

The Department of Conservation makes no warranties as to suitability of this map for any particular purpose.

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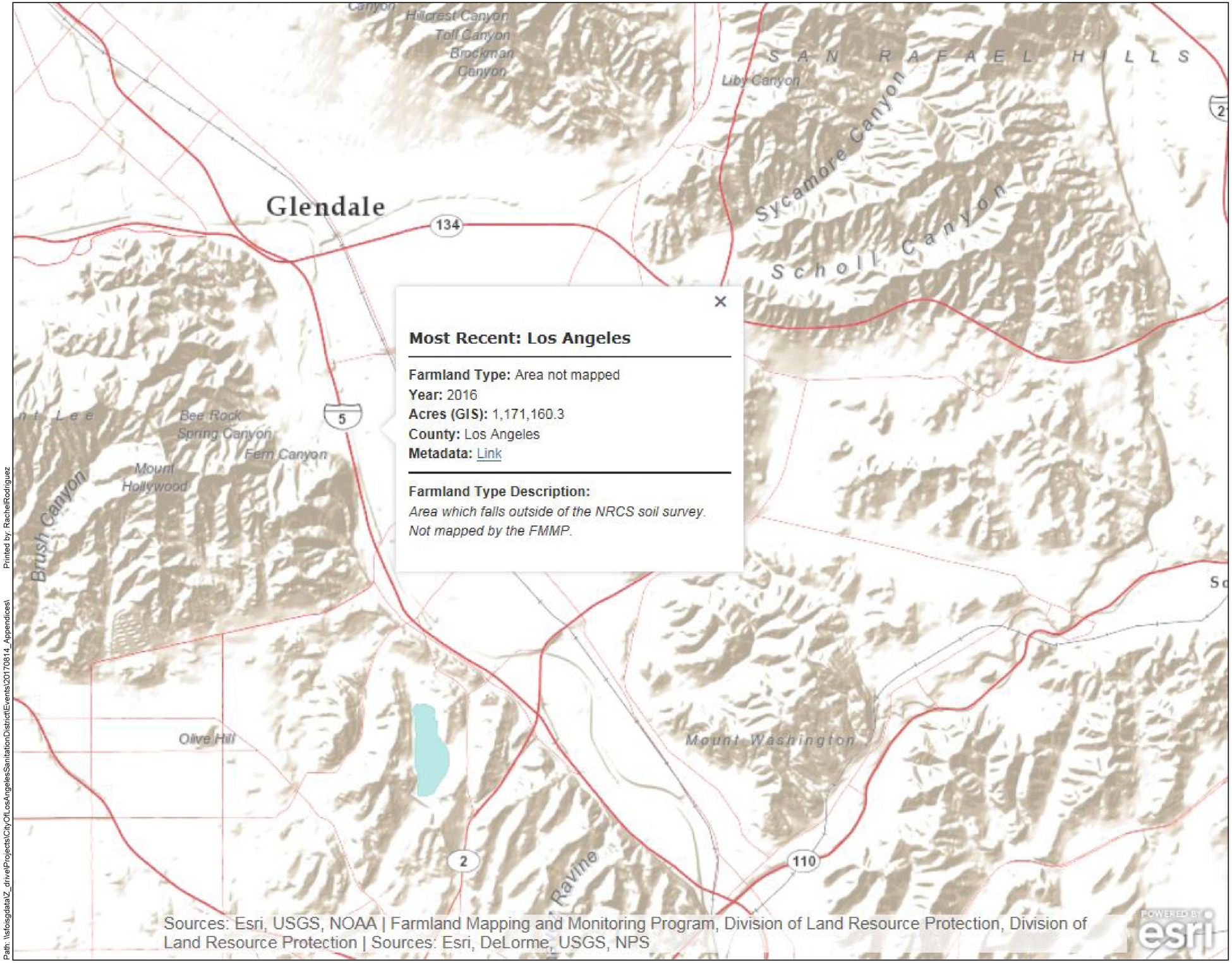
City of Los Angeles Sanitation District
Equalization Storage and Personnel Building Project CEQA

State of California Williamson Act Contract Land

K/J 1744511*00
August 2017
Figure A-8

Path: \\sfoisgdataZ_drive\Projects\CityOfLosAngelesSanitationDistrictEvents\20170814_Appendices\ Printed by: RachelRodriguez

Originator: California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program, *Publication Date:* Even numbered years, starting in 1984, *Title:* Los Angeles County Important Farmland, *Geospatial Data Presentation Form:* vector digital data



OVERVIEW MAP



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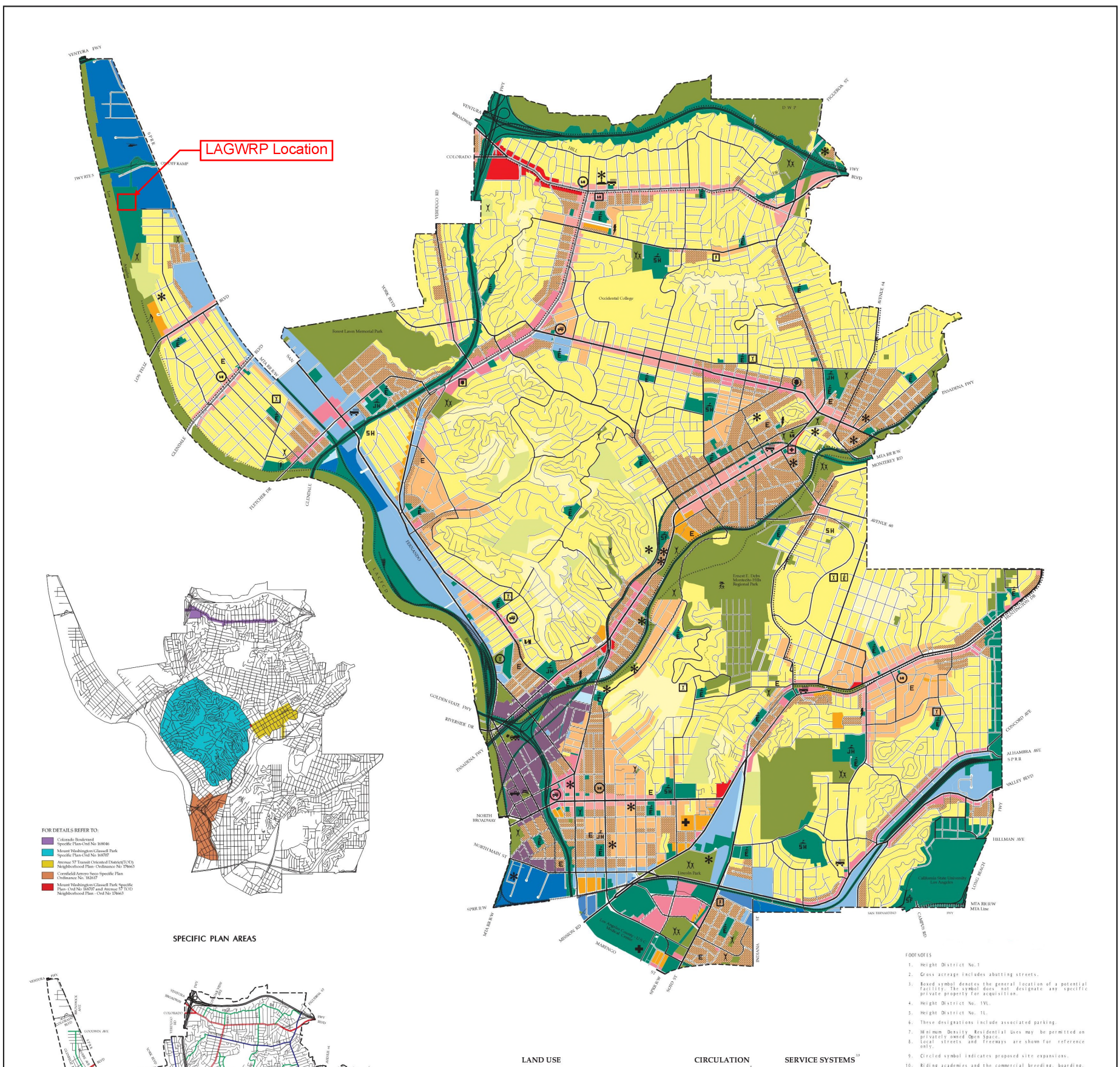
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City of Los Angeles Sanitation District
Equalization Storage and Personnel Building Project CEQA

California Important Farmland
1984 - 2016

K/J 1744511*00
August 2017
Figure A-9

Source: City of Los Angeles Department of City Planning, Systems and GIS Division. Northeast Los Angeles Community Plan, A Part of the General Plan of the City of Los Angeles. As of June 2014. http://planning.lacity.org/complan/central/PDF/nlaplanmap.pdf.



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City of Los Angeles Sanitation District
Equalization Storage and Personnel Building Project CEQA

General Plan Land Use Map (as of June 25 2014)
Northeast Los Angeles Community Plan

K/J 1744511*00
August 2017

Figure A-10



Imagery provided by Google and its licensors © 2017.

BRAFig 2 Study Area

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Equalization Storage and Personnel Building Project CEQA

Biological Study Area and Project Footprint

K/J 1744511*00
August 2017
Figure A-11

Source: Kirkman, George W. 1938. Kirkman-Harriman Pictorial and Historical Map of Los Angeles Count: 1860 A.D.- 1937 A.D. Scale [ca. 1:200,000]. On file with the Los Angeles Public Library. Accessed online, https://www.lapl.org/collections-resources/visual-collections/kirkman-harriman-pictorial-and-historical-map-los-angeles.



R91.7941 L88Ki

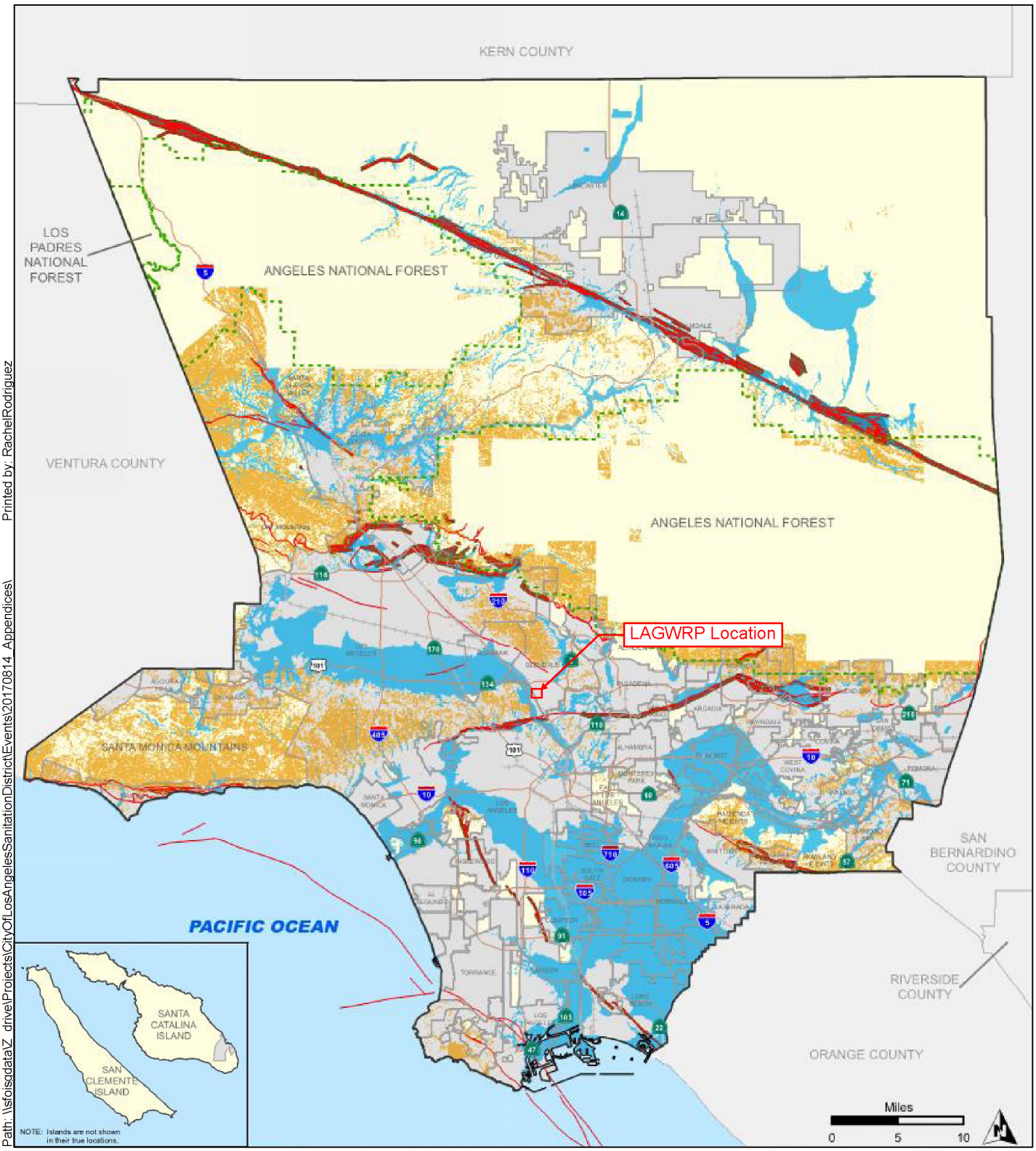
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Equalization Storage and Personnel Building Project CEQA

Kirkman-Harriman Pictorial and Historical Map of Los Angeles County

K/J 1744511*00
August 2017
Figure A-12



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Source: Department of Regional Planning, May 2014. Additional Sources: California Department of Forestry and Fire Protection - Fire and Resource Assessment Program (FRAP), CALFIRE, County of Los Angeles Fire Department. Draft version, Current as of May 2014A-P maps: 1974-2014. ** California Geological Survey, Seismic Hazard Zone Maps,1997-2005. *** Los Angeles County General Plan, Fault Rupture Hazards and Historic Seismicity Map, 1990. (USGS GIS data was used for refinement of mapped faults.) Landslide zone data for the majority of the National Forest areas is not available as of September 2010.

- Active Fault Trace ***
- Seismically Induced Landslide Zone **
- Seismically Induced Liquefaction Zone *
- Alquist-Priolo Earthquake Fault Zone **
- Unincorporated Areas
- Cities

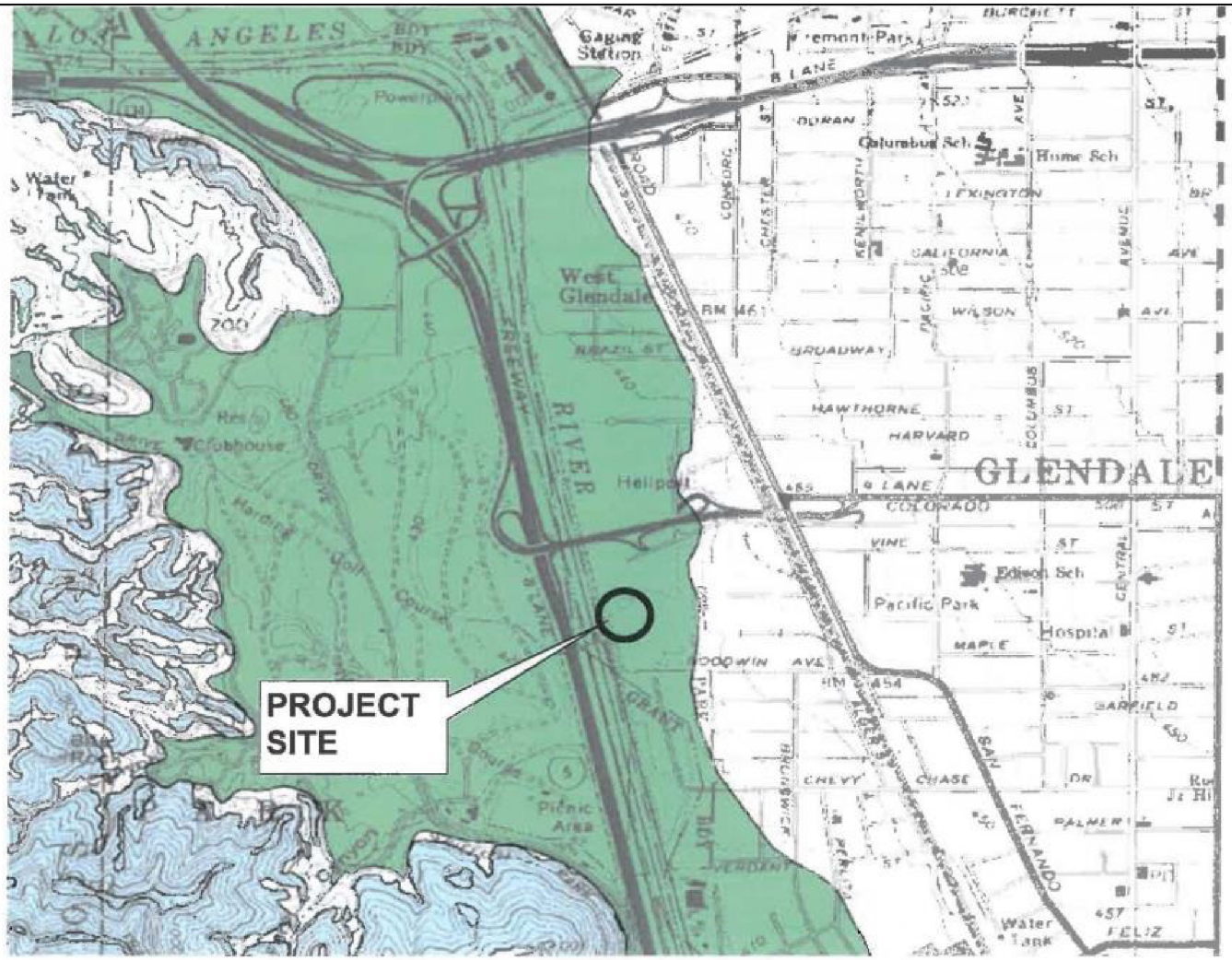
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City of Los Angeles Sanitation District
Equalization Storage and Personnel Building Project CEQA

Los Angeles County General Plan
Seismic and Geotechnical Hazard Zones
Policy Map

K/J 1744511*00
August 2017

Figure A-13



Reference: "Official Map of Seismic Hazard Zones,"Burbank", March 25, 1999, California, Department of Conservation, Division of Mines and Geology.

Source: Bureau of Engineering Geotechnical Engineering Group (GEO), FILE No.:16-118, DATE: September 2016.

Path: \\sfoisgdata\Z_drive\Projects\CityOfLosAngelesSanitationDistrictEvents\20170814_Appendices\ Printed by: RachelRodriguez

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City of Los Angeles Sanitation District
Equalization Storage and Personnel Building Project CEQA

Seismic Hazard Zones Map

K/J 1744511*00
August 2017

Figure A-14

Source: California Department of Conservation Landslide Inventory Map, Burbank Quadrangle

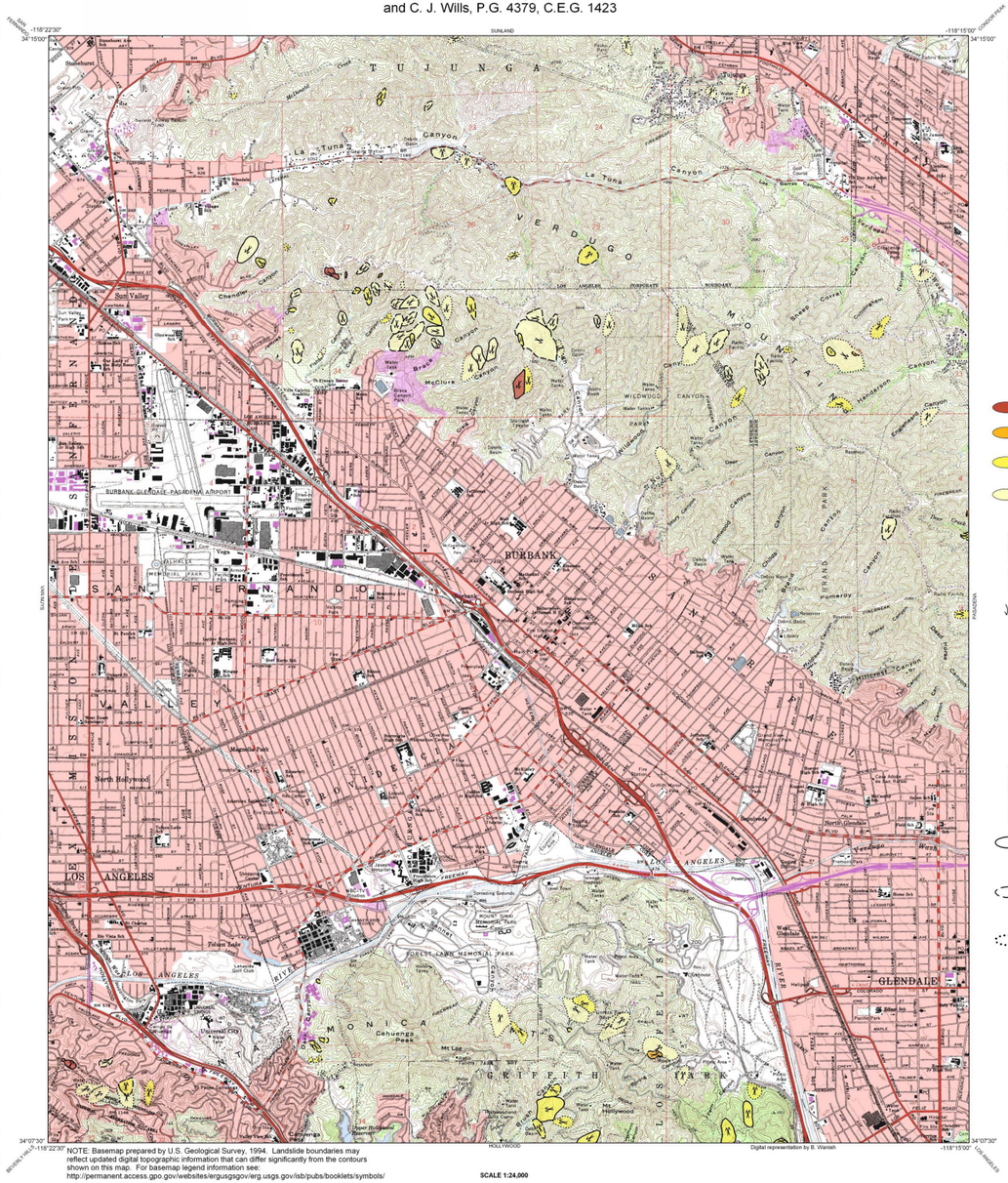
CALIFORNIA GEOLOGICAL SURVEY
JOHN G. PARRISH, PH.D., STATE GEOLOGIST

STATE OF CALIFORNIA, EDMUND G. BROWN, JR., GOVERNOR
THE NATURAL RESOURCES AGENCY - JOHN LAIRD, SECRETARY
DEPARTMENT OF CONSERVATION - MARK NECHODOM, DIRECTOR

Landslide Inventory Map Series
Burbank Quadrangle

Landslide Inventory Map of the Burbank Quadrangle
Los Angels County, California

J. A. Treiman, P.G. 3532, C.E.G. 1035
and C. J. Wills, P.G. 4379, C.E.G. 1423



NOTE: Basemap prepared by U.S. Geological Survey, 1994. Landslide boundaries may reflect updated digital topographic information that can differ significantly from the contours shown on this map. For basemap legend information see: http://permanent.access.gpo.gov/websites/ergusgsgov/erg.usgs.gov/isb/pubs/booklets/symbols/

Digital representation by B. Wanish

SCALE 1:24,000

0 0.5 1.0 1.5 Miles
0 2000 4000 6000 Feet
0.0 0.5 1.0 1.5 Kilometers

Contour Interval = 40 feet

April 2013
California Geological Survey
Publication Products and Development
801 K Street, MS 13-40
Sacramento, CA 95814-3532
(916) 445-5716
www.quake.ca.gov/gmaps/WH/index.htm



Map Explanation

PURPOSE OF THIS MAP AND METHOD OF PREPARATION

This map presents an inventory of existing landslides in the Burbank Quadrangle that was prepared as a part of the Seismic Hazard Zonations Program at the California Geological Survey (CGS). The landslide inventory was one of the essential data layers used to delineate earthquake-induced landslide zones of required investigation in the Burbank Quadrangle (Silva and others, 1998). Because of its regulatory status, the Seismic Hazard Zone Map had a public review period and a date on which it became official. Unlike the zone map, this landslide inventory is not regulatory and revisions are allowed when new information regarding landslides is found. Therefore, it is possible that landslides shown on this map were not known when the zone map was prepared. In addition, new landslides identified after this map is published are likely to be included in later versions of this inventory. Ultimately, the landslides added to this and future inventory maps will be evaluated for inclusion in future revisions to the Seismic Hazard Zone Map.

The inventory map was prepared primarily by geomorphic analysis and interpretation of aerial photographs (the photographs used are listed in the References), and secondarily by field reconnaissance, interpretation of topographic map contours and review of previously published and unpublished geologic and landslide mapping. In particular, landslide data from Dibblee (1991a, 1991b), Weber and others (1979) and Yerkes (1996) were checked and included or modified. Landslides identified by these methods were digitally compiled at a scale of 1:24,000 on the U.S. Geological Survey topographic map and a number of characteristics (attributes) were recorded in an associated database. Several key characteristics have been extracted from the database and assigned symbology for visual representation on the map, as described below.

This landslide inventory map is intended to provide users with basic information regarding past occurrences of landslides within the Burbank Quadrangle. The geologic, terrain and climatic conditions that led to slope failures in the past may provide clues to the locations and conditions of future slope failures, and it is hoped that this map will provide useful information to guide site-specific investigations for future developments.

LANDSLIDE CLASSIFICATION

Each landslide shown on this map has been classified according to a number of specific characteristics identified at the time of its interpretation and recorded in a database. The classification scheme was developed by the California Geological Survey based on the terminology of Varnes (1978), Keaton and DeGraff (1996), Cruden and Varnes (1996), and Wieczorek (1984). Several significant landslide characteristics recorded in the database are portrayed with symbology on this map. The specific characteristics shown for each landslide are the activity or recency of landsliding, geologic basic material type that moved, type of landslide movement, direction of movement, and confidence of landslide interpretation. The symbology used to display these characteristics is explained below.

LANDSLIDE ACTIVITY: Each landslide has been classified according to how recently the landslide last moved. Because evidence of active or historic landslide movement is difficult to obtain from air photo interpretation, the primary tool employed in making this map, classification typically is inferred from the youthfulness of observed landslide geomorphic characteristics (see "Limitations" below). The classification of landslide activity is based on the system described by Keaton and DeGraff (1996; Table 9-1). This map display uses color to show the activity.

ACTIVE or HISTORIC:
The landslide appears to be currently moving (at the time the aerial photograph was taken or field observation occurred) or to have moved within historic time.

DORMANT - YOUNG:
The observed landforms related to the landslide are fresh or un-eroded, but there is no evidence of historic movement.

DORMANT- MATURE:
The observed landforms related to the landslide have been smoothed and subdued by erosion and vegetation.

DORMANT - OLD:
The observed landforms related to the landslide have been greatly eroded, including significant gullies or canyons cut into the landslide mass and/or main scarp by small streams.

LANDSLIDE MATERIALS TYPES AND MOVEMENT: A two-part classification that records type of landslide material and type of landslide movement is defined by arrow style. Material types recorded are either rock or soil, and soil is further subdivided into "earth" or "debris" on the basis of predominant particle grain size, which is inferred from post-slide morphology and lithology of underlying formations. There are five categories of landslide movement types: **slide, flow, fall, topple and spread**. These movement types are combined with material type to form the landslide classification. Not all combinations are common in nature, and only those that are recognized in the Burbank Quadrangle are included here.

ROCK SLIDE:
A landslide involving bedrock in which the rock that moves remains largely intact for at least a portion of the movement. Rock slides can range in size from small and thin to very large and thick, and are subject to a wide range of triggering mechanisms. The sliding occurs at the base of the rock mass along one to several relatively thin zones of weakness, which are variably referred to in engineering geology reports and literature as "slide planes," "shear surfaces," "slip-surfaces," "rupture surfaces," or "failure surfaces." The sliding surfaces may be curved or planar in shape. Rock slides with curved sliding surfaces are commonly called "slumps" or "rotational slides," while those with planar failure surfaces are commonly called "translational slides," "block slides," or "block glides." Rock slides that occur on intersecting planar surfaces are commonly called "wedge failures."

ROCK FALL
A landslide where a mass of rock detaches from a steep slope by minor spreading or toppling and descends mainly through the air by falling, bouncing **or rolling. Intense rain, eathquakes or freeze-thaw wedging may trigger this type** of movement.

CONFIDENCE OF INTERPRETATION: Each landslide is classified according to a "confidence" that the geologic interpreter assigns to it, and can be regarded as a measure of the likelihood that the landslide actually exists. Landslides are mapped on the basis of characteristic landforms, and the confidence of interpretation is based on the distinctness of those landforms. As a landslide ages after its last movement, erosional processes remove or cover the landforms that formed by landsliding. With time, these distinctive landforms become so subtle that they resemble landforms produced by geologic processes and conditions unrelated to landsliding. The visual display of this landslide characteristic is through the use of different line styles.

DEFINITE:
Landslide exhibits many of the diagnostic landforms, including, but not limited to, prominent scarps, open cracks, rounded toes, offset streams, well-defined mid-slope benches, closed depressions, springs, and irregular or hummocky topography, or has clear records of prehistoric, historic or ongoing activity from reports, aerial photography or instrumental monitoring.

PROBABLE:
Landslide exhibits several of the diagnostic landforms commonly associated with slope movement. These landforms may be modified by erosion or obscured by vegetation such that other explanations are possible. However the preponderance of evidence strongly suggests that a landslide does exist.

QUESTIONABLE:
Landslide exhibits only one or a few of the diagnostic landforms associated with slope movement. The landforms may be heavily modified by erosion, altered by grading, obscured by dense vegetation, or formed by other geologic processes such as differential erosion of lithologic and structural features in the underlying bedrock.

GEOLOGY AND LANDSLIDES IN THE BURBANK QUADRANGLE

The Burbank Quadrangle covers an area of about 150 square kilometers (~62 square miles) in west-central Los Angeles County. The San Gabriel Mountains, in the northeast corner of the quadrangle, and their southern outlier, the Verdugo Mountains, are blocks of plutonic and metamorphic rocks that are being thrust over the San Fernando Valley from the north. The crystalline bedrock forms very steep slopes, which are prone to severe erosion and debris flows. Erosion of these actively rising mountain ranges supplies the sediment that has filled the San Fernando Valley. The southern part of the quadrangle is characterized by the hilly to mountainous terrain of the eastern Santa Monica Mountains, which form the southern boundary of the San Fernando Valley.

Crystalline bedrock of the Verdugo and San Gabriel Mountains was mapped by Dibblee (1991a, 1991b) as predominately early Cretaceous quartz diorite and gneissoid quartz diorite with smaller bodies of older gneiss and later intrusions of Cretaceous granite. Yerkes (1996) simplified the mapping to just one map unit of mixed diorite and gneiss.

Cretaceous granitic rocks are also exposed in the eastern Santa Monica Mountains, where they are unconformably overlain by marine clastic sedimentary rocks and volcanics of the middle Miocene Topanga Group and deep marine biogenic and clastic rocks of the upper Miocene Modelo Formation. The Topanga Group locally consists of interbedded conglomerate, massive sandstone, concretionary shale and siltstone, and basalt flows. The Modelo Formation is composed of interbedded clay shale, siltstone, and sandstone.

In the northern half of the Burbank Quadrangle, landslides mapped in the crystalline Mesozoic rocks in the Verdugo Mountains are primarily geomorphically mature to old, deep-seated rock slides, although, a few moderate to deep-seated historic rock slides were also identified in the area. Rock falls and shallow debris slides and debris flows commonly occur on steep slopes within the crystalline rocks of the Verdugo Mountians, but are generally too small to be shown at the scale of this map.

In the Santa Monica Mountains, along the southern edge of the Burbank Quadrangle, numerous moderate to deep rock slides have formed in Tertiary rocks of the Topanga Group and the Modelo Formation. Landslides in the Tertiary rocks appear to be related to the dip of rock bedding planes, which is mostly oriented in a northerly direction. These slides generally have a mature geomorphic expression with a few having documented historic movement. Deep-seated rock slides in the granitic rocks are less common in this area.

Seismic Hazard Zone Report 016 provides a more detailed discussion of geology and landslides in the Burbank Quadrangle and also includes a list of pertinent geologic references. This report can be downloaded from CGS's website at:
http://www.quake.ca.gov/gmaps/WH/index.htm

LIMITATIONS

The landslides shown on this map were interpreted from small-to intermediate-scale aerial photography (1:40,000- and 1:20,000-scales) and were then located on a 1:24,000-scale topographical map. Identifying landslides smaller than about 60 meters (~200 feet) in maximum dimension is often difficult at these photo scales, and accurately locating them on the topographic base map can present additional challenges. Debris flows, in particular, often fall into this size category. As a result, landslides this size or smaller are not routinely included in the landslide inventories. CGS sometimes includes small landslides if they are provided by a local governmental agency, a site- or area-specific study report, or a local area landslide expert, and found to be accurately located. However, it should be noted that when displayed at a scale of 1:24,000 such as on this map, small landslides are often indistinguishable from features on the base map.

It can be expected that the geological interpreter will not recognize some landslides as a result of air photo quality, scale, vintage, sun angle, vegetation, cloud cover, or other characteristics. The geologist's experience level and experience with landslides in the immediate area also play a role in the quality of the inventory map. CGS addresses these problems by having the geologist interpret multiple sets of aerial photographs, review previously prepared maps, visit areas of suspected landsliding, and by incorporating an internal peer review process.

Landslide activity is a relative expression of geomorphic youthfulness highly dependent upon the local geologic and climatic environment. For example, landslides in arid regions that appear to have recently moved actually may be quite old. Conversely, landslides in more humid environments that might be classified as "dormant-old" can sometimes be shown to be actively or intermittently moving. The geomorphic expressions of landslide activity described on this map should never be used as a substitute for landslide-specific field investigations.

Earthworks related to development on hillsides usually remove the geomorphic expressions of past landsliding, which can result in landslides being missed in the inventory. This limitation can sometimes be addressed by viewing aerial photographs that pre-date development. However, because CGS does not review or monitor grading practices to ensure that past slope failures have been adequately mitigated, slope failures identified on the pre-development photographs are included in the landslide inventory, whether or not surface expression currently exists.

One difference between the landslides shown on this map and those shown on a geologic map lies in the treatment of the main scarps or landslide source areas associated with slope failures. Geologic maps show landslide deposits; landslide scarps are not included with the landslide, but rather with the underlying geologic materials. This map, in contrast, includes scarp areas associated with the landslide deposits because these areas are considered prone to future slope failures.

ACKNOWLEDGEMENTS

This map is the result of the efforts of many individuals at the California Geological Survey. In particular, acknowledgement is given to Allan Barrows, Chris Wills, Pam Irvine and Tim McCrink who developed the procedures and terminology. Terilee McGuire and Barbara Wanish provided GIS and database support for this project and Barbara Wanish prepared the final map. Database attributes were updated by Tim McCrink in 2012. The map and associated text was reviewed by Pam Irvine and Tim McCrink.

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AIR PHOTOS

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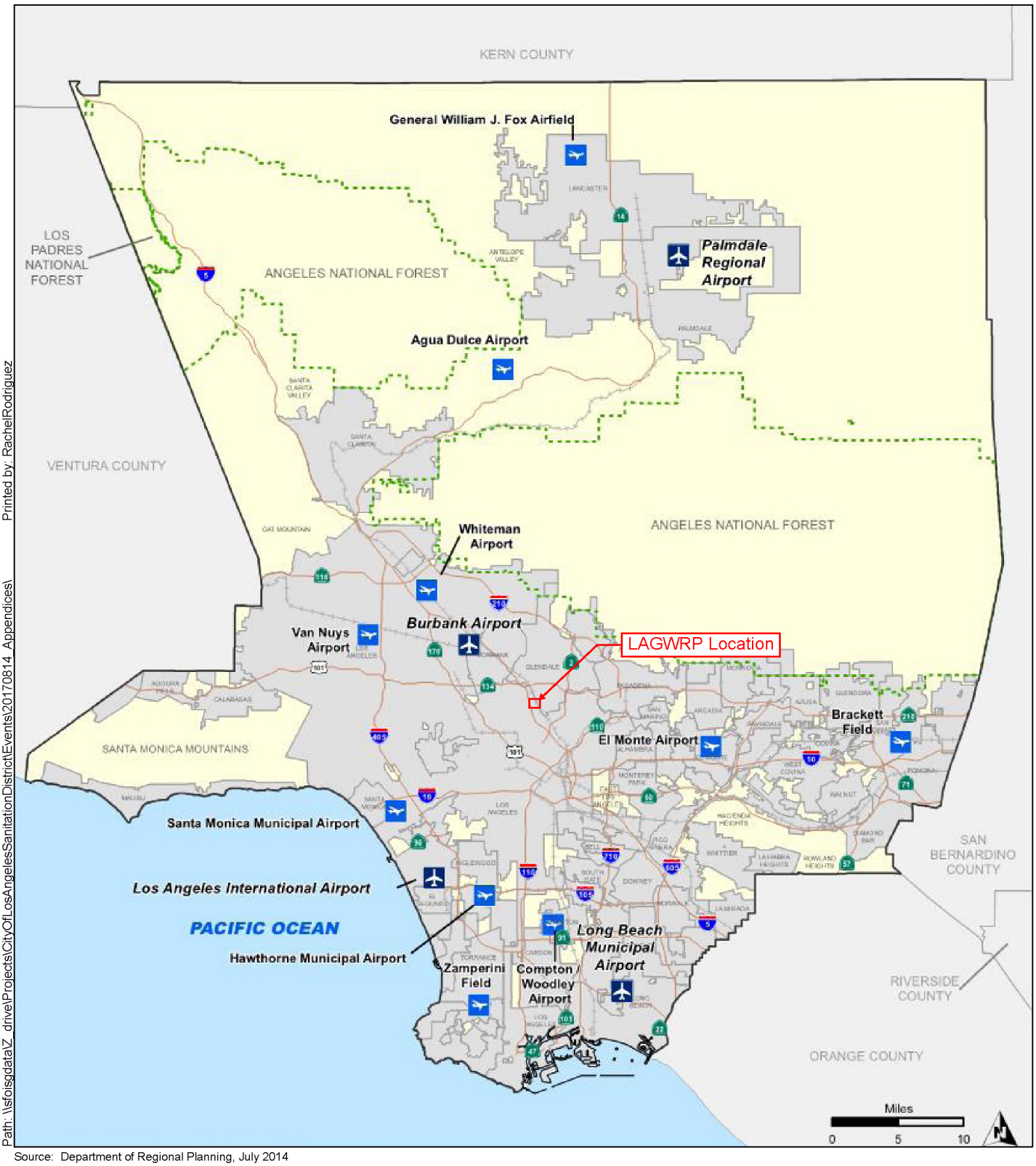
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Kennedy/Jenks Consultants
City of Los Angeles Sanitation District
Equalization Storage and Personnel Building Project CEQA

Landslide Inventory Map of the Burbank Quadrangle, Los Angeles, California

K/J 1744511*00
August 2017
Figure A-15



Path: \\sfoisgdata\Z_drive\Projects\CityOfLosAngelesSanitationDistrict\Events\20170814_Appendices\ Printed by: RachelRodriguez

Source: Department of Regional Planning, July 2014



General Aviation Airport
Commercial Airport
Military Airport
Unincorporated Areas
Cities

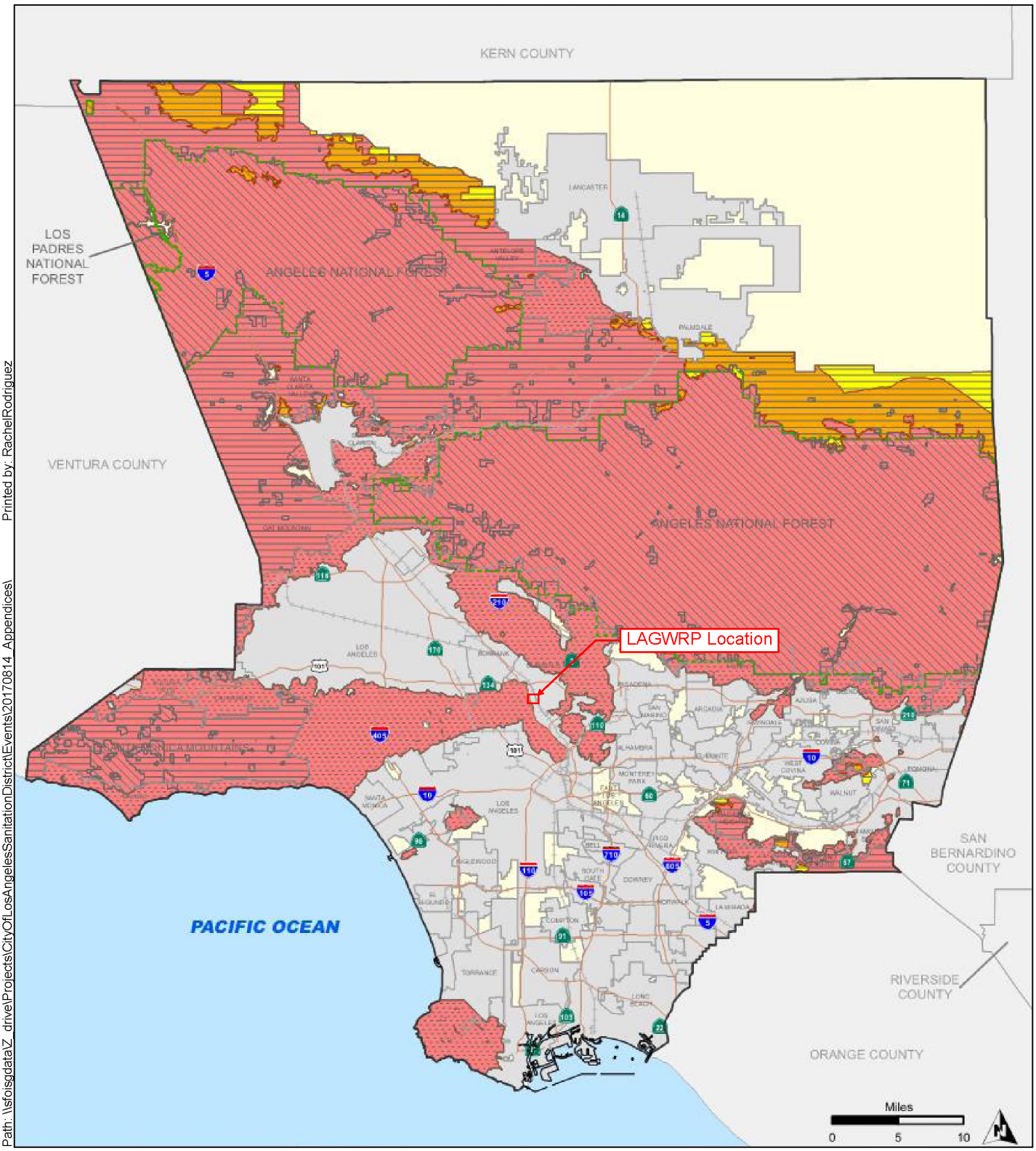
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City of Los Angeles Sanitation District
Equalization Storage and Personnel Building Project CEQA

Los Angeles County General Plan
Airports/Airfields Map

K/J 1744511*00
August 2017

Figure A-16



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Source: Department of Regional Planning, May 2014. Additional Sources: California Department of Forestry and Fire Protection - Fire and Resource Assessment Program (FRAP), CALFIRE, County of Los Angeles Fire Department. Draft version, Current as of May 2014.

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City of Los Angeles Sanitation District
Equalization Storage and Personnel Building Project CEQA

Los Angeles County General Plan Fire Hazard Severity Zone Policy Map

K/J 1744511*00
August 2017

Figure A-17

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Path: \\sfoisgdata\Z_drive\Projects\CityOfLosAngelesSanitationDistrict\Events\20170814_Appendices\FigureA-18_FEMAs_NationalFloodHazardLayerOfficial.mxd Printed by: RachelRodriguez





Index Map

Source: Data from Flood Insurance Rate Maps (FIRMs) where available digitally. New NFHL FIRMette Print app available: http://tinyurl.com/j4xwp5e

N

0 100 200
Feet

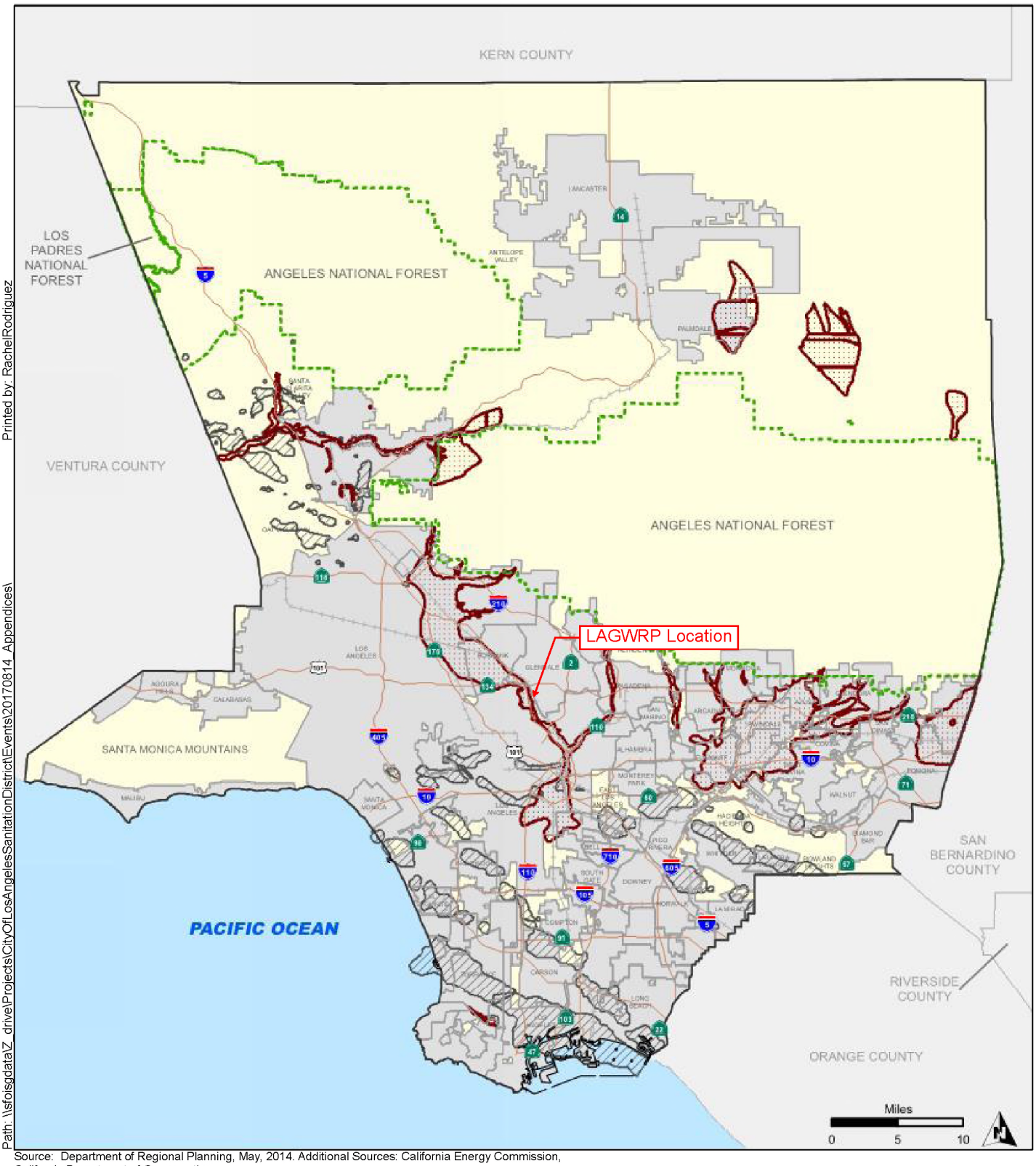
Kennedy/Jenks Consultants

City of Los Angeles Sanitation District
Equalization Storage and Personnel Building Project CEQA

FEMA's National Flood Hazard Layer (Official)

1744511*00
August 2017

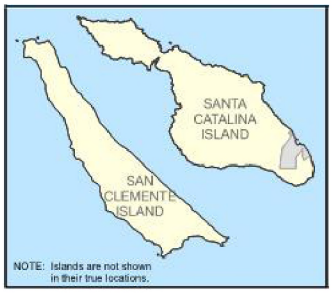
Appendix A-19



Printed by: RachelRodriguez

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Source: Department of Regional Planning, May, 2014. Additional Sources: California Energy Commission, California Department of Conservation



- Mineral Resource Zones
- Oil and Gas Resources
- National Forest
- Unincorporated Areas
- Cities

Kennedy/Jenks Consultants

City of Los Angeles Sanitation District
Equalization Storage and Personnel Building Project CEQA

Los Angeles County General Plan
Mineral Resource Zones

K/J 1744511*00
August 2017

Figure A-19

Appendix B: Photographs of Proposed Project Site

RINCON **Rincon Consultants** *See "Vantage Points" Map	**PHOTOGRAPH RECORD**
Project: LASAN Wastewater Plant	Project #: 17-04139
Photographer Name(s): M. Szromba	Camera Type: Iphone

Date	Frame #	Description	View towards:
6/16/17	1	Vantage #1	E
	2	Vantage #1	E
	3	Vantage #2	NE
	4	Vantage #2	NE
	5	Vantage #3	S
	6	Vantage #3	S
	7	Vantage #4	SW
	8	Vantage #4	SW
	9	Vantage #5	W
	10	Vantage #5	W
	11	Vantage #6	W
	12	Vantage #6	W
	13	Vantage #7	SW
	14	Vantage #7	SW
	15	Vantage #8	S
	16	Vantage #8	S
	17	Vantage #9	E
	18	Vantage #9	E
	19	Vantage #10	NE
	20	Vantage #10	NE
	21	Vantage #11	N
	22	Vantage #11	N
	23	Vantage #12	NW
	24	Vantage #12	NW
	25	Vantage #13	W
	26	Vantage #13	W

Vantage Points Map





Vantage#1



Vantage #1



Vantage #2



Vantage #2



Vantage#3



Vantage #3



Vantage #4



Vantage #4



Vantage #5



Vantage #5



Vantage #6



Vantage #6



Vantage #7



Vantage #7



Vantage #8



Vantage #8



Vantage #9



Vantage #9



Vantage #10



Vantage #10



Vantage #11



Vantage #11



Vantage #12



Vantage #12



Vantage #13



Vantage #13

Appendix C: Air Quality Conformance Memorandum and Air Quality Data

Rincon Consultants, Inc.

Environmental Scientists Planners Engineers

M E M O R A N D U M

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805 644 4455

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San Luis Obispo, California
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805 547 0900

☐ **Carlsbad**
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Suite A
Carlsbad, California
92008
760 918 9444

☐ **Monterey**
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Suite 203
Monterey, California
93940
831 333 0310

☐ **Oakland**
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510 834 4455

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559 228 9925

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916 706 1374

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213 788 4842

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805 644 4455

☐ **Redlands**
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909 253 0705

Date:	8/7/2017
To:	J. Lauren Everett
Organization:	Kennedy/Jenks Consultants
From:	Lindsey Sarquilla, Senior Environmental Planner
E-mail:	lsarquilla@rinconconsultants.com
cc:	Jennifer Haddow, Principal Environmental Scientist
Re:	Los Angeles-Glendale Water Reclamation Plant Primary Effluent Equalization Storage and Personnel Building Project, Air Quality General Conformity Analysis

This memorandum has been prepared for the City of Los Angeles, Bureau of Sanitation (LASAN) on behalf of Kennedy/Jenks Consultants, and serves as the General Conformity Analysis for the Los Angeles-Glendale Water Reclamation Plant (LAGWRP) Primary Effluent Equalization Storage and Personnel Building Project. The program by which a federal agency determines that its action would not conflict with air quality attainment plans is referred to as "general conformity." The federal action in this case relates to the provisioning of funds under the Clean Water State Revolving Fund (SRF) program. Therefore, the purpose of this memorandum is to evaluate the Proposed Action's conformity to the applicable State Implementation Plan (SIP) and consistency with the federal Clean Air Act (CAA) General Conformity Rule.

Project Description

LAGWRP is located in the Glendale Narrows area of northeast City of Los Angeles. LASAN is proposing to implement both operational and administrative improvements for existing uses at the LAGWRP. These projects are included in its Capital Improvement Program (CIP) as CIP 4176 LAGWRP Primary Effluent Equalization Storage Project (Equalization Storage Project), and the CIP 4170 LAGWRP Personnel Building Project (Personnel Building Project) which includes the rehabilitation of the existing Administration Building. The collectively these are referred to as the proposed project. A third project, the CIP 4187 Blower Air Clean-up System, will be constructed during the same timeframe as the proposed project. That project was subject to a separate CEQA Notice of Exemption; however, it is

discussed in this document in order to assess any potential cumulative impacts. Implementation of the projects will be coordinated to minimize costs and construction time and to maximize efficiency.

Generally, the Equalization Storage Project will provide improvements for existing uses at the LAGWRP, provide equalization (EQ) for influent diurnal flow, provide for enhanced operational flexibility and reliability, and add a total of 5 million gallons (MG) of storage required for the collection system to provide the required relief at the downstream reaches of the LAGWRP. The proposed upgrades are for existing uses and therefore will not increase the capacity of the plant, increase the amount of influent to be treated at the plant, nor will it increase the amount of effluent discharged to the Los Angeles River and the volume of solids sent to Hyperion for treatment. The LAGWPR National Pollutant Discharge Elimination System (NPDES) permit will not change due to installation of structures for existing uses under this project. Permitted capacity of 20 million gallons per day will remain. LAGWRP capacity is limited by process systems and existing structures including disinfection, distribution and control systems. The Personnel Building Project will design and construct a new administrative/operations building for existing LAGWRP personnel. In addition, the existing Administration building located onsite will be remodeled (interior only).

The major components of the project are described in more detail in Section 3, Project Description, of the CEQA Plus Initial Study/Mitigated Negative Declaration, and the Wastewater Capital Improvement Program LAGWRP Primary Effluent Equalization Storage Project Predesign Report prepared by LASAN and the Bureau of Engineering Environmental Engineering Division (dated June 2017).

Regulatory Framework

Section 176(c) of the CAA, as amended (42 United States Code [U.S.C.] 7401 et seq.) prohibits agencies of the federal government from engaging in, supporting, providing financial assistance to, or issuing permits for activities, which do not conform to an applicable SIP. Requirements for preparation of SIPs, provided in 40 Code of Federal Regulations (CFR) 51, were adopted by the South Coast Air Quality Management District (SCAQMD) in Rule 901.

Title 40 CFR Part 51 Subpart W and 40 CFR Part 93 Subpart B: General Conformity

The General Conformity Rule requires federal agencies to ensure that actions taken by those agencies conform to the applicable SIP. General Conformity regulations apply only to direct and/or indirect emissions caused by the actions that occur in areas designated as non-attainment or maintenance areas with respect to National Ambient Air Quality Standards (NAAQS). These regulations require an applicability analysis to determine whether the federal action must be supported by a conformity determination. The applicability analysis is established for federal actions performed in locations with a history of non-compliance, as described below:

a. An area that is in non-attainment (i.e., has recorded violations of the NAAQS), and each criteria pollutant (such as ozone, carbon monoxide, and particulate matter) for which the area is designated as non-attainment area; and
b. An area that was designated as a non-attainment area but was later re-designated by the Administrator of the Environmental Protection Agency (USEPA) as an attainment area, and that is required to develop a maintenance plan under section 7505a of 42 U.S.C. with respect to the specific pollutant for which the area was designated nonattainment.

The applicability analysis involves calculation of the total direct and indirect emissions of criteria or precursor air pollutants during the years of construction of the federal action. A conformity determination must be made if the annual emissions exceed the rates specified in 40 CFR Part 93.153(b), referred to as *de minimis* thresholds.

If the applicable emissions exceed the *de minimis* thresholds outlined in the General Conformity Rule, then the federal agency would prepare a General Conformity Determination for public comment.

SCAQMD Rule 1901 – General Conformity

The SCAQMD has adopted the provisions of Part 51, Subchapter C, Chapter I, Title 40, of the CFR as part of Rule 1901 – General Conformity. The provisions of this regulation apply to any general federal action funded or approved under Title 23 U.S.C. For the purpose of this regulation, the "State agency primarily responsible for the applicable implementation plan" as used in Part 51, Subchapter C, Chapter I, Title 40, of the CFR shall mean SCAQMD. The word "MPO" as used in Part 51, Subchapter C, Chapter I, Title 40, of the CFR shall mean Southern California Association of Governments (SCAG).

South Coast Air Basin General Conformity Thresholds

The General Conformity Rule ensures that actions taken by federal agencies in nonattainment and maintenance areas do not interfere with the State's plans to meet NAAQS. 40 CFR Part 93.153 defines "*de minimis*" levels, which are the minimum threshold for which a conformity determination must be performed, for various criteria pollutants in various areas. If the Proposed Action's annual emissions are below the applicable *de minimis* levels, the project is not subject to a general conformity determination.

Based on the federal attainment statuses for the SCAB, the *de minimis* levels that apply to the SCAB are listed in Table 1, General Conformity De Minimis Emissions Rates for the South Coast Air Basin. These levels apply to all direct and indirect annual emissions generated during construction and operation of the Proposed Action under federal agency control.

Table 1: General Conformity De Minimis Emission Rates for the South Coast Air Basin

Pollutant	SCAB Attainment Status Designation	De Minimis Emission Rate (tons/year)
Ozone (VOC or NO_X)	Extreme Nonattainment	10
CO	Serious Maintenance	100
PM_{10}	Maintenance	100
$PM_{2.5}$	Serious Nonattainment	100
SO_2 or NO_2	Maintenance	100
Lead	Partial Nonattainment	25

VOC: volatile organic compounds; CO: carbon monoxide; PM_{10}: particulate matter less than 10 microns in diameter; $PM_{2.5}$: particulate matter less than 2.5 microns in diameter; SO_2: sulfur dioxide; NO_2: nitrogen dioxide

Sources: USEPA, https://www.epa.gov/general-conformity/de-minimis-emission-levels, 2017; SCAB Attainment Status: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf

Methodology

The sources of construction emissions include exhaust from the combustion of diesel fuel in on-road vehicles and off-road equipment and fugitive dust from earthwork activities. Emissions associated with construction of the Proposed Action were quantified for volatile organic compounds (VOC), nitrogen oxide (NO_X), carbon dioxide (CO), particulate matter less than 10 microns in diameter (PM_{10}), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), and sulfur dioxide (SO_2). For the purposes of this evaluation, emissions of nitrogen dioxide (NO_2) were assumed to equal emissions of NO_X, and emissions of SO_2 were assumed to constitute the functional majority of sulfur oxide (SO_X) emissions. The Proposed Action does not include a source of lead emissions.

The project's construction and operational emissions were estimated using the California Emissions Estimator Model (CalEEMod), version 2016.3.1. CalEEMod was developed by SCAQMD and is used by

jurisdictions throughout the state to quantify criteria pollutant emissions. Complete CalEEMod assumptions and results are contained in Appendix A.

Construction emissions modeled include emissions generated by construction equipment used on-site and emissions generated by vehicle trips associated with construction, such as worker trips, hauling trips, and concrete deliveries. Construction emissions were calculated for the Equalization Storage Project, Personnel Building Project, and Blower Air Clean-up System Project. Construction emissions were not calculated for renovation of the existing Administration building under the Personnel Building Project because renovations would involve interior remodeling only and would not require the use of heavy duty construction equipment. Construction modeling assumed that the project would disturb an approximately 2.4-acre area; this disturbance area conservatively assumes that 1 acre would be disturbed for the Personnel Building Project, in addition to the 1.4 acre that would be disturbed by the Equalization Storage Project and Blower Air Clean-Up System projects. The construction schedule, construction equipment, and estimated grading quantities (including amount of soil that would be exported/imported to and from the site) input into CalEEMod were based on information provided by LASAN. Construction-related hauling trips, worker trips, and concrete delivery trips input into CalEEMod were based on trip counts prepared by Kunzman Associates, Inc. In addition, it was assumed the project would comply with all applicable regulatory standards, such as SCAQMD Rule 403, which requires control measures to reduce fugitive dust emissions. Consistent with measures recommended by SCAQMD to ensure compliance with Rule 403, it was assumed watering of disturbed areas would occur two times per day.

Operational emissions modeled include energy, water, wastewater, and area source emissions associated with operation of the proposed Personnel Building Project. Emissions attributed to energy use include emissions from natural gas consumption for space and water heating. Area source emissions are generated by landscape maintenance equipment, consumer products, and architectural coating. Operational mobile source emissions (i.e., vehicle emissions) were not calculated because proposed improvements would not generate new employee trips.

Total direct and indirect emissions associated with the Proposed Action were compared to the *de minimis* thresholds shown in Table 1.

General Conformity Assessment

Table 2 summarizes the project's total direct and indirect annual emissions, including maximum annual construction emissions and operational emissions, and compares total annual emissions to the applicable *de minimis* threshold for the SCAB region.

Table 2: Total Annual Emissions Compared to De Minimis Threshold

Emissions Source	Estimated Annual Emissions (tons/year)						
	VOC	NO_X	NO_2	CO	PM_{10}	$PM_{2.5}$	SO_2
Maximum Annual Construction Emissions	1.0	8.9	8.9	6.1	1.7	0.8	<0.1
Annual Operational Emissions	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Annual Emissions	**1.1**	**8.9**	**8.9**	**6.1**	**1.7**	**0.8**	**<0.1**
De Minimis Thresholds	*10*	*10*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**	**No**

VOC: volatile organic compounds; NO_X: nitrogen oxides; NO_2: nitrogen dioxide; CO: carbon monoxide; PM_{10}: particulate matter less than 10 microns in size; $PM_{2.5}$: particulate matter less than 2.5 microns in size; SO_2: sulfur dioxide.

See Appendix A for modeling details and CalEEMod results.

As shown in Table 2, criteria air pollutant emissions from the project would be below the applicable *de minimis* thresholds for the SCAB region. Therefore, the general conformity requirements do not apply to these pollutants, and the Proposed Action is exempt from a conformity determination.

Appendix A

LASAN Project

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	60.50	1000sqft	1.40	60,500.00	0
General Office Building	15.00	1000sqft	1.00	15,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	11			**Operational Year**	2021
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

LASAN Project - Los Angeles-South Coast County, Annual

Project Characteristics -

Land Use - Lot ac. from PD, includes approx. area btwn office bldg and existing admin bldg.

Construction Phase - SP = Earthwork, Grading = Structural/Concrete, BC = Mechanical/Elec. Demo assumed due to ex. bldgs in plaza area

Off-road Equipment - Based on Final Predesign Report June 2017

Off-road Equipment - Grading Phase = Structural and concrete work

Off-road Equipment - BC = architectural/Mechanical/electric

Off-road Equipment -

Grading - From PD

Demolition - SF estimated from Google Earth

Trips and VMT - From traffic sub trip gen. Two-way roundtrips. SP = earthwork, Grading = concrete

Vehicle Trips - New bldg for existing employees.

Construction Off-road Equipment Mitigation - Assumed compliance with SCAQMD Rule 403.

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
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tblConstructionPhase	PhaseEndDate	10/29/2021	2/3/2020
tblConstructionPhase	PhaseEndDate	10/28/2020	9/2/2019
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tblConstructionPhase	PhaseStartDate	10/30/2021	3/1/2019
tblConstructionPhase	PhaseStartDate	10/29/2020	2/1/2019
tblConstructionPhase	PhaseStartDate	10/30/2019	9/3/2018

LASAN Project - Los Angeles-South Coast County, Annual

tblConstructionPhase	PhaseStartDate	7/28/2018	7/2/2018
tblGrading	AcresOfGrading	410.00	82.00
tblGrading	MaterialExported	0.00	20,000.00
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tblGrading	MeanVehicleSpeed	7.10	40.00
tblLandUse	LotAcreage	1.39	1.40
tblLandUse	LotAcreage	0.34	1.00
tblOffRoadEquipment	HorsePower	65.00	187.00
tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	LoadFactor	0.29	0.29
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tblOffRoadEquipment	UsageHours	7.00	5.00

tblOffRoadEquipment	UsageHours	7.00	5.00
tblOffRoadEquipment	UsageHours	8.00	4.00
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tblTripsAndVMT	WorkerTripNumber	30.00	69.00
tblTripsAndVMT	WorkerTripNumber	18.00	69.00
tblTripsAndVMT	WorkerTripNumber	20.00	69.00
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tblVehicleTrips	WD_TR	11.03	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.3581	3.8544	2.2702	5.0800e-003	2.3515	0.1608	2.5123	0.8234	0.1482	0.9716	0.0000	465.0456	465.0456	0.1071	0.0000	467.7221
2019	1.0487	8.9496	6.0998	0.0137	2.5479	0.3944	2.9423	0.8764	0.3686	1.2450	0.0000	1,218.8501	1,218.8501	0.2502	0.0000	1,225.1050
2020	0.0362	0.2849	0.2378	4.9000e-004	9.9800e-003	0.0135	0.0235	2.6700e-003	0.0129	0.0155	0.0000	42.5681	42.5681	7.3700e-003	0.0000	42.7523
Maximum	**1.0487**	**8.9496**	**6.0998**	**0.0137**	**2.5479**	**0.3944**	**2.9423**	**0.8764**	**0.3686**	**1.2450**	**0.0000**	**1,218.8501**	**1,218.8501**	**0.2502**	**0.0000**	**1,225.1050**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.3581	3.8544	2.2702	5.0800e-003	1.1197	0.1608	1.2805	0.3868	0.1482	0.5350	0.0000	465.0452	465.0452	0.1071	0.0000	467.7217
2019	1.0487	8.9496	6.0997	0.0137	1.3180	0.3944	1.7124	0.4401	0.3686	0.8086	0.0000	1,218.8491	1,218.8491	0.2502	0.0000	1,225.1040
2020	0.0362	0.2849	0.2378	4.9000e-004	9.9800e-003	0.0135	0.0235	2.6700e-003	0.0129	0.0155	0.0000	42.5681	42.5681	7.3700e-003	0.0000	42.7523
Maximum	**1.0487**	**8.9496**	**6.0997**	**0.0137**	**1.3180**	**0.3944**	**1.7124**	**0.4401**	**0.3686**	**0.8086**	**0.0000**	**1,218.8491**	**1,218.8491**	**0.2502**	**0.0000**	**1,225.1040**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	50.14	0.00	44.94	51.27	0.00	39.11	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	7-2-2018	10-1-2018	1.7573	1.7573
2	10-2-2018	1-1-2019	2.4438	2.4438
3	1-2-2019	4-1-2019	2.8640	2.8640
4	4-2-2019	7-1-2019	3.2902	3.2902
5	7-2-2019	10-1-2019	2.8404	2.8404
6	10-2-2019	1-1-2020	0.9714	0.9714
7	1-2-2020	4-1-2020	0.3155	0.3155
		Highest	3.2902	3.2902

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0660	1.0000e-005	9.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8700e-003	1.8700e-003	0.0000	0.0000	2.0000e-003
Energy	8.5000e-004	7.6900e-003	6.4600e-003	5.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	119.6537	119.6537	2.7900e-003	7.0000e-004	119.9312
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	2.8317	0.0000	2.8317	0.1674	0.0000	7.0155
Water						0.0000	0.0000		0.0000	0.0000	0.8458	29.4454	30.2912	0.0876	2.2000e-003	33.1345
Total	**0.0669**	**7.7000e-003**	**7.4300e-003**	**5.0000e-005**	**0.0000**	**5.8000e-004**	**5.8000e-004**	**0.0000**	**5.8000e-004**	**5.8000e-004**	**3.6775**	**149.1009**	**152.7785**	**0.2577**	**2.9000e-003**	**160.0832**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0660	1.0000e-005	9.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8700e-003	1.8700e-003	0.0000	0.0000	2.0000e-003
Energy	8.5000e-004	7.6900e-003	6.4600e-003	5.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	119.6537	119.6537	2.7900e-003	7.0000e-004	119.9312
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	2.8317	0.0000	2.8317	0.1674	0.0000	7.0155
Water						0.0000	0.0000		0.0000	0.0000	0.8458	29.4454	30.2912	0.0876	2.2000e-003	33.1345
Total	**0.0669**	**7.7000e-003**	**7.4300e-003**	**5.0000e-005**	**0.0000**	**5.8000e-004**	**5.8000e-004**	**0.0000**	**5.8000e-004**	**5.8000e-004**	**3.6775**	**149.1009**	**152.7785**	**0.2577**	**2.9000e-003**	**160.0832**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/2/2018	7/27/2018	5	20	
2	Site Preparation	Site Preparation	7/2/2018	10/2/2019	5	328	
3	Grading	Grading	9/3/2018	9/2/2019	5	261	
4	Building Construction	Building Construction	2/1/2019	2/3/2020	5	262	
5	Architectural Coating	Architectural Coating	3/1/2019	8/1/2019	5	110	

Acres of Grading (Site Preparation Phase): 82

Acres of Grading (Grading Phase): 130.5

Acres of Paving: 1.4

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 22,500; Non-Residential Outdoor: 7,500; Striped Parking Area: 3,630 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	5.00	97	0.37
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Cranes	2	8.00	231	0.29
Site Preparation	Plate Compactors	2	3.00	8	0.43
Site Preparation	Rubber Tired Loaders	1	6.00	203	0.36
Site Preparation	Graders	1	4.00	187	0.41
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	5.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Forklifts	1	8.00	89	0.20
Grading	Cranes	2	8.00	231	0.29
Site Preparation	Skid Steer Loaders	1	3.00	65	0.37
Grading	Skid Steer Loaders	1	3.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Excavators	1	8.00	158	0.38
Building Construction	Skid Steer Loaders	1	3.00	65	0.37
Site Preparation	Scrapers	1	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	69.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	69.00	12.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	5	13.00	0.00	30.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	69.00	0.00	1,350.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HDT_Mix
Site Preparation	8	69.00	0.00	2,500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.3000e-003	0.0000	3.3000e-003	5.0000e-004	0.0000	5.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0248	0.2436	0.1511	2.4000e-004		0.0144	0.0144		0.0134	0.0134	0.0000	21.6923	21.6923	5.5000e-003	0.0000	21.8297
Total	**0.0248**	**0.2436**	**0.1511**	**2.4000e-004**	**3.3000e-003**	**0.0144**	**0.0177**	**5.0000e-004**	**0.0134**	**0.0139**	**0.0000**	**21.6923**	**21.6923**	**5.5000e-003**	**0.0000**	**21.8297**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-004	5.0100e-003	1.0300e-003	1.0000e-005	2.6000e-004	2.0000e-005	2.8000e-004	7.0000e-005	2.0000e-005	9.0000e-005	0.0000	1.1831	1.1831	8.0000e-005	0.0000	1.1852
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	6.2000e-004	6.6300e-003	2.0000e-005	1.4200e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.4154	1.4154	5.0000e-005	0.0000	1.4168
Total	**8.7000e-004**	**5.6300e-003**	**7.6600e-003**	**3.0000e-005**	**1.6800e-003**	**3.0000e-005**	**1.7200e-003**	**4.5000e-004**	**3.0000e-005**	**4.8000e-004**	**0.0000**	**2.5986**	**2.5986**	**1.3000e-004**	**0.0000**	**2.6020**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.4800e-003	0.0000	1.4800e-003	2.2000e-004	0.0000	2.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0248	0.2436	0.1511	2.4000e-004		0.0144	0.0144		0.0134	0.0134	0.0000	21.6923	21.6923	5.5000e-003	0.0000	21.8297
Total	**0.0248**	**0.2436**	**0.1511**	**2.4000e-004**	**1.4800e-003**	**0.0144**	**0.0158**	**2.2000e-004**	**0.0134**	**0.0137**	**0.0000**	**21.6923**	**21.6923**	**5.5000e-003**	**0.0000**	**21.8297**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-004	5.0100e-003	1.0300e-003	1.0000e-005	2.6000e-004	2.0000e-005	2.8000e-004	7.0000e-005	2.0000e-005	9.0000e-005	0.0000	1.1831	1.1831	8.0000e-005	0.0000	1.1852
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	6.2000e-004	6.6300e-003	2.0000e-005	1.4200e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.4154	1.4154	5.0000e-005	0.0000	1.4168
Total	**8.7000e-004**	**5.6300e-003**	**7.6600e-003**	**3.0000e-005**	**1.6800e-003**	**3.0000e-005**	**1.7200e-003**	**4.5000e-004**	**3.0000e-005**	**4.8000e-004**	**0.0000**	**2.5986**	**2.5986**	**1.3000e-004**	**0.0000**	**2.6020**

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3812	0.0000	1.3812	0.3539	0.0000	0.3539	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1473	1.7771	1.0782	2.0600e-003		0.0725	0.0725		0.0667	0.0667	0.0000	187.1927	187.1927	0.0580	0.0000	188.6416
Total	**0.1473**	**1.7771**	**1.0782**	**2.0600e-003**	**1.3812**	**0.0725**	**1.4537**	**0.3539**	**0.0667**	**0.4206**	**0.0000**	**187.1927**	**187.1927**	**0.0580**	**0.0000**	**188.6416**

3.3 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0100e-003	0.1667	0.0344	4.0000e-004	0.0183	6.2000e-004	0.0189	4.7400e-003	5.9000e-004	5.3300e-003	0.0000	39.3780	39.3780	2.7800e-003	0.0000	39.4474
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0250	0.0214	0.2304	5.5000e-004	0.0495	4.5000e-004	0.0500	0.0132	4.2000e-004	0.0136	0.0000	49.2081	49.2081	1.8500e-003	0.0000	49.2543
Total	**0.0301**	**0.1882**	**0.2648**	**9.5000e-004**	**0.0678**	**1.0700e-003**	**0.0689**	**0.0179**	**1.0100e-003**	**0.0189**	**0.0000**	**88.5861**	**88.5861**	**4.6300e-003**	**0.0000**	**88.7017**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.6215	0.0000	0.6215	0.1592	0.0000	0.1592	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1473	1.7771	1.0782	2.0600e-003		0.0725	0.0725		0.0667	0.0667	0.0000	187.1924	187.1924	0.0580	0.0000	188.6414
Total	**0.1473**	**1.7771**	**1.0782**	**2.0600e-003**	**0.6215**	**0.0725**	**0.6940**	**0.1592**	**0.0667**	**0.2260**	**0.0000**	**187.1924**	**187.1924**	**0.0580**	**0.0000**	**188.6414**

3.3 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0100e-003	0.1667	0.0344	4.0000e-004	0.0183	6.2000e-004	0.0189	4.7400e-003	5.9000e-004	5.3300e-003	0.0000	39.3780	39.3780	2.7800e-003	0.0000	39.4474
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0250	0.0214	0.2304	5.5000e-004	0.0495	4.5000e-004	0.0500	0.0132	4.2000e-004	0.0136	0.0000	49.2081	49.2081	1.8500e-003	0.0000	49.2543
Total	**0.0301**	**0.1882**	**0.2648**	**9.5000e-004**	**0.0678**	**1.0700e-003**	**0.0689**	**0.0179**	**1.0100e-003**	**0.0189**	**0.0000**	**88.5861**	**88.5861**	**4.6300e-003**	**0.0000**	**88.7017**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3812	0.0000	1.3812	0.3539	0.0000	0.3539	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2045	2.4208	1.5387	3.0900e-003		0.0972	0.0972		0.0895	0.0895	0.0000	276.8892	276.8892	0.0871	0.0000	279.0670
Total	**0.2045**	**2.4208**	**1.5387**	**3.0900e-003**	**1.3812**	**0.0972**	**1.4784**	**0.3539**	**0.0895**	**0.4433**	**0.0000**	**276.8892**	**276.8892**	**0.0871**	**0.0000**	**279.0670**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.1300e-003	0.2376	0.0505	6.0000e-004	0.0194	8.5000e-004	0.0202	5.1300e-003	8.1000e-004	5.9400e-003	0.0000	58.4608	58.4608	4.1200e-003	0.0000	58.5638
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0340	0.0284	0.3086	7.9000e-004	0.0745	6.6000e-004	0.0751	0.0198	6.0000e-004	0.0204	0.0000	71.5914	71.5914	2.4600e-003	0.0000	71.6530
Total	**0.0412**	**0.2660**	**0.3590**	**1.3900e-003**	**0.0938**	**1.5100e-003**	**0.0953**	**0.0249**	**1.4100e-003**	**0.0263**	**0.0000**	**130.0522**	**130.0522**	**6.5800e-003**	**0.0000**	**130.2168**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.6215	0.0000	0.6215	0.1592	0.0000	0.1592	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2045	2.4208	1.5387	3.0900e-003		0.0972	0.0972		0.0895	0.0895	0.0000	276.8889	276.8889	0.0871	0.0000	279.0667
Total	**0.2045**	**2.4208**	**1.5387**	**3.0900e-003**	**0.6215**	**0.0972**	**0.7187**	**0.1592**	**0.0895**	**0.2487**	**0.0000**	**276.8889**	**276.8889**	**0.0871**	**0.0000**	**279.0667**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.1300e-003	0.2376	0.0505	6.0000e-004	0.0194	8.5000e-004	0.0202	5.1300e-003	8.1000e-004	5.9400e-003	0.0000	58.4608	58.4608	4.1200e-003	0.0000	58.5638
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0340	0.0284	0.3086	7.9000e-004	0.0745	6.6000e-004	0.0751	0.0198	6.0000e-004	0.0204	0.0000	71.5914	71.5914	2.4600e-003	0.0000	71.6530
Total	**0.0412**	**0.2660**	**0.3590**	**1.3900e-003**	**0.0938**	**1.5100e-003**	**0.0953**	**0.0249**	**1.4100e-003**	**0.0263**	**0.0000**	**130.0522**	**130.0522**	**6.5800e-003**	**0.0000**	**130.2168**

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.8551	0.0000	0.8551	0.4395	0.0000	0.4395	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1364	1.5715	0.6023	1.3000e-003		0.0720	0.0720		0.0663	0.0663	0.0000	118.6097	118.6097	0.0369	0.0000	119.5328
Total	**0.1364**	**1.5715**	**0.6023**	**1.3000e-003**	**0.8551**	**0.0720**	**0.9271**	**0.4395**	**0.0663**	**0.5057**	**0.0000**	**118.6097**	**118.6097**	**0.0369**	**0.0000**	**119.5328**

3.4 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2500e-003	0.0543	0.0148	1.5000e-004	9.9000e-003	5.4000e-004	0.0104	2.6000e-003	5.1000e-004	3.1200e-003	0.0000	14.0618	14.0618	7.0000e-004	0.0000	14.0793
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0164	0.0141	0.1513	3.6000e-004	0.0325	3.0000e-004	0.0328	8.6400e-003	2.7000e-004	8.9100e-003	0.0000	32.3045	32.3045	1.2100e-003	0.0000	32.3349
Total	**0.0187**	**0.0683**	**0.1661**	**5.1000e-004**	**0.0424**	**8.4000e-004**	**0.0432**	**0.0112**	**7.8000e-004**	**0.0120**	**0.0000**	**46.3663**	**46.3663**	**1.9100e-003**	**0.0000**	**46.4143**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3848	0.0000	0.3848	0.1978	0.0000	0.1978	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1364	1.5715	0.6023	1.3000e-003		0.0720	0.0720		0.0663	0.0663	0.0000	118.6096	118.6096	0.0369	0.0000	119.5327
Total	**0.1364**	**1.5715**	**0.6023**	**1.3000e-003**	**0.3848**	**0.0720**	**0.4568**	**0.1978**	**0.0663**	**0.2640**	**0.0000**	**118.6096**	**118.6096**	**0.0369**	**0.0000**	**119.5327**

3.4 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2500e-003	0.0543	0.0148	1.5000e-004	9.9000e-003	5.4000e-004	0.0104	2.6000e-003	5.1000e-004	3.1200e-003	0.0000	14.0618	14.0618	7.0000e-004	0.0000	14.0793
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0164	0.0141	0.1513	3.6000e-004	0.0325	3.0000e-004	0.0328	8.6400e-003	2.7000e-004	8.9100e-003	0.0000	32.3045	32.3045	1.2100e-003	0.0000	32.3349
Total	**0.0187**	**0.0683**	**0.1661**	**5.1000e-004**	**0.0424**	**8.4000e-004**	**0.0432**	**0.0112**	**7.8000e-004**	**0.0120**	**0.0000**	**46.3663**	**46.3663**	**1.9100e-003**	**0.0000**	**46.4143**

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.8551	0.0000	0.8551	0.4395	0.0000	0.4395	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2568	2.9363	1.1674	2.6400e-003		0.1328	0.1328		0.1222	0.1222	0.0000	237.2637	237.2637	0.0751	0.0000	239.1404
Total	**0.2568**	**2.9363**	**1.1674**	**2.6400e-003**	**0.8551**	**0.1328**	**0.9879**	**0.4395**	**0.1222**	**0.5616**	**0.0000**	**237.2637**	**237.2637**	**0.0751**	**0.0000**	**239.1404**

3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.1100e-003	0.1024	0.0276	2.9000e-004	0.0111	9.3000e-004	0.0121	3.0800e-003	8.9000e-004	3.9700e-003	0.0000	28.2862	28.2862	1.3900e-003	0.0000	28.3208
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0302	0.0252	0.2741	7.0000e-004	0.0662	5.8000e-004	0.0667	0.0176	5.4000e-004	0.0181	0.0000	63.5965	63.5965	2.1900e-003	0.0000	63.6511
Total	**0.0344**	**0.1276**	**0.3017**	**9.9000e-004**	**0.0773**	**1.5100e-003**	**0.0788**	**0.0207**	**1.4300e-003**	**0.0221**	**0.0000**	**91.8826**	**91.8826**	**3.5800e-003**	**0.0000**	**91.9719**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3848	0.0000	0.3848	0.1978	0.0000	0.1978	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2568	2.9363	1.1674	2.6400e-003		0.1328	0.1328		0.1222	0.1222	0.0000	237.2634	237.2634	0.0751	0.0000	239.1401
Total	**0.2568**	**2.9363**	**1.1674**	**2.6400e-003**	**0.3848**	**0.1328**	**0.5176**	**0.1978**	**0.1222**	**0.3199**	**0.0000**	**237.2634**	**237.2634**	**0.0751**	**0.0000**	**239.1401**

3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.1100e-003	0.1024	0.0276	2.9000e-004	0.0111	9.3000e-004	0.0121	3.0800e-003	8.9000e-004	3.9700e-003	0.0000	28.2862	28.2862	1.3900e-003	0.0000	28.3208
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0302	0.0252	0.2741	7.0000e-004	0.0662	5.8000e-004	0.0667	0.0176	5.4000e-004	0.0181	0.0000	63.5965	63.5965	2.1900e-003	0.0000	63.6511
Total	**0.0344**	**0.1276**	**0.3017**	**9.9000e-004**	**0.0773**	**1.5100e-003**	**0.0788**	**0.0207**	**1.4300e-003**	**0.0221**	**0.0000**	**91.8826**	**91.8826**	**3.5800e-003**	**0.0000**	**91.9719**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3532	2.8792	2.0405	3.6100e-003		0.1521	0.1521		0.1449	0.1449	0.0000	306.5442	306.5442	0.0699	0.0000	308.2928
Total	**0.3532**	**2.8792**	**2.0405**	**3.6100e-003**		**0.1521**	**0.1521**		**0.1449**	**0.1449**	**0.0000**	**306.5442**	**306.5442**	**0.0699**	**0.0000**	**308.2928**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0400e-003	0.1687	0.0461	3.7000e-004	8.9900e-003	1.0600e-003	0.0101	2.6000e-003	1.0100e-003	3.6100e-003	0.0000	35.7092	35.7092	2.3800e-003	0.0000	35.7688
Worker	0.0411	0.0343	0.3728	9.6000e-004	0.0900	7.9000e-004	0.0908	0.0239	7.3000e-004	0.0246	0.0000	86.4912	86.4912	2.9700e-003	0.0000	86.5655
Total	**0.0472**	**0.2030**	**0.4189**	**1.3300e-003**	**0.0990**	**1.8500e-003**	**0.1008**	**0.0265**	**1.7400e-003**	**0.0282**	**0.0000**	**122.2004**	**122.2004**	**5.3500e-003**	**0.0000**	**122.3343**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3532	2.8792	2.0405	3.6100e-003		0.1521	0.1521		0.1449	0.1449	0.0000	306.5439	306.5439	0.0699	0.0000	308.2924
Total	**0.3532**	**2.8792**	**2.0405**	**3.6100e-003**		**0.1521**	**0.1521**		**0.1449**	**0.1449**	**0.0000**	**306.5439**	**306.5439**	**0.0699**	**0.0000**	**308.2924**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0400e-003	0.1687	0.0461	3.7000e-004	8.9900e-003	1.0600e-003	0.0101	2.6000e-003	1.0100e-003	3.6100e-003	0.0000	35.7092	35.7092	2.3800e-003	0.0000	35.7688
Worker	0.0411	0.0343	0.3728	9.6000e-004	0.0900	7.9000e-004	0.0908	0.0239	7.3000e-004	0.0246	0.0000	86.4912	86.4912	2.9700e-003	0.0000	86.5655
Total	**0.0472**	**0.2030**	**0.4189**	**1.3300e-003**	**0.0990**	**1.8500e-003**	**0.1008**	**0.0265**	**1.7400e-003**	**0.0282**	**0.0000**	**122.2004**	**122.2004**	**5.3500e-003**	**0.0000**	**122.3343**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0319	0.2662	0.1995	3.6000e-004		0.0134	0.0134		0.0127	0.0127	0.0000	30.5340	30.5340	6.8700e-003	0.0000	30.7058
Total	**0.0319**	**0.2662**	**0.1995**	**3.6000e-004**		**0.0134**	**0.0134**		**0.0127**	**0.0127**	**0.0000**	**30.5340**	**30.5340**	**6.8700e-003**	**0.0000**	**30.7058**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.2000e-004	0.0156	4.2200e-003	4.0000e-005	9.1000e-004	7.0000e-005	9.8000e-004	2.6000e-004	7.0000e-005	3.3000e-004	0.0000	3.5773	3.5773	2.3000e-004	0.0000	3.5830
Worker	3.8200e-003	3.0800e-003	0.0341	9.0000e-005	9.0700e-003	8.0000e-005	9.1500e-003	2.4100e-003	7.0000e-005	2.4800e-003	0.0000	8.4568	8.4568	2.7000e-004	0.0000	8.4635
Total	**4.3400e-003**	**0.0187**	**0.0383**	**1.3000e-004**	**9.9800e-003**	**1.5000e-004**	**0.0101**	**2.6700e-003**	**1.4000e-004**	**2.8100e-003**	**0.0000**	**12.0341**	**12.0341**	**5.0000e-004**	**0.0000**	**12.0465**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0319	0.2662	0.1995	3.6000e-004		0.0134	0.0134		0.0127	0.0127	0.0000	30.5340	30.5340	6.8700e-003	0.0000	30.7058
Total	**0.0319**	**0.2662**	**0.1995**	**3.6000e-004**		**0.0134**	**0.0134**		**0.0127**	**0.0127**	**0.0000**	**30.5340**	**30.5340**	**6.8700e-003**	**0.0000**	**30.7058**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.2000e-004	0.0156	4.2200e-003	4.0000e-005	9.1000e-004	7.0000e-005	9.8000e-004	2.6000e-004	7.0000e-005	3.3000e-004	0.0000	3.5773	3.5773	2.3000e-004	0.0000	3.5830
Worker	3.8200e-003	3.0800e-003	0.0341	9.0000e-005	9.0700e-003	8.0000e-005	9.1500e-003	2.4100e-003	7.0000e-005	2.4800e-003	0.0000	8.4568	8.4568	2.7000e-004	0.0000	8.4635
Total	**4.3400e-003**	**0.0187**	**0.0383**	**1.3000e-004**	**9.9800e-003**	**1.5000e-004**	**0.0101**	**2.6700e-003**	**1.4000e-004**	**2.8100e-003**	**0.0000**	**12.0341**	**12.0341**	**5.0000e-004**	**0.0000**	**12.0465**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0779					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0147	0.1010	0.1013	1.6000e-004		7.0800e-003	7.0800e-003		7.0800e-003	7.0800e-003	0.0000	14.0429	14.0429	1.1900e-003	0.0000	14.0726
Total	**0.0926**	**0.1010**	**0.1013**	**1.6000e-004**		**7.0800e-003**	**7.0800e-003**		**7.0800e-003**	**7.0800e-003**	**0.0000**	**14.0429**	**14.0429**	**1.1900e-003**	**0.0000**	**14.0726**

3.6 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0190	0.0158	0.1723	4.4000e-004	0.0416	3.7000e-004	0.0420	0.0111	3.4000e-004	0.0114	0.0000	39.9749	39.9749	1.3700e-003	0.0000	40.0093
Total	**0.0190**	**0.0158**	**0.1723**	**4.4000e-004**	**0.0416**	**3.7000e-004**	**0.0420**	**0.0111**	**3.4000e-004**	**0.0114**	**0.0000**	**39.9749**	**39.9749**	**1.3700e-003**	**0.0000**	**40.0093**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0779					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0147	0.1010	0.1013	1.6000e-004		7.0800e-003	7.0800e-003		7.0800e-003	7.0800e-003	0.0000	14.0429	14.0429	1.1900e-003	0.0000	14.0725
Total	**0.0926**	**0.1010**	**0.1013**	**1.6000e-004**		**7.0800e-003**	**7.0800e-003**		**7.0800e-003**	**7.0800e-003**	**0.0000**	**14.0429**	**14.0429**	**1.1900e-003**	**0.0000**	**14.0725**

3.6 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0190	0.0158	0.1723	4.4000e-004	0.0416	3.7000e-004	0.0420	0.0111	3.4000e-004	0.0114	0.0000	39.9749	39.9749	1.3700e-003	0.0000	40.0093
Total	**0.0190**	**0.0158**	**0.1723**	**4.4000e-004**	**0.0416**	**3.7000e-004**	**0.0420**	**0.0111**	**3.4000e-004**	**0.0114**	**0.0000**	**39.9749**	**39.9749**	**1.3700e-003**	**0.0000**	**40.0093**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.547192	0.045177	0.202743	0.121510	0.016147	0.006143	0.019743	0.029945	0.002479	0.002270	0.005078	0.000682	0.000891
General Office Building	0.547192	0.045177	0.202743	0.121510	0.016147	0.006143	0.019743	0.029945	0.002479	0.002270	0.005078	0.000682	0.000891

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	111.2809	111.2809	2.6300e-003	5.4000e-004	111.5087
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	111.2809	111.2809	2.6300e-003	5.4000e-004	111.5087
NaturalGas Mitigated	8.5000e-004	7.6900e-003	6.4600e-003	5.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	8.3728	8.3728	1.6000e-004	1.5000e-004	8.4225
NaturalGas Unmitigated	8.5000e-004	7.6900e-003	6.4600e-003	5.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	8.3728	8.3728	1.6000e-004	1.5000e-004	8.4225

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	156900	8.5000e-004	7.6900e-003	6.4600e-003	5.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	8.3728	8.3728	1.6000e-004	1.5000e-004	8.4225
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.5000e-004**	**7.6900e-003**	**6.4600e-003**	**5.0000e-005**		**5.8000e-004**	**5.8000e-004**		**5.8000e-004**	**5.8000e-004**	**0.0000**	**8.3728**	**8.3728**	**1.6000e-004**	**1.5000e-004**	**8.4225**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	156900	8.5000e-004	7.6900e-003	6.4600e-003	5.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	8.3728	8.3728	1.6000e-004	1.5000e-004	8.4225
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.5000e-004**	**7.6900e-003**	**6.4600e-003**	**5.0000e-005**		**5.8000e-004**	**5.8000e-004**		**5.8000e-004**	**5.8000e-004**	**0.0000**	**8.3728**	**8.3728**	**1.6000e-004**	**1.5000e-004**	**8.4225**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	199800	111.2809	2.6300e-003	5.4000e-004	111.5087
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**111.2809**	**2.6300e-003**	**5.4000e-004**	**111.5087**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	199800	111.2809	2.6300e-003	5.4000e-004	111.5087
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**111.2809**	**2.6300e-003**	**5.4000e-004**	**111.5087**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0660	1.0000e-005	9.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8700e-003	1.8700e-003	0.0000	0.0000	2.0000e-003
Unmitigated	0.0660	1.0000e-005	9.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8700e-003	1.8700e-003	0.0000	0.0000	2.0000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.7900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0581					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	9.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8700e-003	1.8700e-003	0.0000	0.0000	2.0000e-003
Total	**0.0660**	**1.0000e-005**	**9.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.8700e-003**	**1.8700e-003**	**0.0000**	**0.0000**	**2.0000e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.7900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0581					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	9.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8700e-003	1.8700e-003	0.0000	0.0000	2.0000e-003
Total	**0.0660**	**1.0000e-005**	**9.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.8700e-003**	**1.8700e-003**	**0.0000**	**0.0000**	**2.0000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	30.2912	0.0876	2.2000e-003	33.1345
Unmitigated	30.2912	0.0876	2.2000e-003	33.1345

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	2.66601 / 1.634	30.2912	0.0876	2.2000e-003	33.1345
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**30.2912**	**0.0876**	**2.2000e-003**	**33.1345**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	2.66601 / 1.634	30.2912	0.0876	2.2000e-003	33.1345
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**30.2912**	**0.0876**	**2.2000e-003**	**33.1345**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.8317	0.1674	0.0000	7.0155
Unmitigated	2.8317	0.1674	0.0000	7.0155

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	13.95	2.8317	0.1674	0.0000	7.0155
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**2.8317**	**0.1674**	**0.0000**	**7.0155**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	13.95	2.8317	0.1674	0.0000	7.0155
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**2.8317**	**0.1674**	**0.0000**	**7.0155**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

LASAN Project

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	60.50	1000sqft	1.40	60,500.00	0
General Office Building	15.00	1000sqft	1.00	15,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	11			**Operational Year**	2021
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

LASAN Project - Los Angeles-South Coast County, Summer

Project Characteristics -

Land Use - Lot ac. from PD, includes approx. area btwn office bldg and existing admin bldg.

Construction Phase - SP = Earthwork, Grading = Structural/Concrete, BC = Mechanical/Elec. Demo assumed due to ex. bldgs in plaza area

Off-road Equipment - Based on Final Predesign Report June 2017

Off-road Equipment - Grading Phase = Structural and concrete work

Off-road Equipment - BC = architectural/Mechanical/electric

Off-road Equipment -

Grading - From PD

Demolition - SF estimated from Google Earth

Trips and VMT - From traffic sub trip gen. Two-way roundtrips. SP = earthwork, Grading = concrete

Vehicle Trips - New bldg for existing employees.

Construction Off-road Equipment Mitigation - Assumed compliance with SCAQMD Rule 403.

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	10.00	110.00
tblConstructionPhase	NumDays	220.00	262.00
tblConstructionPhase	NumDays	6.00	261.00
tblConstructionPhase	NumDays	3.00	328.00
tblConstructionPhase	PhaseEndDate	4/1/2022	8/1/2019
tblConstructionPhase	PhaseEndDate	10/29/2021	2/3/2020
tblConstructionPhase	PhaseEndDate	10/28/2020	9/2/2019
tblConstructionPhase	PhaseEndDate	10/29/2019	10/2/2019
tblConstructionPhase	PhaseStartDate	10/30/2021	3/1/2019
tblConstructionPhase	PhaseStartDate	10/29/2020	2/1/2019
tblConstructionPhase	PhaseStartDate	10/30/2019	9/3/2018

LASAN Project - Los Angeles-South Coast County, Summer

tblConstructionPhase	PhaseStartDate	7/28/2018	7/2/2018
tblGrading	AcresOfGrading	410.00	82.00
tblGrading	MaterialExported	0.00	20,000.00
tblGrading	MaterialSiltContent	6.90	4.30
tblGrading	MeanVehicleSpeed	7.10	40.00
tblLandUse	LotAcreage	1.39	1.40
tblLandUse	LotAcreage	0.34	1.00
tblOffRoadEquipment	HorsePower	65.00	187.00
tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	LoadFactor	0.29	0.29
tblOffRoadEquipment	LoadFactor	0.37	0.41
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Forklifts
tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType	Scrapers	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Welders	Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	5.00

tblOffRoadEquipment	UsageHours	7.00	5.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblProjectCharacteristics	OperationalYear	2018	2021
tblTripsAndVMT	HaulingTripNumber	0.00	1,350.00
tblTripsAndVMT	HaulingVehicleClass	HHDT	HDT_Mix
tblTripsAndVMT	WorkerTripNumber	6.00	69.00
tblTripsAndVMT	WorkerTripNumber	30.00	69.00
tblTripsAndVMT	WorkerTripNumber	18.00	69.00
tblTripsAndVMT	WorkerTripNumber	20.00	69.00
tblVehicleTrips	ST_TR	2.46	0.00
tblVehicleTrips	SU_TR	1.05	0.00
tblVehicleTrips	WD_TR	11.03	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	6.3106	67.9309	38.7674	0.0886	17.0364	2.8171	19.8535	6.0697	2.5931	8.6628	0.0000	8,950.4691	8,950.4691	2.0505	0.0000	9,001.7314
2019	11.2088	90.0280	62.4332	0.1411	18.4657	3.9655	22.4312	6.4542	3.7022	10.1565	0.0000	13,907.9120	13,907.9120	2.7912	0.0000	13,977.6927
2020	3.0181	23.6870	19.9803	0.0416	0.8481	1.1252	1.9732	0.2267	1.0719	1.2986	0.0000	3,948.7788	3,948.7788	0.6773	0.0000	3,965.7109
Maximum	**11.2088**	**90.0280**	**62.4332**	**0.1411**	**18.4657**	**3.9655**	**22.4312**	**6.4542**	**3.7022**	**10.1565**	**0.0000**	**13,907.9120**	**13,907.9120**	**2.7912**	**0.0000**	**13,977.6927**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	6.3106	67.9309	38.7674	0.0886	8.8006	2.8171	11.6177	3.0308	2.5931	5.6240	0.0000	8,950.4691	8,950.4691	2.0505	0.0000	9,001.7314
2019	11.2088	90.0280	62.4332	0.1411	10.2299	3.9655	14.1954	3.4154	3.7022	7.1176	0.0000	13,907.9120	13,907.9120	2.7912	0.0000	13,977.6927
2020	3.0181	23.6870	19.9803	0.0416	0.8481	1.1252	1.9732	0.2267	1.0719	1.2986	0.0000	3,948.7788	3,948.7788	0.6773	0.0000	3,965.7109
Maximum	**11.2088**	**90.0280**	**62.4332**	**0.1411**	**10.2299**	**3.9655**	**14.1954**	**3.4154**	**3.7022**	**7.1176**	**0.0000**	**13,907.9120**	**13,907.9120**	**2.7912**	**0.0000**	**13,977.6927**

LASAN Project - Los Angeles-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	45.31	0.00	37.22	47.67	0.00	30.21	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3619	7.0000e-005	7.7400e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0165	0.0165	4.0000e-005		0.0176
Energy	4.6400e-003	0.0421	0.0354	2.5000e-004		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003		50.5721	50.5721	9.7000e-004	9.3000e-004	50.8726
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.3665**	**0.0422**	**0.0431**	**2.5000e-004**	**0.0000**	**3.2300e-003**	**3.2300e-003**	**0.0000**	**3.2300e-003**	**3.2300e-003**		**50.5886**	**50.5886**	**1.0100e-003**	**9.3000e-004**	**50.8903**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3619	7.0000e-005	7.7400e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0165	0.0165	4.0000e-005		0.0176
Energy	4.6400e-003	0.0421	0.0354	2.5000e-004		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003		50.5721	50.5721	9.7000e-004	9.3000e-004	50.8726
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.3665**	**0.0422**	**0.0431**	**2.5000e-004**	**0.0000**	**3.2300e-003**	**3.2300e-003**	**0.0000**	**3.2300e-003**	**3.2300e-003**		**50.5886**	**50.5886**	**1.0100e-003**	**9.3000e-004**	**50.8903**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/2/2018	7/27/2018	5	20	
2	Site Preparation	Site Preparation	7/2/2018	10/2/2019	5	328	
3	Grading	Grading	9/3/2018	9/2/2019	5	261	
4	Building Construction	Building Construction	2/1/2019	2/3/2020	5	262	
5	Architectural Coating	Architectural Coating	3/1/2019	8/1/2019	5	110	

Acres of Grading (Site Preparation Phase): 82

Acres of Grading (Grading Phase): 130.5

Acres of Paving: 1.4

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 22,500; Non-Residential Outdoor: 7,500; Striped Parking Area: 3,630 (Architectural Coating – sqft)

OffRoad Equipment

LASAN Project - Los Angeles-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	5.00	97	0.37
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Cranes	2	8.00	231	0.29
Site Preparation	Plate Compactors	2	3.00	8	0.43
Site Preparation	Rubber Tired Loaders	1	6.00	203	0.36
Site Preparation	Graders	1	4.00	187	0.41
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	5.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Forklifts	1	8.00	89	0.20
Grading	Cranes	2	8.00	231	0.29
Site Preparation	Skid Steer Loaders	1	3.00	65	0.37
Grading	Skid Steer Loaders	1	3.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Excavators	1	8.00	158	0.38
Building Construction	Skid Steer Loaders	1	3.00	65	0.37
Site Preparation	Scrapers	1	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	69.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	69.00	12.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	5	13.00	0.00	30.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	69.00	0.00	1,350.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HDT_Mix
Site Preparation	8	69.00	0.00	2,500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3298	0.0000	0.3298	0.0499	0.0000	0.0499			0.0000			0.0000
Off-Road	2.4838	24.3641	15.1107	0.0241		1.4365	1.4365		1.3429	1.3429		2,391.1659	2,391.1659	0.6058		2,406.3105
Total	**2.4838**	**24.3641**	**15.1107**	**0.0241**	**0.3298**	**1.4365**	**1.7662**	**0.0499**	**1.3429**	**1.3928**		**2,391.1659**	**2,391.1659**	**0.6058**		**2,406.3105**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0149	0.4846	0.1003	1.2200e-003	0.0262	1.8400e-003	0.0281	7.1900e-003	1.7600e-003	8.9500e-003		131.3422	131.3422	9.0400e-003		131.5682
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0718	0.0542	0.7021	1.6400e-003	0.1453	1.3000e-003	0.1466	0.0385	1.1900e-003	0.0397		162.9797	162.9797	6.1100e-003		163.1325
Total	**0.0867**	**0.5388**	**0.8024**	**2.8600e-003**	**0.1715**	**3.1400e-003**	**0.1747**	**0.0457**	**2.9500e-003**	**0.0487**		**294.3219**	**294.3219**	**0.0152**		**294.7007**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1484	0.0000	0.1484	0.0225	0.0000	0.0225			0.0000			0.0000
Off-Road	2.4838	24.3641	15.1107	0.0241		1.4365	1.4365		1.3429	1.3429	0.0000	2,391.1659	2,391.1659	0.6058		2,406.3105
Total	**2.4838**	**24.3641**	**15.1107**	**0.0241**	**0.1484**	**1.4365**	**1.5848**	**0.0225**	**1.3429**	**1.3654**	**0.0000**	**2,391.1659**	**2,391.1659**	**0.6058**		**2,406.3105**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0149	0.4846	0.1003	1.2200e-003	0.0262	1.8400e-003	0.0281	7.1900e-003	1.7600e-003	8.9500e-003		131.3422	131.3422	9.0400e-003		131.5682
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0718	0.0542	0.7021	1.6400e-003	0.1453	1.3000e-003	0.1466	0.0385	1.1900e-003	0.0397		162.9797	162.9797	6.1100e-003		163.1325
Total	**0.0867**	**0.5388**	**0.8024**	**2.8600e-003**	**0.1715**	**3.1400e-003**	**0.1747**	**0.0457**	**2.9500e-003**	**0.0487**		**294.3219**	**294.3219**	**0.0152**		**294.7007**

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.4219	0.0000	8.4219	2.1577	0.0000	2.1577			0.0000			0.0000
Off-Road	2.2490	27.1319	16.4617	0.0314		1.1067	1.1067		1.0188	1.0188		3,150.2990	3,150.2990	0.9754		3,174.6831
Total	**2.2490**	**27.1319**	**16.4617**	**0.0314**	**8.4219**	**1.1067**	**9.5286**	**2.1577**	**1.0188**	**3.1765**		**3,150.2990**	**3,150.2990**	**0.9754**		**3,174.6831**

3.3 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0757	2.4624	0.5095	6.1800e-003	0.2848	9.3700e-003	0.2942	0.0737	8.9600e-003	0.0827		667.3892	667.3892	0.0459		668.5378
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3812	0.2877	3.7265	8.7000e-003	0.7713	6.8800e-003	0.7781	0.2045	6.3400e-003	0.2109		865.0460	865.0460	0.0325		865.8571
Total	**0.4569**	**2.7501**	**4.2360**	**0.0149**	**1.0561**	**0.0163**	**1.0723**	**0.2783**	**0.0153**	**0.2936**		**1,532.4351**	**1,532.4351**	**0.0784**		**1,534.3949**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7899	0.0000	3.7899	0.9710	0.0000	0.9710			0.0000			0.0000
Off-Road	2.2490	27.1319	16.4617	0.0314		1.1067	1.1067		1.0188	1.0188	0.0000	3,150.2990	3,150.2990	0.9754		3,174.6831
Total	**2.2490**	**27.1319**	**16.4617**	**0.0314**	**3.7899**	**1.1067**	**4.8966**	**0.9710**	**1.0188**	**1.9898**	**0.0000**	**3,150.2990**	**3,150.2990**	**0.9754**		**3,174.6831**

3.3 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0757	2.4624	0.5095	6.1800e-003	0.2848	9.3700e-003	0.2942	0.0737	8.9600e-003	0.0827		667.3892	667.3892	0.0459		668.5378
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3812	0.2877	3.7265	8.7000e-003	0.7713	6.8800e-003	0.7781	0.2045	6.3400e-003	0.2109		865.0460	865.0460	0.0325		865.8571
Total	**0.4569**	**2.7501**	**4.2360**	**0.0149**	**1.0561**	**0.0163**	**1.0723**	**0.2783**	**0.0153**	**0.2936**		**1,532.4351**	**1,532.4351**	**0.0784**		**1,534.3949**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.4219	0.0000	8.4219	2.1577	0.0000	2.1577			0.0000			0.0000
Off-Road	2.0757	24.5771	15.6211	0.0314		0.9865	0.9865		0.9082	0.9082		3,098.6608	3,098.6608	0.9749		3,123.0329
Total	**2.0757**	**24.5771**	**15.6211**	**0.0314**	**8.4219**	**0.9865**	**9.4084**	**2.1577**	**0.9082**	**3.0659**		**3,098.6608**	**3,098.6608**	**0.9749**		**3,123.0329**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0716	2.3345	0.4977	6.0900e-003	0.2003	8.5700e-003	0.2088	0.0530	8.2000e-003	0.0612		658.9266	658.9266	0.0454		660.0611
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3447	0.2533	3.3269	8.4100e-003	0.7713	6.6500e-003	0.7779	0.2045	6.1300e-003	0.2107		836.9375	836.9375	0.0288		837.6562
Total	**0.4163**	**2.5878**	**3.8247**	**0.0145**	**0.9715**	**0.0152**	**0.9868**	**0.2575**	**0.0143**	**0.2718**		**1,495.8641**	**1,495.8641**	**0.0741**		**1,497.7173**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7899	0.0000	3.7899	0.9710	0.0000	0.9710			0.0000			0.0000
Off-Road	2.0757	24.5771	15.6211	0.0314		0.9865	0.9865		0.9082	0.9082	0.0000	3,098.6608	3,098.6608	0.9749		3,123.0329
Total	**2.0757**	**24.5771**	**15.6211**	**0.0314**	**3.7899**	**0.9865**	**4.7763**	**0.9710**	**0.9082**	**1.8791**	**0.0000**	**3,098.6608**	**3,098.6608**	**0.9749**		**3,123.0329**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0716	2.3345	0.4977	6.0900e-003	0.2003	8.5700e-003	0.2088	0.0530	8.2000e-003	0.0612		658.9266	658.9266	0.0454		660.0611
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3447	0.2533	3.3269	8.4100e-003	0.7713	6.6500e-003	0.7779	0.2045	6.1300e-003	0.2107		836.9375	836.9375	0.0288		837.6562
Total	**0.4163**	**2.5878**	**3.8247**	**0.0145**	**0.9715**	**0.0152**	**0.9868**	**0.2575**	**0.0143**	**0.2718**		**1,495.8641**	**1,495.8641**	**0.0741**		**1,497.7173**

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	3.1717	36.5471	14.0066	0.0302		1.6748	1.6748		1.5408	1.5408		3,040.5771	3,040.5771	0.9466		3,064.2414
Total	**3.1717**	**36.5471**	**14.0066**	**0.0302**	**6.5523**	**1.6748**	**8.2271**	**3.3675**	**1.5408**	**4.9083**		**3,040.5771**	**3,040.5771**	**0.9466**		**3,064.2414**

3.4 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0518	1.2142	0.3366	3.4000e-003	0.2349	0.0125	0.2473	0.0617	0.0119	0.0736		362.1119	362.1119	0.0177		362.5550
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3812	0.2877	3.7265	8.7000e-003	0.7713	6.8800e-003	0.7781	0.2045	6.3400e-003	0.2109		865.0460	865.0460	0.0325		865.8571
Total	**0.4330**	**1.5019**	**4.0631**	**0.0121**	**1.0061**	**0.0193**	**1.0255**	**0.2662**	**0.0183**	**0.2845**		**1,227.1579**	**1,227.1579**	**0.0502**		**1,228.4121**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9486	0.0000	2.9486	1.5154	0.0000	1.5154			0.0000			0.0000
Off-Road	3.1717	36.5471	14.0066	0.0302		1.6748	1.6748		1.5408	1.5408	0.0000	3,040.5771	3,040.5771	0.9466		3,064.2414
Total	**3.1717**	**36.5471**	**14.0066**	**0.0302**	**2.9486**	**1.6748**	**4.6233**	**1.5154**	**1.5408**	**3.0562**	**0.0000**	**3,040.5771**	**3,040.5771**	**0.9466**		**3,064.2414**

3.4 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0518	1.2142	0.3366	3.4000e-003	0.2349	0.0125	0.2473	0.0617	0.0119	0.0736		362.1119	362.1119	0.0177		362.5550
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3812	0.2877	3.7265	8.7000e-003	0.7713	6.8800e-003	0.7781	0.2045	6.3400e-003	0.2109		865.0460	865.0460	0.0325		865.8571
Total	**0.4330**	**1.5019**	**4.0631**	**0.0121**	**1.0061**	**0.0193**	**1.0255**	**0.2662**	**0.0183**	**0.2845**		**1,227.1579**	**1,227.1579**	**0.0502**		**1,228.4121**

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.9348	33.5572	13.3416	0.0302		1.5173	1.5173		1.3960	1.3960		2,989.0109	2,989.0109	0.9457		3,012.6531
Total	**2.9348**	**33.5572**	**13.3416**	**0.0302**	**6.5523**	**1.5173**	**8.0697**	**3.3675**	**1.3960**	**4.7634**		**2,989.0109**	**2,989.0109**	**0.9457**		**3,012.6531**

3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0466	1.1266	0.3082	3.3600e-003	0.1293	0.0106	0.1400	0.0358	0.0102	0.0460		357.9820	357.9820	0.0172		358.4120
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3447	0.2533	3.3269	8.4100e-003	0.7713	6.6500e-003	0.7779	0.2045	6.1300e-003	0.2107		836.9375	836.9375	0.0288		837.6562
Total	**0.3913**	**1.3800**	**3.6351**	**0.0118**	**0.9006**	**0.0173**	**0.9179**	**0.2403**	**0.0163**	**0.2566**		**1,194.9195**	**1,194.9195**	**0.0460**		**1,196.0682**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9486	0.0000	2.9486	1.5154	0.0000	1.5154			0.0000			0.0000
Off-Road	2.9348	33.5572	13.3416	0.0302		1.5173	1.5173		1.3960	1.3960	0.0000	2,989.0109	2,989.0109	0.9457		3,012.6531
Total	**2.9348**	**33.5572**	**13.3416**	**0.0302**	**2.9486**	**1.5173**	**4.4659**	**1.5154**	**1.3960**	**2.9113**	**0.0000**	**2,989.0109**	**2,989.0109**	**0.9457**		**3,012.6531**

3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0466	1.1266	0.3082	3.3600e-003	0.1293	0.0106	0.1400	0.0358	0.0102	0.0460		357.9820	357.9820	0.0172		358.4120
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3447	0.2533	3.3269	8.4100e-003	0.7713	6.6500e-003	0.7779	0.2045	6.1300e-003	0.2107		836.9375	836.9375	0.0288		837.6562
Total	**0.3913**	**1.3800**	**3.6351**	**0.0118**	**0.9006**	**0.0173**	**0.9179**	**0.2403**	**0.0163**	**0.2566**		**1,194.9195**	**1,194.9195**	**0.0460**		**1,196.0682**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9679	24.1952	17.1470	0.0303		1.2783	1.2783		1.2180	1.2180		2,839.5562	2,839.5562	0.6479		2,855.7529
Total	**2.9679**	**24.1952**	**17.1470**	**0.0303**		**1.2783**	**1.2783**		**1.2180**	**1.2180**		**2,839.5562**	**2,839.5562**	**0.6479**		**2,855.7529**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0499	1.3888	0.3685	3.1400e-003	0.0768	8.8500e-003	0.0857	0.0221	8.4700e-003	0.0306		334.5775	334.5775	0.0214		335.1136
Worker	0.3447	0.2533	3.3269	8.4100e-003	0.7713	6.6500e-003	0.7779	0.2045	6.1300e-003	0.2107		836.9375	836.9375	0.0288		837.6562
Total	**0.3946**	**1.6421**	**3.6954**	**0.0116**	**0.8481**	**0.0155**	**0.8636**	**0.2267**	**0.0146**	**0.2413**		**1,171.5150**	**1,171.5150**	**0.0502**		**1,172.7697**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9679	24.1952	17.1470	0.0303		1.2783	1.2783		1.2180	1.2180	0.0000	2,839.5562	2,839.5562	0.6479		2,855.7529
Total	**2.9679**	**24.1952**	**17.1470**	**0.0303**		**1.2783**	**1.2783**		**1.2180**	**1.2180**	**0.0000**	**2,839.5562**	**2,839.5562**	**0.6479**		**2,855.7529**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0499	1.3888	0.3685	3.1400e-003	0.0768	8.8500e-003	0.0857	0.0221	8.4700e-003	0.0306		334.5775	334.5775	0.0214		335.1136
Worker	0.3447	0.2533	3.3269	8.4100e-003	0.7713	6.6500e-003	0.7779	0.2045	6.1300e-003	0.2107		836.9375	836.9375	0.0288		837.6562
Total	**0.3946**	**1.6421**	**3.6954**	**0.0116**	**0.8481**	**0.0155**	**0.8636**	**0.2267**	**0.0146**	**0.2413**		**1,171.5150**	**1,171.5150**	**0.0502**		**1,172.7697**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6579	22.1846	16.6247	0.0303		1.1127	1.1127		1.0602	1.0602		2,804.8313	2,804.8313	0.6314		2,820.6166
Total	**2.6579**	**22.1846**	**16.6247**	**0.0303**		**1.1127**	**1.1127**		**1.0602**	**1.0602**		**2,804.8313**	**2,804.8313**	**0.6314**		**2,820.6166**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0427	1.2765	0.3345	3.1100e-003	0.0768	6.0100e-003	0.0828	0.0221	5.7500e-003	0.0279		332.4296	332.4296	0.0203		332.9368
Worker	0.3175	0.2259	3.0211	8.1500e-003	0.7713	6.4500e-003	0.7777	0.2045	5.9400e-003	0.2105		811.5179	811.5179	0.0256		812.1575
Total	**0.3602**	**1.5024**	**3.3556**	**0.0113**	**0.8481**	**0.0125**	**0.8605**	**0.2267**	**0.0117**	**0.2384**		**1,143.9475**	**1,143.9475**	**0.0459**		**1,145.0943**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6579	22.1846	16.6247	0.0303		1.1127	1.1127		1.0602	1.0602	0.0000	2,804.8313	2,804.8313	0.6314		2,820.6166
Total	**2.6579**	**22.1846**	**16.6247**	**0.0303**		**1.1127**	**1.1127**		**1.0602**	**1.0602**	**0.0000**	**2,804.8313**	**2,804.8313**	**0.6314**		**2,820.6166**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0427	1.2765	0.3345	3.1100e-003	0.0768	6.0100e-003	0.0828	0.0221	5.7500e-003	0.0279		332.4296	332.4296	0.0203		332.9368
Worker	0.3175	0.2259	3.0211	8.1500e-003	0.7713	6.4500e-003	0.7777	0.2045	5.9400e-003	0.2105		811.5179	811.5179	0.0256		812.1575
Total	**0.3602**	**1.5024**	**3.3556**	**0.0113**	**0.8481**	**0.0125**	**0.8605**	**0.2267**	**0.0117**	**0.2384**		**1,143.9475**	**1,143.9475**	**0.0459**		**1,145.0943**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.4171					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	**1.6835**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.6 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3447	0.2533	3.3269	8.4100e-003	0.7713	6.6500e-003	0.7779	0.2045	6.1300e-003	0.2107		836.9375	836.9375	0.0288		837.6562
Total	**0.3447**	**0.2533**	**3.3269**	**8.4100e-003**	**0.7713**	**6.6500e-003**	**0.7779**	**0.2045**	**6.1300e-003**	**0.2107**		**836.9375**	**836.9375**	**0.0288**		**837.6562**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.4171					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**1.6835**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.6 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3447	0.2533	3.3269	8.4100e-003	0.7713	6.6500e-003	0.7779	0.2045	6.1300e-003	0.2107		836.9375	836.9375	0.0288		837.6562
Total	**0.3447**	**0.2533**	**3.3269**	**8.4100e-003**	**0.7713**	**6.6500e-003**	**0.7779**	**0.2045**	**6.1300e-003**	**0.2107**		**836.9375**	**836.9375**	**0.0288**		**837.6562**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.547192	0.045177	0.202743	0.121510	0.016147	0.006143	0.019743	0.029945	0.002479	0.002270	0.005078	0.000682	0.000891
General Office Building	0.547192	0.045177	0.202743	0.121510	0.016147	0.006143	0.019743	0.029945	0.002479	0.002270	0.005078	0.000682	0.000891

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	4.6400e-003	0.0421	0.0354	2.5000e-004		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003		50.5721	50.5721	9.7000e-004	9.3000e-004	50.8726
NaturalGas Unmitigated	4.6400e-003	0.0421	0.0354	2.5000e-004		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003		50.5721	50.5721	9.7000e-004	9.3000e-004	50.8726

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	429.863	4.6400e-003	0.0421	0.0354	2.5000e-004		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003		50.5721	50.5721	9.7000e-004	9.3000e-004	50.8726
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.6400e-003**	**0.0421**	**0.0354**	**2.5000e-004**		**3.2000e-003**	**3.2000e-003**		**3.2000e-003**	**3.2000e-003**		**50.5721**	**50.5721**	**9.7000e-004**	**9.3000e-004**	**50.8726**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.429863	4.6400e-003	0.0421	0.0354	2.5000e-004		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003		50.5721	50.5721	9.7000e-004	9.3000e-004	50.8726
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.6400e-003**	**0.0421**	**0.0354**	**2.5000e-004**		**3.2000e-003**	**3.2000e-003**		**3.2000e-003**	**3.2000e-003**		**50.5721**	**50.5721**	**9.7000e-004**	**9.3000e-004**	**50.8726**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3619	7.0000e-005	7.7400e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0165	0.0165	4.0000e-005		0.0176
Unmitigated	0.3619	7.0000e-005	7.7400e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0165	0.0165	4.0000e-005		0.0176

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0427					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3184					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.2000e-004	7.0000e-005	7.7400e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0165	0.0165	4.0000e-005		0.0176
Total	**0.3619**	**7.0000e-005**	**7.7400e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0165**	**0.0165**	**4.0000e-005**		**0.0176**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0427					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3184					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.2000e-004	7.0000e-005	7.7400e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0165	0.0165	4.0000e-005		0.0176
Total	**0.3619**	**7.0000e-005**	**7.7400e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0165**	**0.0165**	**4.0000e-005**		**0.0176**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

LASAN Project

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	60.50	1000sqft	1.40	60,500.00	0
General Office Building	15.00	1000sqft	1.00	15,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	11			**Operational Year**	2021
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

LASAN Project - Los Angeles-South Coast County, Winter

Project Characteristics -

Land Use - Lot ac. from PD, includes approx. area btwn office bldg and existing admin bldg.

Construction Phase - SP = Earthwork, Grading = Structural/Concrete, BC = Mechanical/Elec. Demo assumed due to ex. bldgs in plaza area

Off-road Equipment - Based on Final Predesign Report June 2017

Off-road Equipment - Grading Phase = Structural and concrete work

Off-road Equipment - BC = architectural/Mechanical/electric

Off-road Equipment -

Grading - From PD

Demolition - SF estimated from Google Earth

Trips and VMT - From traffic sub trip gen. Two-way roundtrips. SP = earthwork, Grading = concrete

Vehicle Trips - New bldg for existing employees.

Construction Off-road Equipment Mitigation - Assumed compliance with SCAQMD Rule 403.

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	10.00	110.00
tblConstructionPhase	NumDays	220.00	262.00
tblConstructionPhase	NumDays	6.00	261.00
tblConstructionPhase	NumDays	3.00	328.00
tblConstructionPhase	PhaseEndDate	4/1/2022	8/1/2019
tblConstructionPhase	PhaseEndDate	10/29/2021	2/3/2020
tblConstructionPhase	PhaseEndDate	10/28/2020	9/2/2019
tblConstructionPhase	PhaseEndDate	10/29/2019	10/2/2019
tblConstructionPhase	PhaseStartDate	10/30/2021	3/1/2019
tblConstructionPhase	PhaseStartDate	10/29/2020	2/1/2019
tblConstructionPhase	PhaseStartDate	10/30/2019	9/3/2018

LASAN Project - Los Angeles-South Coast County, Winter

tblConstructionPhase	PhaseStartDate	7/28/2018	7/2/2018
tblGrading	AcresOfGrading	410.00	82.00
tblGrading	MaterialExported	0.00	20,000.00
tblGrading	MaterialSiltContent	6.90	4.30
tblGrading	MeanVehicleSpeed	7.10	40.00
tblLandUse	LotAcreage	1.39	1.40
tblLandUse	LotAcreage	0.34	1.00
tblOffRoadEquipment	HorsePower	65.00	187.00
tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	LoadFactor	0.29	0.29
tblOffRoadEquipment	LoadFactor	0.37	0.41
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Forklifts
tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType	Scrapers	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Welders	Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	5.00

tblOffRoadEquipment	UsageHours	7.00	5.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblProjectCharacteristics	OperationalYear	2018	2021
tblTripsAndVMT	HaulingTripNumber	0.00	1,350.00
tblTripsAndVMT	HaulingVehicleClass	HHDT	HDT_Mix
tblTripsAndVMT	WorkerTripNumber	6.00	69.00
tblTripsAndVMT	WorkerTripNumber	30.00	69.00
tblTripsAndVMT	WorkerTripNumber	18.00	69.00
tblTripsAndVMT	WorkerTripNumber	20.00	69.00
tblVehicleTrips	ST_TR	2.46	0.00
tblVehicleTrips	SU_TR	1.05	0.00
tblVehicleTrips	WD_TR	11.03	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	6.3952	68.0511	38.2279	0.0874	17.0364	2.8173	19.8538	6.0697	2.5934	8.6631	0.0000	8,834.5101	8,834.5101	2.0493	0.0000	8,885.7433
2019	11.3635	90.1918	61.4239	0.1389	18.4657	3.9659	22.4316	6.4542	3.7026	10.1568	0.0000	13,688.3240	13,688.3240	2.7884	0.0000	13,758.0349
2020	3.0551	23.7109	19.7605	0.0410	0.8481	1.1253	1.9733	0.2267	1.0720	1.2987	0.0000	3,892.2902	3,892.2902	0.6771	0.0000	3,909.2182
Maximum	**11.3635**	**90.1918**	**61.4239**	**0.1389**	**18.4657**	**3.9659**	**22.4316**	**6.4542**	**3.7026**	**10.1568**	**0.0000**	**13,688.3240**	**13,688.3240**	**2.7884**	**0.0000**	**13,758.0349**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	6.3952	68.0511	38.2279	0.0874	8.8006	2.8173	11.6179	3.0308	2.5934	5.6242	0.0000	8,834.5101	8,834.5101	2.0493	0.0000	8,885.7433
2019	11.3635	90.1918	61.4239	0.1389	10.2299	3.9659	14.1958	3.4154	3.7026	7.1180	0.0000	13,688.3240	13,688.3240	2.7884	0.0000	13,758.0349
2020	3.0551	23.7109	19.7605	0.0410	0.8481	1.1253	1.9733	0.2267	1.0720	1.2987	0.0000	3,892.2902	3,892.2902	0.6771	0.0000	3,909.2182
Maximum	**11.3635**	**90.1918**	**61.4239**	**0.1389**	**10.2299**	**3.9659**	**14.1958**	**3.4154**	**3.7026**	**7.1180**	**0.0000**	**13,688.3240**	**13,688.3240**	**2.7884**	**0.0000**	**13,758.0349**

LASAN Project - Los Angeles-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	45.31	0.00	37.22	47.67	0.00	30.21	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3619	7.0000e-005	7.7400e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0165	0.0165	4.0000e-005		0.0176
Energy	4.6400e-003	0.0421	0.0354	2.5000e-004		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003		50.5721	50.5721	9.7000e-004	9.3000e-004	50.8726
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.3665**	**0.0422**	**0.0431**	**2.5000e-004**	**0.0000**	**3.2300e-003**	**3.2300e-003**	**0.0000**	**3.2300e-003**	**3.2300e-003**		**50.5886**	**50.5886**	**1.0100e-003**	**9.3000e-004**	**50.8903**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3619	7.0000e-005	7.7400e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0165	0.0165	4.0000e-005		0.0176
Energy	4.6400e-003	0.0421	0.0354	2.5000e-004		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003		50.5721	50.5721	9.7000e-004	9.3000e-004	50.8726
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.3665**	**0.0422**	**0.0431**	**2.5000e-004**	**0.0000**	**3.2300e-003**	**3.2300e-003**	**0.0000**	**3.2300e-003**	**3.2300e-003**		**50.5886**	**50.5886**	**1.0100e-003**	**9.3000e-004**	**50.8903**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/2/2018	7/27/2018	5	20	
2	Site Preparation	Site Preparation	7/2/2018	10/2/2019	5	328	
3	Grading	Grading	9/3/2018	9/2/2019	5	261	
4	Building Construction	Building Construction	2/1/2019	2/3/2020	5	262	
5	Architectural Coating	Architectural Coating	3/1/2019	8/1/2019	5	110	

Acres of Grading (Site Preparation Phase): 82

Acres of Grading (Grading Phase): 130.5

Acres of Paving: 1.4

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 22,500; Non-Residential Outdoor: 7,500; Striped Parking Area: 3,630 (Architectural Coating – sqft)

OffRoad Equipment

LASAN Project - Los Angeles-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	5.00	97	0.37
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Cranes	2	8.00	231	0.29
Site Preparation	Plate Compactors	2	3.00	8	0.43
Site Preparation	Rubber Tired Loaders	1	6.00	203	0.36
Site Preparation	Graders	1	4.00	187	0.41
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	5.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Forklifts	1	8.00	89	0.20
Grading	Cranes	2	8.00	231	0.29
Site Preparation	Skid Steer Loaders	1	3.00	65	0.37
Grading	Skid Steer Loaders	1	3.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Excavators	1	8.00	158	0.38
Building Construction	Skid Steer Loaders	1	3.00	65	0.37
Site Preparation	Scrapers	1	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	69.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	69.00	12.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	5	13.00	0.00	30.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	69.00	0.00	1,350.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HDT_Mix
Site Preparation	8	69.00	0.00	2,500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3298	0.0000	0.3298	0.0499	0.0000	0.0499			0.0000			0.0000
Off-Road	2.4838	24.3641	15.1107	0.0241		1.4365	1.4365		1.3429	1.3429		2,391.1659	2,391.1659	0.6058		2,406.3105
Total	**2.4838**	**24.3641**	**15.1107**	**0.0241**	**0.3298**	**1.4365**	**1.7662**	**0.0499**	**1.3429**	**1.3928**		**2,391.1659**	**2,391.1659**	**0.6058**		**2,406.3105**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0153	0.4912	0.1073	1.2000e-003	0.0262	1.8800e-003	0.0281	7.1900e-003	1.8000e-003	8.9900e-003		129.1445	129.1445	9.3900e-003		129.3793
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0795	0.0600	0.6465	1.5400e-003	0.1453	1.3000e-003	0.1466	0.0385	1.1900e-003	0.0397		153.4749	153.4749	5.7800e-003		153.6193
Total	**0.0948**	**0.5513**	**0.7537**	**2.7400e-003**	**0.1715**	**3.1800e-003**	**0.1747**	**0.0457**	**2.9900e-003**	**0.0487**		**282.6194**	**282.6194**	**0.0152**		**282.9986**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1484	0.0000	0.1484	0.0225	0.0000	0.0225			0.0000			0.0000
Off-Road	2.4838	24.3641	15.1107	0.0241		1.4365	1.4365		1.3429	1.3429	0.0000	2,391.1659	2,391.1659	0.6058		2,406.3105
Total	**2.4838**	**24.3641**	**15.1107**	**0.0241**	**0.1484**	**1.4365**	**1.5848**	**0.0225**	**1.3429**	**1.3654**	**0.0000**	**2,391.1659**	**2,391.1659**	**0.6058**		**2,406.3105**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0153	0.4912	0.1073	1.2000e-003	0.0262	1.8800e-003	0.0281	7.1900e-003	1.8000e-003	8.9900e-003		129.1445	129.1445	9.3900e-003		129.3793
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0795	0.0600	0.6465	1.5400e-003	0.1453	1.3000e-003	0.1466	0.0385	1.1900e-003	0.0397		153.4749	153.4749	5.7800e-003		153.6193
Total	**0.0948**	**0.5513**	**0.7537**	**2.7400e-003**	**0.1715**	**3.1800e-003**	**0.1747**	**0.0457**	**2.9900e-003**	**0.0487**		**282.6194**	**282.6194**	**0.0152**		**282.9986**

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.4219	0.0000	8.4219	2.1577	0.0000	2.1577			0.0000			0.0000
Off-Road	2.2490	27.1319	16.4617	0.0314		1.1067	1.1067		1.0188	1.0188		3,150.2990	3,150.2990	0.9754		3,174.6831
Total	**2.2490**	**27.1319**	**16.4617**	**0.0314**	**8.4219**	**1.1067**	**9.5286**	**2.1577**	**1.0188**	**3.1765**		**3,150.2990**	**3,150.2990**	**0.9754**		**3,174.6831**

3.3 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0776	2.4961	0.5451	6.0700e-003	0.2848	9.5500e-003	0.2944	0.0737	9.1400e-003	0.0829		656.2219	656.2219	0.0477		657.4154
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4219	0.3186	3.4312	8.1900e-003	0.7713	6.8800e-003	0.7781	0.2045	6.3400e-003	0.2109		814.5974	814.5974	0.0307		815.3638
Total	**0.4995**	**2.8147**	**3.9762**	**0.0143**	**1.0561**	**0.0164**	**1.0725**	**0.2783**	**0.0155**	**0.2937**		**1,470.8193**	**1,470.8193**	**0.0784**		**1,472.7792**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7899	0.0000	3.7899	0.9710	0.0000	0.9710			0.0000			0.0000
Off-Road	2.2490	27.1319	16.4617	0.0314		1.1067	1.1067		1.0188	1.0188	0.0000	3,150.2990	3,150.2990	0.9754		3,174.6831
Total	**2.2490**	**27.1319**	**16.4617**	**0.0314**	**3.7899**	**1.1067**	**4.8966**	**0.9710**	**1.0188**	**1.9898**	**0.0000**	**3,150.2990**	**3,150.2990**	**0.9754**		**3,174.6831**

3.3 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0776	2.4961	0.5451	6.0700e-003	0.2848	9.5500e-003	0.2944	0.0737	9.1400e-003	0.0829		656.2219	656.2219	0.0477		657.4154
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4219	0.3186	3.4312	8.1900e-003	0.7713	6.8800e-003	0.7781	0.2045	6.3400e-003	0.2109		814.5974	814.5974	0.0307		815.3638
Total	**0.4995**	**2.8147**	**3.9762**	**0.0143**	**1.0561**	**0.0164**	**1.0725**	**0.2783**	**0.0155**	**0.2937**		**1,470.8193**	**1,470.8193**	**0.0784**		**1,472.7792**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.4219	0.0000	8.4219	2.1577	0.0000	2.1577			0.0000			0.0000
Off-Road	2.0757	24.5771	15.6211	0.0314		0.9865	0.9865		0.9082	0.9082		3,098.6608	3,098.6608	0.9749		3,123.0329
Total	**2.0757**	**24.5771**	**15.6211**	**0.0314**	**8.4219**	**0.9865**	**9.4084**	**2.1577**	**0.9082**	**3.0659**		**3,098.6608**	**3,098.6608**	**0.9749**		**3,123.0329**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0734	2.3656	0.5314	5.9900e-003	0.2003	8.7300e-003	0.2090	0.0530	8.3500e-003	0.0613		647.7513	647.7513	0.0471		648.9290
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3821	0.2806	3.0531	7.9200e-003	0.7713	6.6500e-003	0.7779	0.2045	6.1300e-003	0.2107		788.0703	788.0703	0.0271		788.7480
Total	**0.4555**	**2.6462**	**3.5845**	**0.0139**	**0.9715**	**0.0154**	**0.9869**	**0.2575**	**0.0145**	**0.2720**		**1,435.8215**	**1,435.8215**	**0.0742**		**1,437.6770**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7899	0.0000	3.7899	0.9710	0.0000	0.9710			0.0000			0.0000
Off-Road	2.0757	24.5771	15.6211	0.0314		0.9865	0.9865		0.9082	0.9082	0.0000	3,098.6608	3,098.6608	0.9749		3,123.0329
Total	**2.0757**	**24.5771**	**15.6211**	**0.0314**	**3.7899**	**0.9865**	**4.7763**	**0.9710**	**0.9082**	**1.8791**	**0.0000**	**3,098.6608**	**3,098.6608**	**0.9749**		**3,123.0329**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0734	2.3656	0.5314	5.9900e-003	0.2003	8.7300e-003	0.2090	0.0530	8.3500e-003	0.0613		647.7513	647.7513	0.0471		648.9290
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3821	0.2806	3.0531	7.9200e-003	0.7713	6.6500e-003	0.7779	0.2045	6.1300e-003	0.2107		788.0703	788.0703	0.0271		788.7480
Total	**0.4555**	**2.6462**	**3.5845**	**0.0139**	**0.9715**	**0.0154**	**0.9869**	**0.2575**	**0.0145**	**0.2720**		**1,435.8215**	**1,435.8215**	**0.0742**		**1,437.6770**

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	3.1717	36.5471	14.0066	0.0302		1.6748	1.6748		1.5408	1.5408		3,040.5771	3,040.5771	0.9466		3,064.2414
Total	**3.1717**	**36.5471**	**14.0066**	**0.0302**	**6.5523**	**1.6748**	**8.2271**	**3.3675**	**1.5408**	**4.9083**		**3,040.5771**	**3,040.5771**	**0.9466**		**3,064.2414**

3.4 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0531	1.2389	0.3522	3.3700e-003	0.2349	0.0125	0.2474	0.0617	0.0120	0.0737		358.2173	358.2173	0.0183		358.6758
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4219	0.3186	3.4312	8.1900e-003	0.7713	6.8800e-003	0.7781	0.2045	6.3400e-003	0.2109		814.5974	814.5974	0.0307		815.3638
Total	**0.4750**	**1.5575**	**3.7834**	**0.0116**	**1.0061**	**0.0194**	**1.0255**	**0.2662**	**0.0183**	**0.2846**		**1,172.8147**	**1,172.8147**	**0.0490**		**1,174.0396**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9486	0.0000	2.9486	1.5154	0.0000	1.5154			0.0000			0.0000
Off-Road	3.1717	36.5471	14.0066	0.0302		1.6748	1.6748		1.5408	1.5408	0.0000	3,040.5771	3,040.5771	0.9466		3,064.2414
Total	**3.1717**	**36.5471**	**14.0066**	**0.0302**	**2.9486**	**1.6748**	**4.6233**	**1.5154**	**1.5408**	**3.0562**	**0.0000**	**3,040.5771**	**3,040.5771**	**0.9466**		**3,064.2414**

3.4 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0531	1.2389	0.3522	3.3700e-003	0.2349	0.0125	0.2474	0.0617	0.0120	0.0737		358.2173	358.2173	0.0183		358.6758
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4219	0.3186	3.4312	8.1900e-003	0.7713	6.8800e-003	0.7781	0.2045	6.3400e-003	0.2109		814.5974	814.5974	0.0307		815.3638
Total	**0.4750**	**1.5575**	**3.7834**	**0.0116**	**1.0061**	**0.0194**	**1.0255**	**0.2662**	**0.0183**	**0.2846**		**1,172.8147**	**1,172.8147**	**0.0490**		**1,174.0396**

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.9348	33.5572	13.3416	0.0302		1.5173	1.5173		1.3960	1.3960		2,989.0109	2,989.0109	0.9457		3,012.6531
Total	**2.9348**	**33.5572**	**13.3416**	**0.0302**	**6.5523**	**1.5173**	**8.0697**	**3.3675**	**1.3960**	**4.7634**		**2,989.0109**	**2,989.0109**	**0.9457**		**3,012.6531**

3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0477	1.1486	0.3230	3.3200e-003	0.1293	0.0107	0.1400	0.0358	0.0102	0.0460		354.0833	354.0833	0.0178		354.5282
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3821	0.2806	3.0531	7.9200e-003	0.7713	6.6500e-003	0.7779	0.2045	6.1300e-003	0.2107		788.0703	788.0703	0.0271		788.7480
Total	**0.4298**	**1.4291**	**3.3761**	**0.0112**	**0.9006**	**0.0173**	**0.9179**	**0.2403**	**0.0164**	**0.2567**		**1,142.1536**	**1,142.1536**	**0.0449**		**1,143.2762**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9486	0.0000	2.9486	1.5154	0.0000	1.5154			0.0000			0.0000
Off-Road	2.9348	33.5572	13.3416	0.0302		1.5173	1.5173		1.3960	1.3960	0.0000	2,989.0109	2,989.0109	0.9457		3,012.6531
Total	**2.9348**	**33.5572**	**13.3416**	**0.0302**	**2.9486**	**1.5173**	**4.4659**	**1.5154**	**1.3960**	**2.9113**	**0.0000**	**2,989.0109**	**2,989.0109**	**0.9457**		**3,012.6531**

3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0477	1.1486	0.3230	3.3200e-003	0.1293	0.0107	0.1400	0.0358	0.0102	0.0460		354.0833	354.0833	0.0178		354.5282
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3821	0.2806	3.0531	7.9200e-003	0.7713	6.6500e-003	0.7779	0.2045	6.1300e-003	0.2107		788.0703	788.0703	0.0271		788.7480
Total	**0.4298**	**1.4291**	**3.3761**	**0.0112**	**0.9006**	**0.0173**	**0.9179**	**0.2403**	**0.0164**	**0.2567**		**1,142.1536**	**1,142.1536**	**0.0449**		**1,143.2762**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9679	24.1952	17.1470	0.0303		1.2783	1.2783		1.2180	1.2180		2,839.5562	2,839.5562	0.6479		2,855.7529
Total	**2.9679**	**24.1952**	**17.1470**	**0.0303**		**1.2783**	**1.2783**		**1.2180**	**1.2180**		**2,839.5562**	**2,839.5562**	**0.6479**		**2,855.7529**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0520	1.3906	0.4062	3.0500e-003	0.0768	9.0000e-003	0.0858	0.0221	8.6100e-003	0.0307		325.5325	325.5325	0.0229		326.1042
Worker	0.3821	0.2806	3.0531	7.9200e-003	0.7713	6.6500e-003	0.7779	0.2045	6.1300e-003	0.2107		788.0703	788.0703	0.0271		788.7480
Total	**0.4341**	**1.6712**	**3.4593**	**0.0110**	**0.8481**	**0.0157**	**0.8637**	**0.2267**	**0.0147**	**0.2414**		**1,113.6028**	**1,113.6028**	**0.0500**		**1,114.8523**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9679	24.1952	17.1470	0.0303		1.2783	1.2783		1.2180	1.2180	0.0000	2,839.5562	2,839.5562	0.6479		2,855.7529
Total	**2.9679**	**24.1952**	**17.1470**	**0.0303**		**1.2783**	**1.2783**		**1.2180**	**1.2180**	**0.0000**	**2,839.5562**	**2,839.5562**	**0.6479**		**2,855.7529**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0520	1.3906	0.4062	3.0500e-003	0.0768	9.0000e-003	0.0858	0.0221	8.6100e-003	0.0307		325.5325	325.5325	0.0229		326.1042
Worker	0.3821	0.2806	3.0531	7.9200e-003	0.7713	6.6500e-003	0.7779	0.2045	6.1300e-003	0.2107		788.0703	788.0703	0.0271		788.7480
Total	**0.4341**	**1.6712**	**3.4593**	**0.0110**	**0.8481**	**0.0157**	**0.8637**	**0.2267**	**0.0147**	**0.2414**		**1,113.6028**	**1,113.6028**	**0.0500**		**1,114.8523**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6579	22.1846	16.6247	0.0303		1.1127	1.1127		1.0602	1.0602		2,804.8313	2,804.8313	0.6314		2,820.6166
Total	**2.6579**	**22.1846**	**16.6247**	**0.0303**		**1.1127**	**1.1127**		**1.0602**	**1.0602**		**2,804.8313**	**2,804.8313**	**0.6314**		**2,820.6166**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0446	1.2762	0.3689	3.0300e-003	0.0768	6.1000e-003	0.0829	0.0221	5.8400e-003	0.0280		323.3389	323.3389	0.0216		323.8794
Worker	0.3526	0.2501	2.7670	7.6700e-003	0.7713	6.4500e-003	0.7777	0.2045	5.9400e-003	0.2105		764.1201	764.1201	0.0241		764.7222
Total	**0.3972**	**1.5263**	**3.1358**	**0.0107**	**0.8481**	**0.0126**	**0.8606**	**0.2267**	**0.0118**	**0.2384**		**1,087.4590**	**1,087.4590**	**0.0457**		**1,088.6016**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6579	22.1846	16.6247	0.0303		1.1127	1.1127		1.0602	1.0602	0.0000	2,804.8313	2,804.8313	0.6314		2,820.6166
Total	**2.6579**	**22.1846**	**16.6247**	**0.0303**		**1.1127**	**1.1127**		**1.0602**	**1.0602**	**0.0000**	**2,804.8313**	**2,804.8313**	**0.6314**		**2,820.6166**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0446	1.2762	0.3689	3.0300e-003	0.0768	6.1000e-003	0.0829	0.0221	5.8400e-003	0.0280		323.3389	323.3389	0.0216		323.8794
Worker	0.3526	0.2501	2.7670	7.6700e-003	0.7713	6.4500e-003	0.7777	0.2045	5.9400e-003	0.2105		764.1201	764.1201	0.0241		764.7222
Total	**0.3972**	**1.5263**	**3.1358**	**0.0107**	**0.8481**	**0.0126**	**0.8606**	**0.2267**	**0.0118**	**0.2384**		**1,087.4590**	**1,087.4590**	**0.0457**		**1,088.6016**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.4171					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	**1.6835**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.6 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3821	0.2806	3.0531	7.9200e-003	0.7713	6.6500e-003	0.7779	0.2045	6.1300e-003	0.2107		788.0703	788.0703	0.0271		788.7480
Total	**0.3821**	**0.2806**	**3.0531**	**7.9200e-003**	**0.7713**	**6.6500e-003**	**0.7779**	**0.2045**	**6.1300e-003**	**0.2107**		**788.0703**	**788.0703**	**0.0271**		**788.7480**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.4171					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**1.6835**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.6 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3821	0.2806	3.0531	7.9200e-003	0.7713	6.6500e-003	0.7779	0.2045	6.1300e-003	0.2107		788.0703	788.0703	0.0271		788.7480
Total	**0.3821**	**0.2806**	**3.0531**	**7.9200e-003**	**0.7713**	**6.6500e-003**	**0.7779**	**0.2045**	**6.1300e-003**	**0.2107**		**788.0703**	**788.0703**	**0.0271**		**788.7480**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.547192	0.045177	0.202743	0.121510	0.016147	0.006143	0.019743	0.029945	0.002479	0.002270	0.005078	0.000682	0.000891
General Office Building	0.547192	0.045177	0.202743	0.121510	0.016147	0.006143	0.019743	0.029945	0.002479	0.002270	0.005078	0.000682	0.000891

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	4.6400e-003	0.0421	0.0354	2.5000e-004		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003		50.5721	50.5721	9.7000e-004	9.3000e-004	50.8726
NaturalGas Unmitigated	4.6400e-003	0.0421	0.0354	2.5000e-004		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003		50.5721	50.5721	9.7000e-004	9.3000e-004	50.8726

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	429.863	4.6400e-003	0.0421	0.0354	2.5000e-004		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003		50.5721	50.5721	9.7000e-004	9.3000e-004	50.8726
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.6400e-003**	**0.0421**	**0.0354**	**2.5000e-004**		**3.2000e-003**	**3.2000e-003**		**3.2000e-003**	**3.2000e-003**		**50.5721**	**50.5721**	**9.7000e-004**	**9.3000e-004**	**50.8726**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.429863	4.6400e-003	0.0421	0.0354	2.5000e-004		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003		50.5721	50.5721	9.7000e-004	9.3000e-004	50.8726
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.6400e-003**	**0.0421**	**0.0354**	**2.5000e-004**		**3.2000e-003**	**3.2000e-003**		**3.2000e-003**	**3.2000e-003**		**50.5721**	**50.5721**	**9.7000e-004**	**9.3000e-004**	**50.8726**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3619	7.0000e-005	7.7400e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0165	0.0165	4.0000e-005		0.0176
Unmitigated	0.3619	7.0000e-005	7.7400e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0165	0.0165	4.0000e-005		0.0176

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0427					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3184					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.2000e-004	7.0000e-005	7.7400e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0165	0.0165	4.0000e-005		0.0176
Total	**0.3619**	**7.0000e-005**	**7.7400e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0165**	**0.0165**	**4.0000e-005**		**0.0176**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0427					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3184					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.2000e-004	7.0000e-005	7.7400e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0165	0.0165	4.0000e-005		0.0176
Total	**0.3619**	**7.0000e-005**	**7.7400e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0165**	**0.0165**	**4.0000e-005**		**0.0176**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix D: Biological Resources Assessment



Los Angeles-Glendale Wastewater Treatment Plant Primary Effluent Equalization Storage and Personnel Building Project

Biological Resources Assessment

prepared for
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July 2017

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Los Angeles-Glendale Water Reclamation Plant Primary Effluent Equalization Storage and Personnel Building Project

Biological Resources Assessment

prepared for
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2017 Biological Resources Assessment, Los Angeles-Glendale Water Reclamation Plant Primary Effluent Equalization Storage and Personnel Building Project. Prepared for Kennedy/Jenks Consultants. Rincon Project No. 17-04139. July 2017.

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Appendix A Regulatory Framework
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1 Introduction

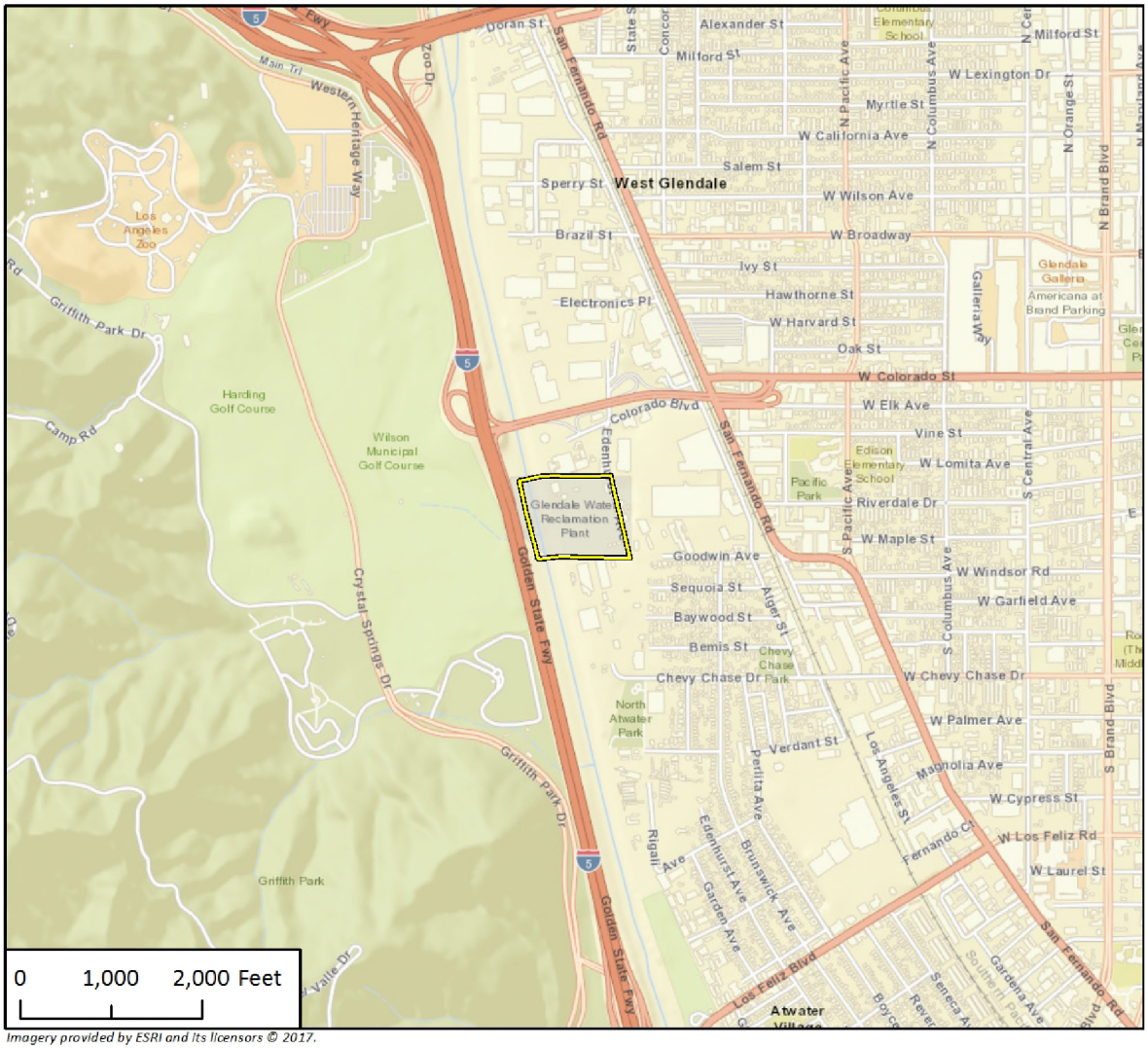
This report documents the findings of a biological resources assessment (BRA) conducted by Rincon Consultants, Inc. (Rincon) for the Los Angeles Sanitation (LASAN) Los Angeles-Glendale Water Reclamation Plant (LAGWRP) Primary Effluent Equalization Storage and Personnel Building Project. The purpose of this report is to document the existing conditions of the property and to evaluate the potential for impacts to biological resources as a result of project activities.

1.1 Project Description and Location

The project site is generally located south of Colorado Boulevard where it intersects with Interstate 5 in Los Angeles County, California (Figure 1).The project proposes operational and administrative improvements at the LAGWRP consisting of three components: the Primary Effluent Equalization Storage Project, the Personnel Building Project, and rehabilitation of the existing Administration Building. The Primary Effluent Equalization Storage Project will construct a 2.5 million gallon (MG) equalization tank, two primary clarifiers, three aeration tanks, two secondary clarifiers, and all associated appurtenances and piping. The Personnel Building Project will construct an estimated 7,000-square-foot two-story building, and will remodel the existing Administration Building to provide training rooms and auxiliary space. In addition, the existing lined de-chlorination pond will be restructured to provide space for the proposed equalization and personnel facilities, as well as transportation/traffic circulation infrastructure required for the new facilities (Figure 2).

For the purposes of this report, the project site includes the existing LAGWRP facility property in which project activities will occur. The Study Area includes the project site and an approximate 100-foot buffer in which biological resources were evaluated.

Figure 1 Regional Location of Project Site



Imagery provided by ESRI and its licensors © 2017.

Project Location

N



BRAFig 1 Regional Loc

Figure 2 Study Area and Project Footprint



2 Methodology

2.1 Regulatory Overview

Regulated or sensitive resources studied and analyzed herein include special status plant and animal species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement and wildlife movement corridors, and locally protected resources, such as protected trees. For a complete regulatory framework discussion refer to Appendix A.

2.1.1 Environmental Statutes

For the purpose of this report, potential impacts to biological resources were analyzed based on the following statutes:

- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (FESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGC)
- Migratory Bird Treaty Act (MBTA)
- Porter-Cologne Water Quality Control Act

2.1.2 Guidelines for Determining CEQA Significance

The following threshold criteria, as defined by the CEQA Guidelines Appendix G Initial Study Checklist, were used to evaluate potential environmental effects. Based on these criteria, the proposed project would have a significant effect on biological resources if it would:

a) Have substantial adverse effects, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

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

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc…) through direct removal, filling, hydrological interruption, or other means.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

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

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan.

2.2 Desktop Review

Prior to the field survey and throughout the development of this assessment, Rincon conducted a literature and database review to characterize the nature and extent of biological resources on and adjacent to the site. Databases reviewed include the California Natural Diversity Data Base (CNDDB; CDFW 2017a), Biogeographic Information and Observation System (CDFW 2017b), and USFWS Critical Habitat Portal (USFWS 2017a) to determine if any special-status wildlife, plant, or vegetation communities were previously recorded within the Study Area or within the immediate vicinity. The *National Wetlands Inventory* (NWI; USFWS 2017c) was reviewed to determine if any wetland and/or non-wetland waters had been previously documented and mapped on or in the vicinity of the property. Other resources included the California Native Plant Society (CNPS) Online Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2017), CDFW *Special Animals List* (CDFW 2017c), and CDFW *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2017d).

In addition, local regulatory statutes were reviewed, including the City of Los Angeles Municipal Code Chapter IV Public Welfare (2005) and Ordinance No. 153,478. Herein includes the provisions for the protection of native oak trees greater than 8-inches diameter-at-breast-height (DBH). Actions that may cause an oak to die are regulated. Protections also include other native trees (e.g. bay, sycamore, walnut) greater than 4-inches cumulative DBH (total diameter of multi-trucks).

2.3 Field Reconnaissance Survey

Rincon Biologists Thea Benson and Heather Imgrund conducted a field reconnaissance survey on June 16, 2017, between the hours of 0845 and 1000. Weather conditions during the survey included an average temperature of 75 degrees Fahrenheit, with winds between 1 and 3 miles per hour, with no cloud cover. The Study Area included the entire fenced boundary of the LAGWRP and an approximate 100 foot buffer. This buffer was minimized to approximately 100 feet due to private property access restrictions. Up to 100 feet on either side of the project property was surveyed using binoculars (10 x 40) and further investigated using aerial imagery during the desktop review. The purpose of the survey was to document existing biological conditions within the Study Area, including plant and wildlife species, vegetation communities, waters and wetlands, and to determine the potential for presence of special-status species and/or habitats. The biologists conducted the survey on foot. Where portions of the Study Area were inaccessible (e.g., Los Angeles River basin), the biologists visually inspected those areas with binoculars. No species-specific protocol surveys, or other focused surveys, were completed during the field survey. Further, no arborist survey or other tree survey was completed during the field survey.

2.3.1 Vegetation Community Classification

Vegetation communities observed within the Study Area were mapped on a site-specific aerial image and later digitized into Global Information Systems (GIS) for record. Vegetation classification was based on the classification systems provided in *Preliminary Descriptions of the Terrestrial Communities of California* (Holland 1986) and *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009).

2.3.2 Flora

All plant species observed in the Study Area were noted, and plants that could not be identified in the field were identified in the office using taxonomic keys and a microscope, as necessary. The survey included a directed search for special-status plants that would have been apparent at the time of the survey. Floral nomenclature for native and non-native plants follows Baldwin et al. (2012) as updated by The Jepson Online Interchange (University of California, Berkeley 2014).

2.3.3 Fauna

Animal species observed directly or detected from calls, tracks, scat, nests, skeletal remains, or other sign, were documented. Zoological nomenclature for birds is in accordance with the American Ornithologists' Union Checklist (2017); for mammals, in accordance with Wilson and Reeder (2005); and for amphibians and reptiles, in accordance with the Society for the Study of Amphibians and Reptiles Species Names Database (Boundy et al. 2012). The detection of wildlife species was limited by seasonal and temporal factors. The biological survey was conducted during the summer (June); therefore, potentially occurring winter migrants may not have observed. As the survey was performed during the day, identification of nocturnal animals was limited to sign if present on-site. No nighttime surveys were completed and no protocol-level surveys for special-status wildlife were completed.

2.3.4 Aquatic Resources

The field survey did not include a jurisdictional delineation; however, aquatic resources within the Study Area were noted. Desktop investigation of aquatic resources includes the review of the USFWS NWI (USFWS 2017c) that indicate presence of wetland and non-wetland waters and U.S. Geological Survey (USGS) topographic imagery.

3 Existing Conditions

The following provides a summary of findings as a result of the desktop review and field survey, and a compilation of resources that occur, or have the potential to occur, within the Study Area. Site photographs are provided at Appendix B.

3.1 Topography and Soils

The project is located in Township 1 N, Range 12 W, Section 29 of the USGS Inglewood and Burbank, CA 7.5-minute topographic quadrangle (Figure 1), and indicates that elevations of the property range from approximately 410 feet to 450 feet Above Mean Sea Level (AMSL) and the site is generally flat. The following provides further information on the soil types that occur within the property, based on desktop review of the United States Department of Agriculture (USDA) Natural Resources Conservation Service's (NRCS) Custom Web Soil Survey (USDA 2017).

3.1.1 Urban land-Tujunga-Typic Xerothents

Urban land with Tujunga soils and sandy substratum complex consist of human-transported material over alluvium derived from granite. These soils occur in flood plains with slopes of 0 to 2 percent and occur within the project site. Urban soils have zero inches to the manufactured layer, have a high runoff class, and rare frequency of flooding.

3.1.2 Urban land-Palmview-Tujunga

Urban land with Palmview soils consist of alluvial fans with discontinuous human-transported material derived from granite, with slopes of 0 to 5 percent. Urban land-Palmview-Tujunga soils with a fine sandy loam are well drained, have a very low runoff class, with a rare frequency of flooding and no frequency of ponding.

3.1.3 Xeropsamments

Xeropsamments occurs in rivers and channels and consists of alluvium derived from granite. Slopes are 0 to 2 percent. Xeropsamments have a negligible runoff class and frequent flooding and no ponding. These soils occur along the adjacent Los Angeles River, outside the project site.

3.2 Aquatic Resources

The project site does not contain any waters or wetlands as defined by federal or state jurisdictional definitions; however, the Los Angeles River is located outside the fenced project site boundary and to the west. The section of the Los Angeles River within the Study Area is located within Reach 4: Glendale Narrows. Within this reach, the Los Angeles River has a grouted stone invert with a soft river bottom. During the field survey, water was present within the channel. The channel bed is primarily open water, but a linear strip of vegetation was present, that included mixed native willow, cattail species, and non-native invasive giant reed. Note that the channel of the river and associated vegetation was generally characterized from observations made within the property boundary of the project using binoculars.

3.3 Land Cover and Vegetation

The Study Area includes primarily developed property consisting of buildings, wastewater facilities, concrete, and asphalt. The project site also consists of landscaping with ornamental trees including some planted sycamore (*Platanus* sp.), pine species (*Pinus* spp.), and juniper species (*Juniperus* spp.). Ruderal vegetation is sparse in areas that were not developed or where the landscaping is not maintained. Overall, the project site does support common species, discussed further below. In addition, the ornamental landscaping may provide habitat for nesting birds.

Adjacent properties to the north, east, and west are also developed and support ornamental vegetation. The Los Angeles River is located immediately to the west of the project site and consists of a narrow strip of riparian vegetation, including willows, giant reed, and cattails (Figure 2).

3.4 Wildlife

The following provides an assessment of wildlife that may occur within the project site based on existing conditions within the Study Area and regionally occurring wildlife movement patterns.

Vertebrate species observed include those seen or detected by track, scat, skeletal remains, burrows and/or vocalization during the field survey. Descriptions of wildlife observed during the field survey and wildlife that may have the potential to occur in the area are discussed below.

Invertebrates. A variety of invertebrates are expected to occur throughout the Study Area, including ground beetles and scarab beetles (Order Coleoptera), burrowing bugs, leafhoppers, and assassin beetles (Order Hemiptera), spiders (Order Araneida), millipedes (Class Diplopoda), butterflies (Order Lepidoptera), dragonflies (Order Odonata), grasshoppers and crickets (order Orthoptera), and bees, wasps, and ants (Order Hymenoptera). Few of these common invertebrates were observed during the field survey, but invertebrates were not collected and/or further identified to species level.

Fish. No aquatic areas that hold water long enough to support fish species occur within the project site. The adjacent Los Angeles River does support fish species, but no aquatic surveys were completed as part of this assessment.

Amphibians. Amphibians are concentrated near freshwater, saturated soils, and cool, dark, and damp areas and many species of amphibians are dependent upon the availability of surface water for longer periods of time for breeding. The project site is currently developed and water that occurs within the project site is heavily maintained and does not support suitable habitat for amphibians. The adjacent Los Angeles River does support habitat for amphibian species due to the presence of water and riparian refugia. No amphibians were identified during the field survey, no focused amphibian surveys were completed, and the Los Angeles River corridor was only observed with binoculars from the project site boundary.

Reptiles. Reptiles observed within the Study Area were limited to western side-blotched lizard (*Uta stansburiana elegans*). Although no other reptiles were observed within the Study Area, common reptiles, such as gopher snake (*Pituophis catenifer*) and fence lizard (*Sceloporus* occidentalis) may occur within the Study Area.

Avifauna. Birds that were observed during the field survey consisted of common species primarily concentrated within the urban areas within the landscaped vegetation, including mourning dove (*Zenaida macroura*), European starling (*Sturnus vulgaris*), house finch (*Haemorhous mexicanus*), red-winged blackbird (*Agelaius phoeniceus),* song sparrow *(Melospiza melodia),* black phoebe (*Sayornis*

nigricans), cliff swallow (*Hirundo pyrrhonata*), barn swallow (*Hirundo rustica*), bushtit (*Psaltriparus minimus*), and American robin (*Turdus migratorius*).

Mammals. Burrowing activity of small fossorial rodents, such as gopher (*Thomomys* spp.), was identified within the Study Area. No large burrows that could be used by badger (*Taxidea taxus*) or coyote (*Canis latrans*) were observed within the Study Area, but these species as well as other species such as raccoon (*Procyon lotor*) and opposum (*Didelphis* spp.), may temporarily occur in the adjacent Los Angeles River corridor as they forage for food or transverse through the region.

4 Special-Status Biological Resources

This section discusses special-status biological resources that have been documented in the region and their potential for occurrence in the Study Area. The assessment of special-status resources includes an evaluation of known ranges, habitat preferences for individual species, occurrence records, and previous reports from the Study Area.

For the purpose of this report, special-status species are those plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered by the USFWS and the National Marine Fisheries Service (NMFS) under the FESA; those listed or proposed for listing as Rare, Threatened, or Endangered by the CDFW under the CESA or Native Plant Protection Act; those recognized as Species of Special Concern (SSC) by the CDFW; and plants listed as Rank 1 and 2 of the CNPS California Rare Plant Rank (CRPR) system.

Plant communities are also considered special-status biological resources if they have limited distributions, have high value for sensitive wildlife, contain special-status species, or are particularly susceptible to disturbance. The CDFW ranks special-status communities as "threatened" or "very threatened" and keeps records of their occurrences in the CNDDB.

The species name, status, and habitat requirements for all special-status species with potential to occur within the project vicinity are presented in Table 1. A determination of their potential to occur within the Study Area is also listed. Figure 3 depicts the location of these documentations (i.e., occurrences) within two miles of the project site. The two mile vicinity was delineated for further evaluation of special-status resources that have been documented in similar habitats nearby the project site. Special-status species within a five mile radius were also reviewed. However, based on similar habitat conditions within the Study Area and within two miles of the Study Area, and wildlife movement restrictions due to the heavily developed regional landscape, the two mile radius reflects the conditions of the Study Area more accurately.

The potential for each special-status species to occur in the Study Area was evaluated according to the following criteria:

None. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
Low Potential. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
Present. Species was observed on the site or has been recorded (e.g., CNDDB, other reports) on the site within the last five years.

Table 1 Special-Status Species Documented within Two Miles of Project Site

Scientific Name Common Name	Status[1]	Habitat Requirements	Potential to Occur in Project Site	Habitat Suitability/ Observations
Plants				
Atriplex parishii Parish's brittlescale	Rank 1B.1, G1G2 / S1	Vernal pools, chenopod scrub, playas. Usually on drying alkali flats with fine soils. 5-1420 m.	None	One historical CNDDB record (1893) approximately 2 miles from project site. No suitable habitat within Study Area; no vernal pools, chenopod scrub, or playas present.
Atriplex serenana var. davidsonii Davidson's saltscale	Rank 1B.2, G5T1 / S1	Coastal bluff scrub, coastal scrub. Alkaline soil. 10-200 m.	None	One historical CNDDB record (1902) approximately 4 miles from project site. No suitable habitat within Study Area; no coastal scrub present.
Berberis nevinii Nevin's barberry	FE, SE, Rank 1B.1, G1 / S1	Chaparral, cismontane woodland, coastal scrub, riparian scrub. On steep, N-facing slopes or in low grade sandy washes. 290-1575 m.	None	No, suitable habitat present within Study Area; no steep slopes or sandy washes present. Not in elevation range.
California macrophylla round-leaved filaree	Rank 1B.2, G3? / S3?	Cismontane woodland, valley and foothill grassland. Clay soils. 15-1200 m.	None	Two historical CNDDB records within 5 mile radius of project site. No suitable habitat within Study Area; no woodland or grassland present.
Calochortus clavatus var. *gracilis* slender mariposa-lily	Rank 1B.2, G4T2T3 / S2S3	Chaparral, coastal scrub, valley and foothill grassland. Shaded foothill canyons; often on grassy slopes within other habitat. 210-1815 m.	None	CNDDB record (2000) 1 mile from project site in Griffith Park. No suitable habitat within Study Area; no canyons of chaparral, scrub, or grassland habitat. Not in elevation range.
Calochortus plummerae Plummer's mariposa-lily	Rank 4.2, G4 / S4	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest. Occurs on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire. 60-2500 m.	None	CNDDB record (2008) approximately 2.5 miles from project site in Griffith Park. Additional CNDDB records north of Burbank in foothills. No suitable habitat within Study Area; no chaparral, grasslands, or forests present.

Scientific Name Common Name	Status[1]	Habitat Requirements	Potential to Occur in Project Site	Habitat Suitability/ Observations
Calystegia felix lucky morning-glory	Rank 3.1, GHQ / SH	Meadows and seeps, riparian scrub. Sometimes alkaline, alluvial. 30-215 m.	None	Historical record (1899) 1 mile southwest of project site. Los Angeles River located adjacent to project site with mixed riparian habitat along the western side. Suitable habitat does not occur within the project site.
Centromadia parryi ssp. australis southern tarplant	Rank 1B.1, G3T2 / S2	Marshes and swamps (margins), valley and foothill grassland, vernal pools. Often in disturbed sites near the coast at marsh edges; also in alkaline soils sometimes with saltgrass. Sometimes on vernal pool margins. 0-975 m.	None	No suitable habitat within the Study Area; no marsh, swamp or vernal pools present.
Chorizanthe parryi var. *fernandina* San Fernando Valley spineflower	PFT, SE, Rank 1B.1, G2T1 / S1	Coastal scrub, valley and foothill grassland. Sandy soils. 15-1015 m.	None	Historical CNDDB record 2 miles north of project site near Burbank. No suitable habitat within the Study Area; no coastal scrub or grassland present.
Dodecahema leptoceras slender-horned spineflower	FE, SE, Rank 1B.1, G1 / S1	Chaparral, cismontane woodland, coastal scrub (alluvial fan sage scrub). Flood deposited terraces and washes; associates include Encelia, Dalea, Lepidospartum, etc. Sandy soils. 200-765 m.	None	Historical CNDDB (1916) record 4.5 miles from project site. Project site is not in elevation range. No suitable habitat present.
Dudleya multicaulis many-stemmed dudleya	Rank 1B.2, G2 / S2	Chaparral, coastal scrub, valley and foothill grassland. In heavy, often clayey soils or grassy slopes. 15-790 m.	None	Historical CNDDB (1925) record 1.7 miles from project site. No suitable habitat present within Study Area; no coastal scrub or grassland present.
Horkelia cuneata var. *puberula* mesa horkelia	Rank 1B.1, G4T1 / S1	Chaparral, cismontane woodland, coastal scrub. Sandy or gravelly sites. 15-1645 m.	None	Multiple historical CNDDB records (1895 to 1948) within 5 mile radius of project site. No suitable habitat present within Study Area; no coastal scrub, chaparral, or woodland present.

Scientific Name Common Name	Status[1]	Habitat Requirements	Potential to Occur in Project Site	Habitat Suitability/ Observations
Pseudognaphalium leucocephalum white rabbit-tobacco	Rank 2B.2, G4 / S2	Riparian woodland, cismontane woodland, coastal scrub, chaparral. Sandy, gravelly sites. 35-515 m.	None	Two historical CNDDB records within 5 mile radius of project site. Riparian habitat occurs within the Los Angeles River adjacent to the project site. Suitable habitat does not occur within the project site.
Ribes divaricatum var. *parishii* Parish's gooseberry	Rank 1A, G4	Riparian woodland. Salix swales in riparian habitats. 65-300 m.	None	Historical CNDDB record (1893) 2 miles east of project site. Riparian habitat occurs within the Los Angeles River adjacent to the project site. Suitable habitat does not occur within the project site.
Symphyotrichum defoliatum San Bernardino aster	Rank 1B.2, G2 / S2	Meadows and seeps, cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, valley and foothill grassland. Vernally mesic grassland or near ditches, streams and springs; disturbed areas. 2-2040 m.	None	Historical record (1893) 3 miles southwest of project site near Hollywood. No suitable habitat present within Study Area; no woodlands, meadows, grasslands, or marshes present.
Symphyotrichum greatae Greata's aster	Rank 1B.3 , G2 / S2	Chaparral, cismontane woodland, broadleaved upland forest, lower montane coniferous forest, riparian woodland. Mesic canyons. 335-2015 m.	None	Historical CNDDB record (1932) approximately 3.75 miles from project site. Project site is not in elevation range. No suitable habitat within Study Area; no chaparral, woodland, or forest habitat present.
Atriplex parishii Parish's brittlescale	Rank 1B.1, G1G2 / S1	Vernal pools, chenopod scrub, playas. Usually on drying alkali flats with fine soils. 5-1420 m.	None	One historical CNDDB record (1893) approximately 2 miles from project site. No suitable habitat within Study Area; no vernal pools present.
Sensitive Natural Communities				
California Walnut Woodland	G2 / S2.1		None	The Study Area does not support vegetation described as this community.
Southern Coast Live Oak Riparian Forest	G4 / S4		None	The Study Area does not support vegetation described as this community.
Southern Cottonwood Willow Riparian Forest	G3 / S3.2		None	The Study Area does not support vegetation described as this community.

Scientific Name Common Name	Status[1]	Habitat Requirements	Potential to Occur in Project Site	Habitat Suitability/ Observations
Southern Sycamore Alder Riparian Woodland	G4 / S4		None	The Study Area does not support vegetation described as this community.
California Walnut Woodland	G2 / S2.1		None	The Study Area does not support vegetation described as this community.
Invertebrates				
Bombus crotchii Crotch bumble bee	G3G4 / S1S2	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia,* and *Eriogonum.*	None	Two historical records (1938 and 1945) within 5 mile radius of project site. Project site is disturbed and developed with an industrial use. No suitable habitat within the Study Area; no open grassland or scrubland habitat present.
Reptiles				
Anniella pulchra pulchra silvery legless lizard	SSC, G3G4 / S3	Sandy or loose loamy soils under sparse vegetation. Soil moisture is essential. They prefer soils with high moisture content.	None	One CNDDB record (2009) 3.25 miles from project site in open space adjacent to Forest Lawn Drive. No suitable habitat within the Study Area; no sandy or loose soils present.
Arizona elegans occidentalis California glossy snake	SSC, G5 / S2	Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular Ranges, south to Baja California. Occurs in scrub and grassland habitats, often with loose soils.	None	One historical CNDDB record (1937) 4 miles north of project site north of Burbank in Verdugo Mountains. No suitable habitat within Study Area; no scrub and grassland habitat present
Emys marmorata western pond turtle	SSC, G3G4 / S3	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 feet elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	None	One CNDDB record (1987) 4 miles northwest of the project site. Project site is adjacent to Los Angeles River which is channelized with a narrow non-native riparian corridor. No suitable breeding or foraging habitat present within the project site due to its heavy disturbance and regular site maintenance activities.

Scientific Name Common Name	Status[1]	Habitat Requirements	Potential to Occur in Project Site	Habitat Suitability/ Observations
Phrynosoma blainvillii Blainvillii (coast) horned lizard	SSC, G3G4 / S3S4	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial and abundant supply of ants and other insects.	None	One historical CNDDB record (1931) approximately 2.7 miles east of project site in Verdugo Canyon. No suitable habitat within Study Area; no sandy washes with scattered low bushes present.
Birds				
Aimophila ruficeps canescens southern California rufous-crowned sparrow	WL, G5 / S3	Resident in Southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.	None	CNDDB record (2014) approximately 3.5 miles from project site near U.S. 101 in undeveloped area. No suitable habitat within the Study Area. Not detected during field survey.
Athene cunicularia burrowing owl	SSC, G4 / S3	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	None	Historical CNDDB record (1921) within 1 mile of project site. No suitable habitat within the Study Area. Not detected during field survey.
Empidonax traillii extimus southwestern willow flycatcher	FE, SE, G5 / S1	Riparian woodlands in Southern California.	None	Historical CNDDB records (1894, 1905, and 1906) within 1 mile of project site. Project site is developed and disturbed with an industrial facility. Los Angeles River adjacent to project site, however the river is channelized with a riparian habitat located on the western side of the river. No suitable habitat within the Study Area. Not detected during field survey.
Falco peregrinus anatum American peregrine falcon	Delisted, FP, G4 / S3S4	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	Low	No suitable nesting habitat within the Study Area. Species may occur temporarily to forage on small birds along the adjacent Los Angeles River. Not detected during field survey.

Scientific Name Common Name	Status[1]	Habitat Requirements	Potential to Occur in Project Site	Habitat Suitability/ Observations
Riparia riparia bank swallow	ST, G5 / S2	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	None	Historical CNDDB record (1894) within 1 mile of project site. This record is historic and no recent documentation of the species has been recorded. Further, the banks of the Los Angeles River adjacent to project site, are concrete and do not provide nesting habitat.
Vireo bellii pusillus least Bell's vireo	FE, SE, G5 / S2	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	Low	Multiple historical CNDDB records within 3 miles of project site. Project site is developed and disturbed with an industrial facility. Los Angeles River is located adjacent to project site. However the river is channelized with riparian habitat located on the western side of the river. The willow and giant reed habitat may provide suitable, temporary foraging habitat for the species.
Mammals				
Antrozous pallidus pallid bat	SSC, G5 / S3	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Low	One historical CNDDB record (1905) 4.7 miles from northwest of project site. No signs of bat (guano) observed in Study Area. The species may occur temporarily while foraging.
Eumops perotis californicus western mastiff bat	SSC, G5 / S3S4	Many open, semi-arid to arid habitats, including conifer andand deciduous woodlands, coastal scrub, grasslands, chaparral etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Low	CNDDB documents bat within 1 mile of project site. No signs of bat (guano) observed in Study Area. The species may occur temporarily for foraging.

Scientific Name Common Name	Status[1]	Habitat Requirements	Potential to Occur in Project Site	Habitat Suitability/ Observations
Lasiurus cinereus hoary bat	G5 / S4	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	Low	Multiple CNDDB records within 5 mile radius of project site. No signs of bat (guano) observed in Study Area. The species may occur temporarily for foraging.
Lasiurus xanthinus western yellow bat	SSC, G5 / S3	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.	Low	One CNDDB record (1984) in the vicinity of the project site. No signs of bat (guano) observed in Study Area. The species may occur temporarily for foraging.
Neotoma lepida intermedia San Diego desert woodrat	SSC, G5 / S3S4	Coastal scrub of Southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. They are particularly abundant in rock outcrops and rocky cliffs and slopes.	None	CNDDB documents species near Griffin Park, approximately 2.5 miles to the west of the project. No signs of woodrat nests in Study Area. Suitable habitat not present.
Nyctinomops macrotis big free-tailed bat	SSC, G5 / S3	Low-lying arid areas in Southern California. Need high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	Low	Project site is disturbed and developed with an industrial use. No rocky outcrops or high cliffs onsite. No suitable habitat onsite.
Taxidea taxus American badger	SSC, G5 / S3	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	None	CNDDB documents badger south of the project site. No suitable habitat occurs within the Study Area.

[1]Notes:

Regional Vicinity refers to within a 5 mile radius of Study Area.

FT = Federal Threatened
FE = Federal Endangered
SE = State Endangered
ST = State Threatened
SR = State Rare
SSC = CDFW Species of Special Concern
FP = CDFW Fully Protected
WL = CDFW Watch List

CRPR (CNPS California Rare Plant Rank):
1A=Presumed Extinct in California
1B=Rare, Threatened, or Endangered in California and elsewhere
2=Rare, Threatened, or Endangered in California, but more common elsewhere
CRPR Threat Code Extension:
.1=Seriously endangered in California (> 80% of occurrences threatened / high degree and immediacy of threat)
.2=Fairly endangered in California (20-80% occurrences threatened)
.3=Not very endangered in California (<20% of occurrences threatened)

CDFW Rare:
G1 or S1.....Critically Imperiled Globally or Subnationally (state)
G2 or S2.....Imperiled Globally or Subnationally (state)
G3 or S3.....Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5 .....Apparently secure, common and abundant

4.1 Special-Status Plant Species

Special-status plant species typically have very specific habitat requirements that may include, but are not limited to, surrounding vegetation communities, soil type, elevation levels, and topography. During the field assessment, no special-status plant species were observed or otherwise detected. While some potentially occurring plant species may not have been blooming at the time of the survey, elements of suitable habitat for special-status plant species were not documented within the project site. The adjacent Los Angeles River provides elements that may support special-status plant species; however, this area occurs outside the project footprint and is not expected to be disturbed by project activities. No special-status plant species have potential to occur within the project site.

4.2 Special-Status Wildlife Species

During the field survey, no special-status wildlife species were observed or otherwise detected within the Study Area. Special-status wildlife species typically have very specific habitat requirements which may include, but are not limited to, vegetation communities, elevation levels and topography, and availability of primary constituent elements (i.e., space for individual and population growth, breeding, foraging, and shelter).

Based on the existing site conditions, no special-status species have a moderate or high potential to occur within the Study Area. The special-status species discussed below have a low potential to occur within the Study Area. These species may occur temporarily in the adjacent Los Angeles River habitat for foraging or stop-over habitat. Suitable nesting/breeding habitat for these species does not occur within the Study Area. The site does provide habitat for nesting birds. Provided below is further information on the special-status species with a potential to occur within the Study Area.

American Peregrine Falcon (*Falco peregrinus anatum)* – State Fully Protected*:* This species nests near wetlands, lakes, rivers or other water on cliffs, banks, mounds or structures. While there is no suitable nesting habitat in the Survey Area, American peregrine falcon may forage within the Los Angeles River corridor adjacent to the project site. This species was not detected during the field survey.

Least Bell's Vireo (*Vireo bellii pusillus)* – Federal Endangered, State Endangered: This species nests in riparian habitats providing a specific suite of suitable nesting conditions. The species occurs in southern California during its nesting period during the late spring and summer months and migrates south during the winter months. The riparian habitat within the project site may be used by least Bell's vireo for foraging, temporarily during migration; however, vireo are not expected to use the area for nesting. The habitat is sparse and regularly disturbed by adjacent activities (i.e., walking path along the eastern bank and the highway along the western bank).

Bats: The bats listed below all have the potential to forage within the project site:

- Pallid bat (*Antrozous pallidus)* – Species of Special Concern
- Western mastiff bat (*Eumops perotis californicus)* – Species of Special Concern
- Western yellow bat (*Lasiurus xanthinus)* – Species of Special Concern
- Big free-tailed bat (*Nyctinomops macrotis*) – Species of Special Concern

No bats or maternity roosts were observed during the field reconnaissance survey. Due to on-site water treatment activities and lighting present on buildings, bats are not expected to utilize the project site for roosting or maternity.

Nesting Birds: The Study Area provides habitat in the ornamental trees and building overhangs that may support nesting birds throughout the duration of the project. The habitat where the nest is located may not provide protection for the nest. A designated buffer around the nest may be required to protect the nest, in compliance with the MBTA, whenever it is considered active. More discussion regarding the protection of nesting birds is provided in Section 6.1 below.

4.3 Sensitive Plant Communities and Critical Habitats

Based on information obtained from the desktop review, several habitats occur in the region that are afforded protection by a federal, state, or local authority, and may support special-status plants and/or wildlife. For the purpose of this report, sensitive habitats include the following:

- Sensitive vegetation communities defined by the CESA and protected by the CDFW and/or local agencies
- Significant Ecological Areas (SEA) protected by Los Angeles County
- Critical Habitat defined by the FESA under Section 3, and protected by the USFWS and/or the NMFS
- Rare habitats protected by local professional organizations and/or the scientific community

Based on the CNDDB query conducted during the desktop review, the following sensitive vegetation communities are documented within a five mile radius of the project site (Figure 3): California Walnut Woodland, Southern Coast Live Oak Riparian Forest, Southern Cottonwood Willow Riparian Forest, and Southern Sycamore Alder Riparian Woodland. These communities are listed in the CDFW List of Vegetation Alliances and Associations, which identifies them as sensitive. Based on the field survey, these habitats do not occur within the Study Area and no other sensitive vegetation communities were identified within the Study Area.

Los Angeles County defines a SEA as ecologically important or fragile land and water areas that are valuable as plant and animal communities. These areas are classified as one or more of the following:

- Habitats for rare and endangered species of plants and animals
- Restricted natural communities – ecological areas that are scarce on a regional basis
- Habitat restricted in distribution in the county
- Breeding or nesting grounds
- Unusual biotic communities
- Sites with critical wildlife and fish value
- Relatively undisturbed habitat

The Study Area does not occur within any designated SEAs. The nearest SEA relative to the Study Area occurs in Griffith Park, which is located west of the project site and Interstate 5 approximately 0.75 miles from the project site.

Critical Habitat is defined in Section 3(5)(A) of the FESA as:

- Specific areas within the geographical area occupied by the species at the time of listing, on which are found those physical or biological features that are essential to the conservation of the listed species and that may require special management considerations or protection
- Specific areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of a listed species

The Study Area does not occur within any designated critical habitat. No critical habitat occurs within five miles from the project site. Santa Ana sucker (*Catostomus santaanae*) critical habitat occurs 9.15 miles to the north, southwestern willow flycatcher (*Empidonax trailli extimus*) critical habitat occurs 10 miles to the north, coastal California gnatcatcher (*Polioptila californica californica*) critical habitat occurs 12.5 miles to the southeast, and Braunton's milk-vetch (*Astragalus brauntonii*) critical habitat occurs 14.75 miles to the east.

4.4 Jurisdictional Resources

No drainages/streams occur within the project site. The Los Angeles River is located to the west, immediately adjacent to the project site. No activities are proposed in the bed or bank of the river.

4.5 Wildlife Movement

Regional and local wildlife movements are expected to be concentrated near topographic features that allow convenient passage, including roads, drainages and ridgelines. The Los Angeles River is located adjacent to the project site and is the primary movement corridor through the area for local wildlife. Features within the project site provide wildlife foraging habitat for few species due to existing development and facility operational activities.

The Study Area is located 0.75 mile from the Griffith Park SEA. SEAs, by definition, function as a wildlife movement route between open space areas. Griffith Park is also designated as an *Essential Connectivity Area*, as determined by the California Essential Habitat Connectivity Project. Areas determined to be an *Essential Connectivity Area* are identified as large remaining blocks of intact habitat or natural landscape that need to be maintained, particularly as corridors for wildlife (Spencer, et. al., 2010). The project site does not connect with the Griffith Park SEA.

The Los Angeles River corridor is a migratory route for wildlife, but direct wildlife movement from the Los Angeles River onto the project site is restricted due to the presence of a chain-link fence along each bank. Additionally, the Study Area is located adjacent to previously developed areas and roads that restrict wildlife movement.

4.6 Resources Protected by Local Policies and Ordinances

Natural resources within the Los Angeles city limits are regulated according to the General Plan. The General Plan Conservation and Natural Resources Element contains policy for the protection of open space; biological resources, including Los Angeles County designation of SEAs, and local water resources (City of Los Angeles 2015). The policies anticipate potential impacts to biological

resources from the land uses and activities that will occur under the General Plan and serve to avoid, reduce, and/or mitigate those impacts. The following policies apply to the project:

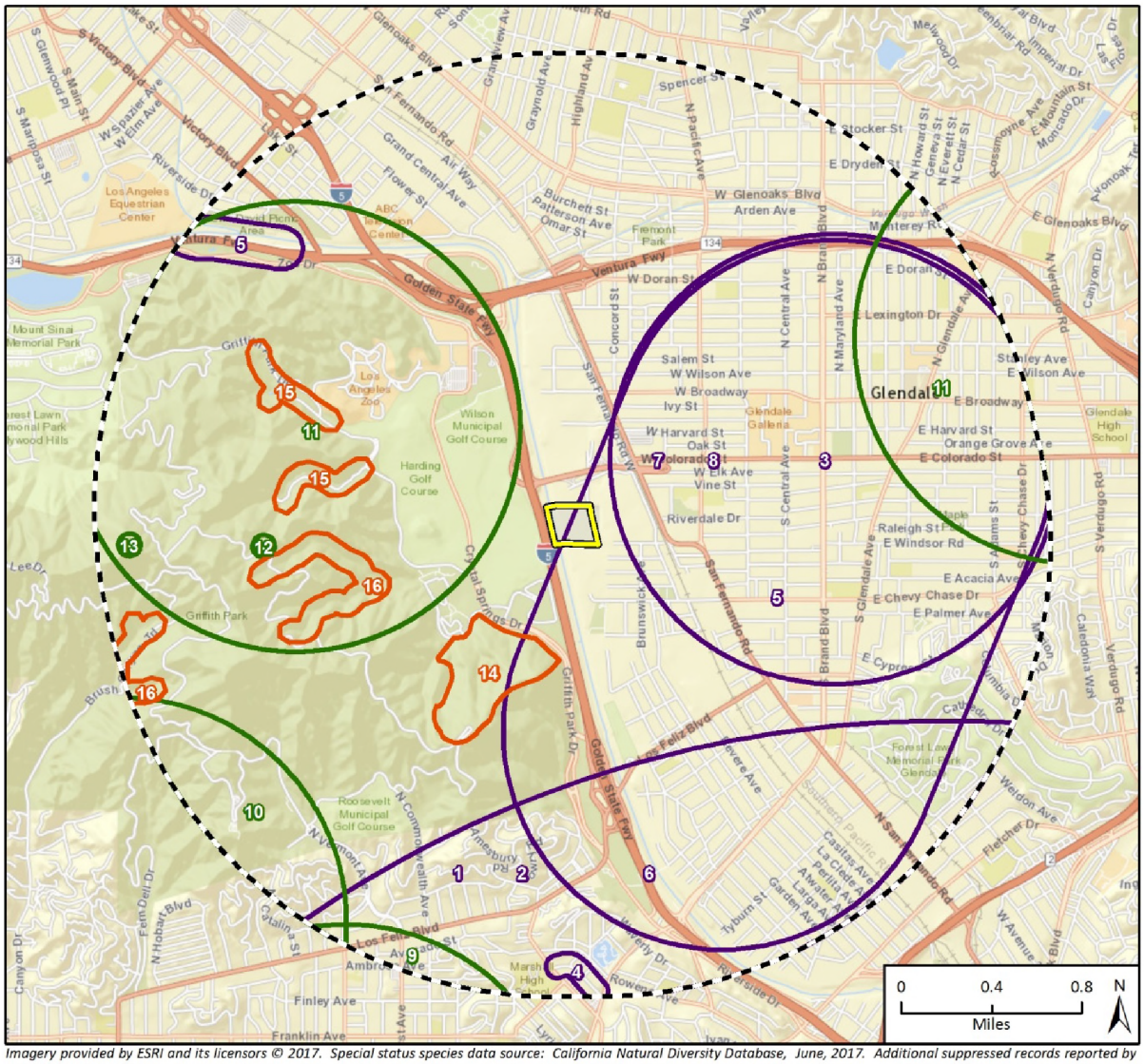
- Policy C/NR 3.6: Assist state and federal agencies and other agencies, as appropriate, with the preservation of special status species and their associated habitat and wildlife movement corridors through the administration of the SEAs and other programs.
- Policy C/NR 3.8: Discourage development in areas with identified significant biological resources, such as SEAs.

The project site does not overlap with defined SEA boundaries as defined in the General Plan. The Study Area is located 0.75 mile from Griffith Park SEA; however, the project site does not connect with the Griffith Park SEA.

4.6.1 Protected Trees

In general, the trees identified within the Study Area include, but are not limited to, sycamore, pine, and juniper species. Within the City of Los Angeles Municipal Code Chapter IV Public Welfare (2005) and Ordinance No. 153,478, there are provisions for the protection of native oak trees greater than 8-inches diameter-at-breast-height (DBH). In addition, protections include other native trees (e.g. bay, sycamore, walnut) greater than 4-inches cumulative DBH (total diameter of multi-trucks). The field survey within the Study Area did not include a tree survey that identified tree location, species, and DBH. During the field survey, trees were identified within the Study Area, including the project footprint, specifically within the proposed footprint of the New Primary Sedimentation Tanks and the 2.5 MG EQ Tank (Figure 2).

Figure 3 Sensitive Resources Documented within Project Vicinity



Imagery provided by ESRI and its licensors © 2017. Special status species data source: California Natural Diversity Database, June, 2017. Additional suppressed records reported by the CNDDB known to occur or potentially occur within this search radius include: American peregrine falcon. For more information please contact the Department of Fish and Game.

Biological Study Area
2-Mile Buffer

CNDDB

Animals
Plants
Natural Communities

1 - American badger
2 - burrowing owl
3 - Crotch bumble bee
4 - hoary bat
5 - least Bell's vireo
6 - southwestern willow flycatcher
7 - western mastiff bat
8 - western yellow bat
9 - lucky morning-glory
10 - many-stemmed dudleya
11 - mesa horkelia
12 - Nevin's barberry
13 - slender mariposa-lily
14 - California Walnut Woodland
15 - Southern Coast Live Oak Riparian Forest
16 - Southern Sycamore Alder Riparian Woodland

5 Impact Analysis and Recommended Actions

This section discusses the potential impacts and effects to biological resources that may occur from implementation of the proposed project, and recommends avoidance and minimization measures that would reduce those impacts.

In general, the project site has been significantly altered by development of the existing operational facilities. Biological resources at the project site consist of ornamental trees that are maintained by landscapers and do not support native plant community structure. The disturbed landscape does not support a wide diversity of wildlife or suitable habitat conditions for special-status species.

5.1 Special-Status Species and Nesting Birds

No special-status species were observed in the Study Area during the field survey. Although suitable habitat does not occur within the project site, riparian/riverine habitat occurring along the adjacent Los Angeles River may provide temporary foraging habitat for some special-status wildlife. Movement into and through the project site is restricted due to fencing, the steep slope of the Los Angeles River banks, and other barriers around the project site.

Current and historical uses within the project site have resulted in regular human disturbance. Species present within the construction footprint are likely adapted to noise, foot traffic, moderate vehicle traffic or other anthropogenic disturbances. For this reason, long term project operational activities are not expected to pose any new direct or indirect significant and unavoidable impacts to special-status species that may occur in the project vicinity.

Under the provisions of the MBTA, it is unlawful "by any means or manner to pursue, hunt, take, capture (or) kill" any migratory birds except as permitted by regulations issued by the USFWS. The term "take" is defined by the USFWS regulation to mean to "pursue, hunt, shoot, wound, kill, trap, capture or collect" any migratory bird or any part, nest, or egg of any migratory bird covered by the conventions, or to attempt those activities. The CFGC extends protection to non-migratory birds identified as resident game birds (CFGC Section 3500) and any birds in the orders Falconiformes or Strigiformes (birds-of-prey) (CFGC Section 3503).

Birds protected by the CFGC and the MBTA could nest in the construction footprint and adjacent areas. Raptor nesting habitat is present in the larger trees occurring within the property, and nesting raptors could be indirectly impacted by temporary construction activities. Development and operation of the proposed project would not impact raptor foraging habitat. Construction of the proposed project could result in direct and indirect impacts to protected nesting birds and their nests during the nesting season. Implementation of a nesting bird survey avoidance and minimization measure, as described below, would reduce direct and indirect impacts to nesting birds, including raptors, and special-status bird species during construction activities, to a less than significant level.

The following avoidance and minimization measures will reduce impacts to special-status species as a result of project activities to a less than significant level:

Avoidance and Minimization Measures

BIO-1 Prior to start of project activities, a qualified biologist should conduct a Worker Environmental Awareness Program training to orient staff with sensitive biological resources that may occur within the project site and adjacent areas and provide information on sensitive work practices.

BIO-2 To avoid impacts to nesting birds, project-related activities should occur outside of the bird breeding season (February 1 to August 31) to the extent practicable. If project activities must occur within the bird breeding season, no more than three days prior to initiation of ground disturbance and/or vegetation removal, a nesting bird and raptor pre-activity survey should be conducted by a qualified biologist within the disturbance footprint plus a 100 foot buffer, where practicable. If the project is phased, a subsequent pre-activity nesting bird and raptor survey may be required prior to each phase of construction. Results of the nesting bird and raptor survey, if applicable, should be documented.

BIO-3 If active nests are found, an avoidance buffer ranging in size from 25 to 50 feet for song birds, and up to 250 feet for raptors depending upon the species and the proposed work activity, should be determined and demarcated by a qualified biologist. A qualified biologist may adjust this buffer size depending on the potential disturbance from the project activities to the nesting birds. Active nests should be monitored at a minimum of once per week until it has been determined that the nest is no longer being used by either the young or adults. No ground disturbance should occur within this buffer until the qualified biologist confirms that the breeding/nesting is completed and all young have fledged. If project activities must occur within the buffer, they should be conducted at the discretion of the qualified biologist.

5.2 Sensitive Habitats and Jurisdictional Resources

No sensitive vegetation communities, jurisdictional aquatic resources, or critical habitats occur within the project site. Therefore, these sensitive resources are not expected to be directly impacted by project activities, and no mitigation measures are recommended. Indirect impacts to water quality in the adjacent Los Angeles River may occur; however, these impacts will be mitigated and addressed within the project-specific Storm Water Pollution and Prevention Plan.

5.3 Wildlife Movement

Wildlife movement and habitat fragmentation are important issues in assessing impacts to wildlife. Habitat fragmentation occurs when a proposed action results in a single, unified habitat area being divided into two or more areas in such a way that the division isolates the two new areas from each other. Isolation of habitat occurs when wildlife cannot move freely from one portion of the habitat to another or from one habitat type to another, as in the fragmentation of habitats within and around “checkerboard” residential development. Habitat fragmentation also can occur when a portion of one or more habitats is converted into another habitat, as when annual burning converts scrub habitats to grassland habitats.

No impacts to wildlife movement corridors are expected. The project site is developed, disturbed, and fenced. Given the disturbed nature of the project site, project activities would not fragment any habitat. Project activities would be limited to the project site and not disturb wildlife movement within the Los Angeles River corridor or nearby Griffith Park. Therefore, no mitigation measures are recommended.

5.4 Resources Protected by Local Policies and Ordinances

City of Los Angeles Municipal Code Chapter IV Public Welfare (2005) and Ordinance No. 153,478, protects native oak tree species which measure eight inches or more in DBH, and other native tree species four inches or more in DBH (cumulative total for multi-trunks). The field survey within the Study Area did not include a tree survey that identified tree location, species, and DBH. A preliminary review of the project plans during the field survey was completed and there may be tree impacts (i.e., trimming or removal) necessary for the construction of the New Primary Sedimentation Tanks and the 2.5 MG EQ Tank (Figure 2). Given that certain native trees are provided protection by City ordinances, and may occur within the project site, appropriate identification and measurements of trees that may be impacted by project activities should be identified, and tree removal permits should be acquired, as necessary, prior to the start of project activities.

BIO-4 Trees that occur within the proposed project footprint that may be impacted by trimming, removal, relocation, or may impact the tree's root structure, should be identified on project plans with the associated tree species and DBH. Impacts to native oak tree species, defined to be valley oak (*Quercus lobata*) and California live oak (*Quercus agrifolia*), or any other tree of the oak genus indigenous to California which measures eight inches or more in diameter, four and one-half feet above the ground level at the base of the tree, should be assessed and a tree removal permit from the City of Los Angeles should be acquired prior to the start of project activities.

5.5 Conservation Plans

As previously mentioned, the project site is not subject to any Habitat Conservation Plans, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, the proposed project would not conflict with the policies of any conservation plans.

6 Limitations, Assumptions, and Use Reliance

This Biological Resources Assessment has been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The biological investigation is limited by the scope of work performed. Biological surveys for the presence or absence of certain taxa have been conducted as part of this assessment but were not performed during a particular blooming period, nesting period, or particular portion of the season when positive identification would be expected if present, and therefore, cannot be considered definitive. The biological surveys are limited also by the environmental conditions present at the time of the surveys. In addition, general biological (or protocol) surveys do not guarantee that the organisms are not present and will not be discovered in the future within the site. In particular, mobile wildlife species could occupy the site on a transient basis, or re-establish populations in the future. Our field studies were based on current industry practices, which change over time and may not be applicable in the future.

No other guarantees or warranties, expressed or implied, are provided. The findings and opinions conveyed in this report are based on findings derived from site reconnaissance, jurisdictional areas, review of CNDDB RareFind, and specified historical and literature sources. Standard data sources relied upon during the completion of this report, such as the CNDDB, may vary with regard to accuracy and completeness. In particular, the CNDDB is compiled from research and observations reported to the CDFW that may or may not have been the result of comprehensive or site-specific field surveys. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary research and analysis.

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Appendix A

Regulatory Framework

Regulatory Framework

The following is a brief summary of the regulatory context under which biological resources are managed at the federal, state, and local levels. A number of federal and state statutes provide a regulatory structure that guides the protection of biological resources. Agencies with the responsibility and regulatory guiding documents for protection of biological resources within the project area include:

- U.S. Army Corps of Engineers (wetlands and other waters of the United States)
- Regional Water Quality Control Board (waters of the State)
- U.S. Fish and Wildlife Service (federally listed species and migratory birds)
- California Department Fish and Wildlife (formerly California Department of Fish and Game) (riparian areas and other waters of the State, State-listed species)
- City of Los Angeles

U.S. Army Corps of Engineers. Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (USACE) has authority to regulate activities that could discharge fill of material or otherwise adversely modify wetlands or other "waters of the United States." Perennial and intermittent creeks are considered waters of the United States if they are hydrologically connected to other jurisdictional waters. The USACE also implements the federal policy embodied in Executive Order 11990, which is intended to result in no net loss of wetland value or acres. In achieving the goals of the Clean Water Act, the USACE seeks to avoid adverse impacts and offset unavoidable adverse impacts on existing aquatic resources. Any fill or adverse modification of wetlands that are hydrologically connected to jurisdictional waters would require a permit from the USACE prior to the start of work. Typically, when a project involves impacts to waters of the United States, the goal of no net loss of wetland acres or values is met through compensatory mitigation involving the creation or enhancement of similar habitats.

Regional Water Quality Control Board. The State Water Resources Control Board (SWRCB) and the local Los Angeles Regional Water Quality Control Board (RWQCB) have jurisdiction over "waters of the State," pursuant to the Porter-Cologne Water Quality Control Act, which are defined as any surface water or groundwater, including saline waters, within the boundaries of the State. The SWRCB has issued general Waste Discharge Requirements (WDRs) regarding discharges to "isolated" waters of the State (Water Quality Order No. 2004-0004-DWQ, Statewide General Waste Discharge Requirements for Dredged or Fill Discharges to Waters Deemed by the USACE to be Outside of Federal Jurisdiction). The Los Angeles RWQCB enforces actions under this general order for isolated waters not subject to federal jurisdiction, and is also responsible for the issuance of water quality certifications pursuant to Section 401 of the Clean Water Act for waters subject to federal jurisdiction.

U.S. Fish and Wildlife Service. The USFWS implements the MBTA (16 United States Code [USC] Section 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668). The USFWS and the NMFS share responsibility for implementing the FESA (16 USC § 153 *et seq.)*. The USFWS generally implements the FESA for terrestrial and freshwater species, while the NMFS implements the FESA for marine and anadramous species. Projects that would result in "take" of any federally listed threatened or endangered species are required to obtain permits from the USFWS or the

NMFS through either Section 7 (interagency consultation with a federal nexus) or Section 10 (Habitat Conservation Plan) of FESA, depending on the involvement by the federal government in permitting and/or funding of the project. The permitting process is used to determine if a project would jeopardize the continued existence of a listed species and what measures would be required to avoid jeopardizing the species.

"Take" under federal definition means to harass, harm (which includes habitat modification), pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Proposed or candidate species do not have the full protection of FESA; however, the USFWS and the NMFS advise project applicants that they could be elevated to listed status at any time.

California Department of Fish and Wildlife. The CDFW (formerly the California Department of Fish and Game) derives its authority from the CFGC of California. The CESA (Fish and Game Code Section 2050 *et. seq.)* prohibits take of state listed threatened, endangered or fully protected species. Take under CESA is restricted to direct mortality of a listed species and does not prohibit indirect harm by way of habitat modification. The CDFW also prohibits take for species designated as Fully Protected under the CFGC.

CFGC sections 3503, 3503.5, and 3511 describe unlawful take, possession, or destruction of birds, nests, and eggs. Fully protected birds (Section 3511) may not be taken or possessed except under specific permit. Section 3503.5 of the CFGC protects all birds-of-prey and their eggs and nests against take, possession, or destruction of nests or eggs.

SSC is a category used by the CDFW for those species which are considered to be indicators of regional habitat changes or are considered to be potential future protected species. SSC do not have any special legal status except that which may be afforded by the CFGC as noted above. The SSC category is intended by the CDFW for use as a management tool to include these species into special consideration when decisions are made concerning the development of natural lands.

The CDFW also has authority to administer the Native Plant Protection Act (NPPA) (CFGC Section 1900 *et seq.*). The NPPA requires the CDFW to establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare. Under Section 1913(c) of the NPPA, the owner of land where a rare or endangered native plant is growing is required to notify the department at least 10 days in advance of changing the land use to allow for salvage of plant.

Perennial and intermittent streams and associated riparian vegetation, when present, also fall under the jurisdiction of the CDFW. Section 1600 et seq. of the CFGC (Lake and Streambed Alteration Agreements) gives the CDFW regulatory authority over work within the stream zone (which could extend to the 100-year flood plain) consisting of, but not limited to, the diversion or obstruction of the natural flow or changes in the channel, bed, or bank of any river, stream or lake.

County of Los Angeles. Natural resources within the Los Angeles city limits are regulated according to the General Plan. The County's General Plan Conservation and Natural Resources Element contains policy for the protection of open space; biological resources, including Los Angeles County designation of SEA, and local water resources (County of Los Angeles, 2015). The policies anticipate the potential impacts to biological resources from the land uses and activities that will occur under the General Plan and serve to avoid, reduce, and/or mitigate those impacts. The following policies apply to the project:

- Policy C/NR 3.6: Assist state and federal agencies and other agencies, as appropriate, with the preservation of special status species and their associated habitat and wildlife movement corridors through the administration of the SEAs and other programs.
- Policy C/NR 3.8: Discourage development in areas with identified significant biological resources, such as SEAs.

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Appendix B

Site Photographs

Site Photographs



Photograph 1.View west from parking lot, front of administration building and landscaping.



Photograph 2. View west of landscape area toward site boundary and Los Angeles River.



Photograph 3. View east from northwest side of project site toward buildings.



Photograph 4. View of onsite structures from center of project site looking southwest.



Photograph 5. View east from center of project site.



Photograph 6. View north from center of project site looking towards parking lot and landscaping.

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Appendix E: Cultural Resources Report



Los Angeles-Glendale Water Reclamation Plant Primary Effluent Equalization Storage and Personnel Building Project

Phase I Cultural Resources Report

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Appendices

Appendix A Records Search Results
Appendix B Section 106 Consultation

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Executive Summary

Rincon Consultants, Inc. (Rincon) was retained by Kennedy/Jenks Consultants to conduct a cultural resources study of the Los Angeles-Glendale Water Reclamation Plant. The project site is generally located south of Colorado Boulevard where it intersects with Interstate 5 in Los Angeles County, California (Figure 1).

This study has been prepared in accordance with the California Environmental Quality Act (CEQA) statutes and guidelines, and the California State Water Resources Control Board's Clean Water State Revolving Fund criteria for CEQA-Plus cultural resources studies. CEQA-Plus studies are completed in consideration of the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA) in the event that a federal nexus with the project is established (e.g., federal funding or permit/approval). This cultural resources study includes a records search, Native American consultation, local interested parties consultation, an intensive pedestrian survey of the project site, and preparation of this report.

No cultural resources were identified within the project's area of potential effects (APE) as a result of the records search, Native American and historic group consultation, or pedestrian survey. The plant itself was constructed in 1972 and does not meet the minimum age threshold (50 years of age) for management consideration under CEQA and/or NEPA.

Based on the results of the cultural resources investigation, Rincon recommends a finding of ***no historic properties affected*** under the NHPA and ***a less than significant impact on historical resources with mitigation incorporated*** under CEQA for the current undertaking. Furthermore, Rincon recommends no further cultural resources work for the project based on the previous disturbance within the APE. The possibility for unanticipated discoveries remains, which may lead to a significant impact to historical resources. Therefore, Rincon recommends the following measures to mitigate any potential impacts to less than significant levels under CEQA. Implementation of the following measures is recommended in case of unanticipated discoveries.

Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) must be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA or the NHPA, additional work such as data recovery excavation may be warranted.

Unanticipated Discovery of Human Remains

The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage

Commission, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

1 Introduction

Rincon Consultants, Inc. (Rincon) was retained by Kennedy/Jenks Consultants to conduct a cultural resources study of the Los Angeles-Glendale Water Reclamation Plant (LAGWRP). The project site is generally located south of Colorado Boulevard where it intersects with Interstate 5 in Los Angeles County, California (Figure 1).

This study has been prepared in accordance with the California Environmental Quality Act (CEQA) statutes and guidelines and the California State Water Resources Control Board's Clean Water State Revolving Fund criteria for CEQA-Plus cultural resources studies. CEQA-Plus studies are completed with consideration of the National Historic Preservation Act (NHPA) and National Environmental Policy Act (NEPA) in the event that a federal nexus with the project is established (e.g., federal funding or permit/approval). This cultural resources study includes a records search, Native American consultation, local interested parties consultation, an intensive pedestrian survey of the project site, and preparation of this report.

1.1 Project Description and Location

The proposed project involves improvements and the construction of additional facilities within the existing LAGWRP, and is located in Township 1 N, Range 12 W, Section 29 of the United States Geological Survey (USGS) Burbank, CA 7.5-minute topographic quadrangle. The project proposes operational and administrative improvements at the LAGWRP consisting of three components: the Equalization Storage Project, the Personnel Building Project, and the rehabilitation of the existing Administration Building. The Equalization Storage Project will construct an equalization tank, two primary clarifiers, three aeration tanks, two secondary clarifiers, and all associated appurtenances and piping. The Personnel Building Project will construct an estimated 7,000-square-foot, two-story building and will remodel the existing Administration Building to provide training rooms and auxiliary space. In addition, the existing lined de-chlorination pond will be restructured to provide space for the proposed equalization improvements and the new personnel building, as well as transportation/traffic circulation infrastructure required to maintain circulation through the site.

1.2 Area of Potential Effects

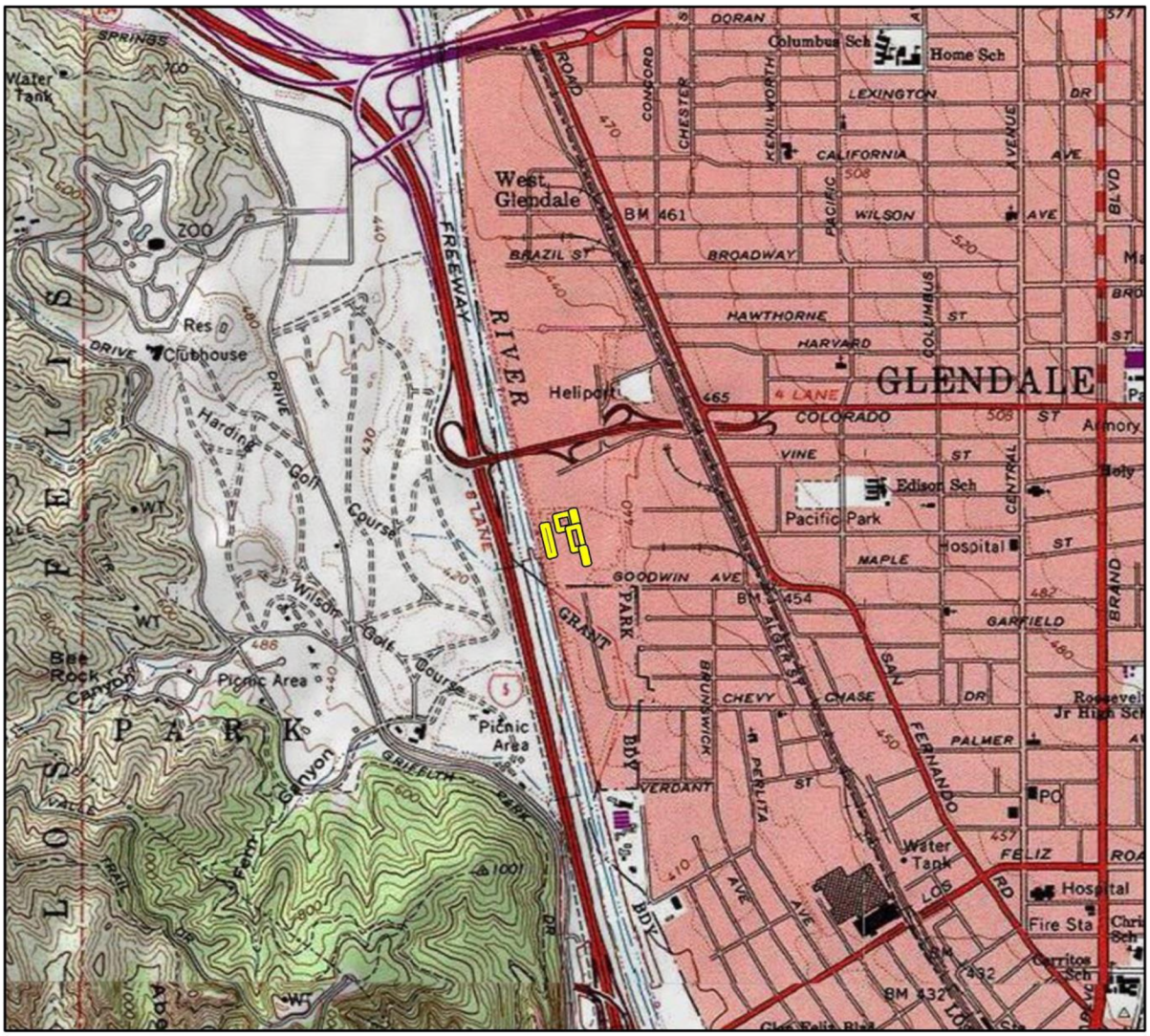
36 Code of Federal Regulations (CFR) 800.16(d) of Section 106 defines the Area of Potential Effects (APE) of an undertaking as the "geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist." Additionally, the CEQA-Plus guidelines state that the APE is a "three-dimensional (depth, length, width) space" and considers all areas directly affected by the proposed construction.

The current undertaking's APE for archaeological and built-environment resources (or direct APE) is located within the boundary of the existing LAGWRP and comprises the areas for the proposed equalization storage improvements, pipelines, the personnel building, and the de-chlorination pond.

Because the proposed project will occur within the existing LAGWRP for continued use as a water reclamation plant, the project has no potential to directly or indirectly impact any historic properties adjacent to the APE. The area surrounding the project APE is developed with industrial and commercial properties as well as multi-family and single-family residential properties. The proposed undertaking will not significantly change the existing setting nor diminish the historic integrity of any potential resources within the vicinity of the APE. Therefore, the APE was limited to the direct project footprint. The horizontal APE consists of the project footprint which encompasses approximately 1.75 acres of surface area. The vertical APE is a maximum depth of 22 feet consistent with the construction needs.

1.3 Personnel

Rincon cultural resources specialists Meagan Szromba conducted the records search and pedestrian survey. Rincon Archaeologist Hannah Haas, M.A., served as primary author of this report. Cultural Resources Principal Investigator Christopher Duran, M.A., Registered Professional Archaeologist (RPA) served as principal investigator for this study and coauthored this report. GIS Analyst Allysen Valencia, prepared the figures found in this report. Rincon Principal Jennifer Haddow, PhD, reviewed this report for quality control.



Imagery provided by National Geographic Society, ESRI and its licensors © 2017. Burbank Quadrangle. T01N R13W S29,30. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

Project Site

0 1,000 2,000 Feet

N

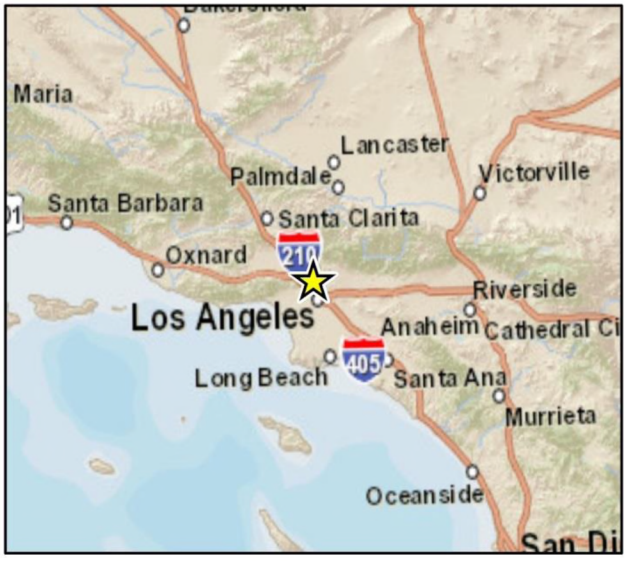


Figure 1. Project Vicinity Map



Figure 2. Area of Potential Effects

2 Regulatory Setting

This section includes a discussion of the applicable federal, state, and local laws, ordinances, regulations, and standards governing cultural resources, which must be adhered to before and during implementation of the proposed project. The project is subject to the environmental review requirements of Section 106 of the NHPA (Section 106), NEPA and CEQA.

2.1 Federal

The definition of a federal undertaking in 36 CFR 800.16(y) includes projects requiring a federal permit, license or approval and/or projects receiving federal funding. Cultural resources are considered during federal undertakings chiefly under Section 106 of the NHPA of 1966 (as amended) through one of its implementing regulations, 36 CFR 800 (Protection of Historic Properties), as well as NEPA. Properties of traditional religious and cultural importance to Native Americans are considered under Section 101(d)(6)(A) of the NHPA, and CFR 800.3–800.10 Section 106 36.

Section 106 of the NHPA (16 United States Code [USC] 470f) requires federal agencies to take into account the effects of their undertakings on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings (36 CFR 800.1). Under Section 106, the significance of any adversely affected historic property is assessed and mitigation measures are proposed to reduce any impacts to an acceptable level. Historic properties are those significant cultural resources that are listed in or are eligible for listing in the NRHP per the criteria listed below (36 CFR 60.4; Advisory Council on Historic Preservation 2000).

The quality of significance in American, state, and local history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and that:

(a) Are associated with events that have made a significant contribution to the broad patterns of our history; or

(b) Are associated with the lives of persons significant in our past; or

(c) Embody the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(d) Have yielded, or may be likely to yield, information important in prehistory or history.

2.2 State

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC], Section 21084.1). A *historical resource* is a resource listed in, or determined to be eligible for listing, in the California Register of Historical Resources (CRHR), a resource included in a local register of historical resources or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be *historically significant* (State CEQA Guidelines, Section 15064.5[a][1-3]). A resource shall be considered *historically significant* if it:

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2) Is associated with the lives of persons important in our past;

3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

4) Has yielded, or may be likely to yield, information important in prehistory or history.

In addition, if it can be demonstrated that a project will cause damage to a *unique archaeological resource*, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC, Section 21083.2[a], [b], and [c]).

PRC, Section 21083.2(g) defines a *unique archaeological resource* as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it:

1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;

2) Has a special and particular quality such as being the oldest of its type or the best available example of its type; or

3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

2.2.1 Assembly Bill 52

As of July 1, 2015, California Assembly Bill 52 (AB 52) was enacted and expands CEQA by establishing a formal consultation process for California tribes within the CEQA process. The bill specifies that any project that may affect or cause a substantial adverse change in the significance of a tribal cultural resource would require a lead agency to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed

project." According to the legislative intent for AB 52, "tribes may have knowledge about land and cultural resources that should be included in the environmental analysis for projects that may have a significant impact on those resources." Section 21074 of AB 52 also defines a new category of resources under CEQA called "tribal cultural resources." Tribal cultural resources are defined as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and is either listed on or eligible for the CRHR or a local historic register, or if the lead agency chooses to treat the resource as a tribal cultural resource. See also PRC 21074 (a)(1)(A)-(B).

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3 Environmental Setting

3.1 Natural Setting

The project APE is situated within the Los Angeles basin and is south of the San Gabriel Mountains. Prior to development in the region, the landscape was largely chaparral shrubland. Land use within the vicinity of the APE is primarily industrial with mixed commercial and residential activities. The project APE is bordered by the Los Angeles River to the west. The elevation for the project site is approximately 130 meters (430 feet) above mean sea level. Vegetation in the surrounding area is limited to mostly non-native plants and scattered ornamental trees.

3.2 Cultural Setting

3.2.1 Prehistoric Context

Numerous chronological sequences have been devised to aid in understanding cultural changes within southern California. Building on early studies and focusing on data synthesis, Wallace (1955, 1978) developed a prehistoric chronology for the southern California coastal region that is still widely used today and is applicable to near-coastal and many inland areas. Four periods are presented in Wallace's prehistoric sequence: Early Man, Milling Stone, Intermediate, and Late Prehistoric. Although Wallace's (1955) synthesis initially lacked chronological precision due to a paucity of absolute dates (Moratto 1984:159), this situation has been alleviated by the availability of thousands of radiocarbon dates that have been obtained by southern California researchers in the last three decades (Byrd and Raab 2007:217). Several revisions have been made to Wallace's (1955) synthesis using radiocarbon dates and projectile point assemblages (e.g., Koerper and Drover 1983; Mason and Peterson 1994; Koerper et al. 2002).

3.2.2 Horizon I- Early Man (ca. 10000 – 6000 B.C.)

When Wallace defined the Horizon I (Early Man) period in the mid-1950s, there was little evidence of human presence on the southern California coast prior to 6000 B.C. Archaeological work in the intervening years has identified numerous pre-8000 B.C. sites, both on the mainland coast and the Channel Islands (e.g., Erlandson 1991; Johnson et al. 2002; Moratto 1984; Rick et al. 2001:609). The earliest accepted dates for occupation are from two of the northern Channel Islands, located off the coast of Santa Barbara. On San Miguel Island, Daisy Cave clearly establishes the presence of people in this area about 10,000 years ago (Erlandson 1991:105). On Santa Rosa Island, human remains have been dated from the Arlington Springs site to approximately 13000 years ago (Johnson *et al.* 2002).

Recent data from Horizon I sites indicate that the economy was a diverse mixture of hunting and gathering, with a major emphasis on aquatic resources in many coastal areas (e.g., Jones et al. 2002)

and on Pleistocene lakeshores in eastern San Diego County (see Moratto 1984:90–92). Although few Clovis-like or Folsom-like fluted points have been found in southern California (e.g., Dillon 2002; Erlandson et al. 1987), it is generally thought that the emphasis on hunting may have been greater during Horizon I than in later periods. Common elements in many sites from this period, for example, include leaf-shaped bifacial projectile points and knives, stemmed or shouldered projectile points, scrapers, engraving tools, and crescents (Wallace 1978:26–27). Subsistence patterns shifted around 6000 B.C. coincident with the gradual desiccation associated with the onset of the Altithermal climatic regime, a warm and dry period that lasted for about 3,000 years. After 6000 B.C., a greater emphasis was placed on plant foods and small animals.

3.2.3 Horizon II- Milling Stone (6000 – 3000 B.C.)

The Milling Stone Horizon of Wallace (1955, 1978) and Encinitas Tradition of Warren (1968) (6000–3000 B.C.) are characterized by subsistence strategies centered on collecting plant foods and small animals. Food procurement activities included hunting small and large terrestrial mammals, sea mammals, and birds; collecting shellfish and other shore species; near-shore fishing with barbs or gorges; the processing of yucca and agave; and the extensive use of seed and plant products (Kowta 1969). The importance of the seed processing is apparent in the dominance of stone grinding implements in contemporary archaeological assemblages, namely milling stones (metates and slabs) and handstones (manos and mullers). Milling stones occur in large numbers for the first time during this period, and are more numerous still near the end of this period. Recent research indicates that Milling Stone Horizon food procurement strategies varied in both time and space, reflecting divergent responses to variable coastal and inland environmental conditions (Byrd and Raab 2007:220).

Milling Stone Horizon sites are common in the southern California coastal region between Santa Barbara and San Diego, and at many inland locations, including the Prado Basin in western Riverside County and the Pauma Valley in northeastern San Diego County (e.g., Herring 1968; Langenwalter and Brock 1985; Sawyer and Brock 1999; Sutton 1993; True 1958). Wallace (1955, 1978) and Warren (1968) relied on several key coastal sites to characterize the Milling Stone period and Encinitas Tradition, respectively. These include the Oak Grove Complex in the Santa Barbara region, Little Sycamore in southwestern Ventura County, Topanga Canyon in the Santa Monica Mountains, and La Jolla in San Diego County. The well-known Irvine site (CA-ORA-64) has occupation levels dating between ca. 6000 and 4000 B.C. (Drover et al. 1983; Macko 1998b).

Stone chopping, scraping, and cutting tools made from locally available raw material are abundant in Milling Stone/Encinitas deposits. Less common are projectile points, which are typically large and leaf-shaped, and bone tools such as awls. Items made from shell, including beads, pendants, and abalone dishes, are generally rare. Evidence of weaving or basketry is present at a few sites. Kowta (1969) attributes the presence of numerous scraper-planes in Milling Stone sites to the preparation of agave or yucca for food or fiber. The mortar and pestle, associated with pounding foods such as acorns, were first used during the Milling Stone Horizon (Wallace 1955, 1978; Warren 1968).

Cogged stones and discoidals are diagnostic Milling Stone period artifacts, and most specimens have been found within sites dating between 4000 and 1000 B.C. (Moratto 1984:149). The cogged stone is a ground stone object with gear-like teeth on its perimeter. Discoidals are similar to cogged stones, differing primarily in their lack of edge modification. Discoidals are found in the archaeological record subsequent to the introduction of the cogged stone. Cogged stones and discoidals are often purposefully buried, and are found mainly in sites along the coastal drainages from southern Ventura County southward, with a few specimens inland at Cajon Pass, and heavily in Orange County (Dixon 1968:63; Moratto 1984:149). These artifacts are often interpreted as ritual objects (Eberhart 1961:367; Dixon 1968:64–65), although alternative interpretations (such as gaming stones) have also been put forward (e.g., Moriarty and Broms 1971).

Characteristic mortuary practices of the Milling Stone period or Encinitas Tradition include extended and loosely flexed burials, some with red ochre, and few grave goods such as shell beads and milling stones interred beneath cobble or milling stone cairns. "Killed" milling stones, exhibiting holes, may occur in the cairns. Reburials are common in the Los Angeles County area, with north-oriented flexed burials common in Orange and San Diego counties (Wallace 1955, 1978; Warren 1968).

Koerper and Drover (1983) suggest that Milling Stone period sites represent evidence of migratory hunters and gatherers who used marine resources in the winter and inland resources for the remainder of the year. Subsequent research indicates greater sedentism than previously recognized. Evidence of wattle-and-daub structures and walls has been identified at several sites in the San Joaquin Hills and Newport Coast area (Mason et al. 1991, 1992, 1993; Koerper 1995; Strudwick 2005; Sawyer 2006), while numerous early house pits have been discovered on San Clemente Island (Byrd and Raab 2007:221–222). This architectural evidence and seasonality studies suggest semi-permanent residential base camps that were relocated seasonally (de Barros 1996; Koerper et al. 2002; Mason et al. 1997) or permanent villages from which a portion of the population left at certain times of the year to exploit available resources (Cottrell and Del Chario 1981).

3.2.4 Horizon III - Intermediate (3000 B.C. – A.D. 500)

Following the Milling Stone Horizon, Wallace's Intermediate Horizon and Warren's Campbell Tradition in Santa Barbara, Ventura, and parts of Los Angeles counties, date from approximately 3000 B.C. to A.D. 500 and are characterized by a shift toward a hunting and maritime subsistence strategy, along with a wider use of plant foods. The Campbell Tradition (Warren 1968) incorporates David B. Rogers' (1929) Hunting Culture and related expressions along the Santa Barbara coast. In the San Diego region, the Encinitas Tradition (Warren 1968) and the La Jolla Culture (Moriarty 1966; Rogers 1939, 1945) persist with little change during this time.

During the Intermediate Horizon and Campbell Tradition, there was a pronounced trend toward greater adaptation to regional or local resources. For example, an increasing variety and abundance of fish, land mammal, and sea mammal remains are found in sites along the California coast during this period. Related chipped stone tools suitable for hunting are more abundant and diversified, and shell fishhooks become part of the tool kit during this period. Larger knives, a variety of flake

scrapers, and drill-like implements are common during this period. Projectile points include large side-notched, stemmed, and lanceolate or leaf-shaped forms. Koerper and Drover (1983) consider Gypsum Cave and Elko series points, which have a wide distribution in the Great Basin and Mojave deserts between ca. 2000 B.C. and A.D. 500, to be diagnostic of this period. Bone tools, including awls, were more numerous than in the preceding period, and the use of asphaltum adhesive was common.

Mortars and pestles became more common during this period, gradually replacing manos and metates as the dominant milling equipment. Hopper mortars and stone bowls, including steatite vessels, appeared in the tool kit at this time as well. This shift appears to correlate with the diversification in subsistence resources. Many archaeologists believe this change in milling stones signals a shift away from the processing and consuming of hard seed resources to the increasing importance of the acorn (e.g., Glassow et al. 1988; True 1993). It has been argued that mortars and pestles may have been used initially to process roots (e.g., tubers, bulbs, and corms associated with marshland plants), with acorn processing beginning at a later point in prehistory (Glassow 1997:86) and continuing to European contact.

Characteristic mortuary practices during the Intermediate Horizon and Campbell Tradition included fully flexed burials, placed facedown or face-up, and oriented toward the north or west (Warren 1968:2–3). Red ochre was common, and abalone shell dishes were infrequent. Interments sometimes occurred beneath cairns or broken artifacts. Shell, bone, and stone ornaments, including charmstones, were more common than in the preceding Encinitas Tradition. Some later sites include *Olivella* shell and steatite beads, mortars with flat bases and flaring sides, and a few small points. The broad distribution of steatite from the Channel Islands and obsidian from distant inland regions, among other items, attest to the growth of trade, particularly during the latter part of this period. Recently, Raab and others (Byrd and Raab 2007:220–221) have argued that the distribution of *Olivella* grooved rectangle beads marks "a discrete sphere of trade and interaction between the Mojave Desert and the southern Channel Islands."

3.2.5 Horizon IV - Late Prehistoric (A.D. 500 – Historic Contact)

In the Late Prehistoric Horizon (Wallace 1955, 1978), which lasted from the end of the Intermediate (ca. A.D. 500) until European contact, there was an increase in the use of plant food resources in addition to an increase in land and sea mammal hunting. There was a concomitant increase in the diversity and complexity of material culture during the Late Prehistoric, demonstrated by more classes of artifacts. The recovery of a greater number of small, finely worked projectile points, usually stemless with convex or concave bases, suggests an increased usage of the bow and arrow rather than the atlatl (spear thrower) and dart for hunting. Other items include steatite cooking vessels and containers, the increased presence of smaller bone and shell circular fishhooks, perforated stones, arrow shaft straighteners made of steatite, a variety of bone tools, and personal ornaments made from shell, bone, and stone. There is also an increased use of asphalt for waterproofing and as an adhesive.

Many Late Prehistoric sites contain beautiful and complex objects of utility, art, and decoration. Ornaments include drilled whole Venus clam (*Chione* spp.) and drilled abalone (*Haliotis* spp.). Steatite effigies become more common, with scallop (*Pecten* spp. and *Argopecten* spp.) shell rattles common in middens. Mortuary customs are elaborate and include cremation and interment with abundant grave goods. By A.D. 1000, fired clay smoking pipes and ceramic vessels began to appear at some sites (Drover 1971, 1975; Meighan 1954). The scarcity of pottery in coastal and near-coastal sites implies ceramic technology was not well developed in that area, or that ceramics were obtained by trade with neighboring groups to the south and east. The lack of widespread pottery manufacture is usually attributed to the high quality of tightly woven and watertight basketry that functioned in the same capacity as ceramic vessels.

During this period, there was an increase in population size accompanied by the advent of larger, more permanent villages (Wallace 1955:223). Large populations and, in places, high population densities are characteristic, with some coastal and near-coastal settlements containing as many as 1,500 people. Many of the larger settlements were permanent villages in which people resided year-round. The populations of these villages may have also increased seasonally.

In Warren's (1968) cultural ecological scheme, the period between A.D. 500 and European contact is divided into three regional patterns. The Chumash Tradition is present mainly in the region of Santa Barbara and Ventura counties; the Takic or Numic Tradition is present in the Los Angeles, Orange, and western Riverside counties region; and the Yuman Tradition is present in the San Diego region. The seemingly abrupt changes in material culture, burial practices, and subsistence focus at the beginning of the Late Prehistoric period are thought to be the result of a migration to the coast of peoples from inland desert regions to the east. In addition to the small triangular and triangular side-notched points similar to those found in the desert regions in the Great Basin and Lower Colorado River, Colorado River pottery and the introduction of cremation in the archaeological record are diagnostic of the Yuman Tradition in the San Diego region. This combination certainly suggests a strong influence from the Colorado Desert region.

In Los Angeles, Orange, and western Riverside counties, similar changes (introduction of cremation, pottery, and small triangular arrow points) are thought to be the result of a Takic migration to the coast from inland desert regions. This Takic or Numic Tradition was formerly referred to as the "Shoshonean wedge" or "Shoshonean intrusion" (Warren 1968). This terminology, used originally to describe a Uto-Aztecan language group, is generally no longer used to avoid confusion with ethnohistoric and modern Shoshonean groups who spoke Numic languages (Heizer 1978:5; Shipley 1978:88, 90). Modern Gabrielino/Tongva, Juaneño, and Luiseño in this region are considered the descendants of the prehistoric Uto-Aztecan, Takic-speaking populations that settled along the California coast during this period or perhaps somewhat earlier.

3.3 Ethnographic Context

The project site is in an area historically occupied by the Gabrielino. The archaeological record indicates that the Gabrielino arrived in the Los Angeles Basin around 500 B.C. Many contemporary

Gabrielino identify themselves as descendants of the indigenous people living across the plains of the Los Angeles Basin and use the native term Tongva (King 1994). This term is used in the remainder of this section to refer to the pre-contact inhabitants of the Los Angeles Basin and their descendants. Surrounding native groups included the Chumash and Tataviam to the northwest, the Serrano and Cahuilla to the northeast, and the Juaneño and Luiseño to the southeast.

The name "Gabrielino" denotes those people who were administered by the Spanish from the San Gabriel Mission, which included people from the Gabrielino area proper as well as other social groups (Bean and Smith 1978:538; Kroeber 1925: Plate 57). Therefore, in the post-Contact period, the name does not necessarily identify a specific ethnic or tribal group. The names by which Native Americans in southern California identified themselves have, for the most part, been lost.

Tongva lands encompassed the greater Los Angeles Basin and three Channel Islands, San Clemente, San Nicolas, and Santa Catalina. The Tongva established large, permanent villages in the fertile lowlands along rivers and streams, and in sheltered areas along the coast, stretching from the foothills of the San Gabriel Mountains to the Pacific Ocean. A total tribal population has been estimated of at least 5,000 (Bean and Smith 1978:540), but recent ethnohistoric work suggests a number approaching 10,000 (O'Neil 2002). Houses constructed by the Tongva were large, circular, domed structures made of willow poles thatched with tule that could hold up to 50 people (Bean and Smith 1978). Other structures served as sweathouses, menstrual huts, ceremonial enclosures, and probably communal granaries. Cleared fields for races and games, such as lacrosse and pole throwing, were created adjacent to Tongva villages (McCawley 1996:27). Archaeological sites composed of villages with various sized structures have been identified.

The Tongva subsistence economy was centered on gathering and hunting. The surrounding environment was rich and varied, and the tribe exploited mountains, foothills, valleys, deserts, riparian, estuarine, and open and rocky coastal eco-niches. Like that of most native Californians, acorns were the staple food (an established industry by the time of the early Intermediate Period). Acorns were supplemented by the roots, leaves, seeds, and fruits of a wide variety of flora (e.g., islay, cactus, yucca, sages, and agave). Fresh water and saltwater fish, shellfish, birds, reptiles, and insects, as well as large and small mammals, were also consumed (Bean and Smith 1978:546; Kroeber 1925:631–632; McCawley 1996:119–123, 128–131).

A wide variety of tools and implements were used by the Tongva to gather and collect food resources. These included the bow and arrow, traps, nets, blinds, throwing sticks and slings, spears, harpoons, and hooks. Groups residing near the ocean used oceangoing plank canoes and tule balsa canoes for fishing, travel, and trade between the mainland and the Channel Islands (McCawley 1996:7). Tongva people processed food with a variety of tools, including hammerstones and anvils, mortars and pestles, manos and metates, strainers, leaching baskets and bowls, knives, bone saws, and wooden drying racks. Food was consumed from a variety of vessels. Catalina Island steatite was used to make ollas and cooking vessels (Blackburn 1963; Kroeber 1925:629; McCawley 1996:129–138).

At the time of Spanish contact, the basis of Tongva religious life was the Chinigchinich cult, centered on the last of a series of heroic mythological figures. Chinigchinich gave instruction on laws and institutions, and also taught the people how to dance, the primary religious act for this society. He later withdrew into heaven, where he rewarded the faithful and punished those who disobeyed his laws (Kroeber 1925:637–638). The Chinigchinich religion seems to have been relatively new when the Spanish arrived. It was spreading south into the Southern Takic groups even as Christian missions were being built and may represent a mixture of native and Christian belief and practices (McCawley 1996:143–144).

Deceased Tongva were either buried or cremated, with inhumation more common on the Channel Islands and the neighboring mainland coast and cremation predominating on the remainder of the coast and in the interior (Harrington 1942; McCawley 1996:157). Cremation ashes have been found in archaeological contexts buried within stone bowls and in shell dishes (Ashby and Winterbourne 1966:27), as well as scattered among broken ground stone implements (Cleland et al. 2007). Archaeological data such as these correspond with ethnographic descriptions of an elaborate mourning ceremony that included a wide variety of offerings, including seeds, stone grinding tools, otter skins, baskets, wood tools, shell beads, bone and shell ornaments, and projectile points and knives. Offerings varied with the sex and status of the deceased (Johnston 1962:52–54; McCawley 1996:155–165; Reid 1926:24–25). At the behest of the Spanish missionaries, cremation essentially ceased during the post-Contact period (McCawley 1996:157).

3.4 History

Post-Contact history for the state of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Although Spanish, Russian, and British explorers visited the area for brief periods between 1529 and 1769, the Spanish Period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican-American War, signals the beginning of the American Period when California became a territory of the United States.

3.4.1 Spanish Period (1769–1822)

Spanish explorers made sailing expeditions along the coast of southern California between the mid-1500s and mid-1700s. In search of the legendary Northwest Passage, Juan Rodríquez Cabrílllo stopped in 1542 at present-day San Diego Bay. With his crew, Cabrílllo explored the shorelines of present Catalina Island as well as San Pedro and Santa Monica Bays. Much of the present California and Oregon coastline was mapped and recorded in the next half-century by Spanish naval officer Sebastián Vizcaíno. Vizcaíno's crew also landed on Santa Catalina Island and at San Pedro and Santa Monica Bays, giving each location its long-standing name. The Spanish crown laid claim to California based on the surveys conducted by Cabrílllo and Vizcaíno (Bancroft 1885:96–99; Gumprecht 1999:35).

More than 200 years passed before Spain began the colonization and inland exploration of Alta California. The 1769 overland expedition by Captain Gaspar de Portolá marks the beginning of California's Historic period, occurring just after the King of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. With a band of 64 soldiers, missionaries, Baja (lower) California Native Americans, and Mexican civilians, Portolá established the Presidio of San Diego, a fortified military outpost, as the first Spanish settlement in Alta California. In July of 1769, while Portolá was exploring southern California, Franciscan Friar Junípero Serra founded Mission San Diego de Alcalá at Presidio Hill, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823.

The Portolá expedition first reached the present-day boundaries of Los Angeles in August 1769, thereby becoming the first Europeans to visit the area. Father Crespi named "the campsite by the river Nuestra Señora la Reina de los Angeles de la Porciúncula" or "Our Lady the Queen of the Angels of the Porciúncula." Two years later, Friar Junípero Serra returned to the valley to establish a Catholic mission, the Mission San Gabriel Arcángel, on September 8, 1771 (Kyle 2002:151).

In 1781, a group of 11 Mexican families traveled from Mission San Gabriel Arcángel to establish a new pueblo called El Pueblo de la Reyna de Los Angeles (The Pueblo of the Queen of the Angels). This settlement consisted of a small group of adobe-brick houses and streets and would eventually be known as the Ciudad de Los Angeles (City of Angels).

3.4.2 Mexican Period (1822–1848)

A major emphasis during the Spanish Period in California was the construction of missions and associated presidios to integrate the Native American population into Christianity and communal enterprise. Incentives were also provided to bring settlers to pueblos or towns, but just three pueblos were established during the Spanish Period, only two of which were successful and remain as California cities (San José and Los Angeles). Several factors kept growth within Alta California to a minimum, including the threat of foreign invasion, political dissatisfaction, and unrest among the indigenous population. After more than a decade of intermittent rebellion and warfare, New Spain (Mexico and the California territory) won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants (Dallas 1955:14).

Extensive land grants were established in the interior during the Mexican Period, in part to increase the population inland from the more settled coastal areas where the Spanish had first concentrated their colonization efforts. Approximately fifty-five land grants were made in the Los Angeles area (Banham 2009). The secularization of the missions following Mexico's independence from Spain resulted in the subdivision of former mission lands and establishment of many additional ranchos. The current undertaking is located within Rancho San Rafael, which was originally granted to Jose Maria Verdugo by the Spanish Governor Pedro Fages in 1784 and remained in the hands of the Verdugo family throughout the Mexican period (Shumway 2007:41).

During the supremacy of the ranchos (1834–1848), landowners largely focused on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The number of nonnative inhabitants increased during this period because of the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population contributed to the introduction and rise of diseases foreign to the Native American population, who had no associated immunities.

3.4.3 American Period (1848–Present)

War in 1846 between Mexico and the United States precipitated the Battle of Chino, a clash between resident Californios and Americans in the San Bernardino area. The Mexican-American War ended with the Treaty of Guadalupe Hidalgo in 1848, ushering California into its American Period.

California officially became a state with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) as United States Territories (Waugh 2003). Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the southern California economy through 1850s. The Gold Rush began in 1848, and with the influx of people seeking gold, cattle were no longer desired mainly for their hides but also as a source of meat and other goods. During the 1850s cattle boom, rancho vaqueros drove large herds from southern to northern California to feed that region's burgeoning mining and commercial boom. Cattle were at first driven along major trails or roads such as the Gila Trail or Southern Overland Trail, then were transported by trains when available. The cattle boom ended for southern California as neighbor states and territories drove herds to northern California at reduced prices. Operation of the huge ranchos became increasingly difficult, and droughts severely reduced their productivity (Cleland 2005:102–103).

3.4.3.1 City of Los Angeles

The City of Los Angeles incorporated on April 4, 1850, only two years after the Mexican-American War and five months prior to California achieving statehood. Settlement of the Los Angeles region continued in the early American Period. The County of Los Angeles was established on February 18, 1850, one of 27 counties established in the months prior to California acquiring official statehood in the United States. Many of the ranchos in the area now known as Los Angeles County remained intact after the United States took possession of California; however, a severe drought in the 1860s resulted in the sale or acquisition of many of the ranchos by Americans. Most of these ranchos were subdivided into agricultural parcels or towns (Dumke 1944). Nonetheless, ranching retained its importance, and by the late 1860s, Los Angeles was one of the top dairy production centers in the country. By 1876, Los Angeles County reportedly had a population of 30,000 persons (Dumke 1944).

Los Angeles maintained its role as a regional business center, and the development of citriculture in the late 1800s and early 1900s further strengthened this status (Caughey and Caughey 1977). These factors, combined with the expansion of port facilities and railroads throughout the region,

contributed to the impact of the real estate boom of the 1880s on Los Angeles (Caughey and Caughey 1977; Dumke 1944).

By the late 1800s, government leaders recognized the need for water to sustain the growing population in the Los Angeles area. Irish immigrant William Mulholland personified the City's efforts for a stable water supply (Dumke 1944; Nadeau 1997). By 1913, the City of Los Angeles had purchased large tracts of land in the Owens Valley and Mulholland planned and completed construction of the 240-mile aqueduct that brought the valley's water to the city (Nadeau 1997).

Los Angeles continued to grow in the twentieth century, in part due to the discovery of oil in the area and its strategic location as a wartime port. The county's mild climate and successful economy continued to draw new residents in the late 1900s, with much of the county transformed from ranches and farms into residential subdivisions surrounding commercial and industrial centers. Hollywood's development into the entertainment capital of the world and southern California's booming aerospace industry were key factors in the county's growth in the twentieth century.

4 Background Research

4.1 California Historical Resources Information System

On June 12, 2017, Rincon conducted a search of the California Historical Resources Information System (CHRIS), at the South Central Coastal Information Center (SCCIC) located at California State University, Fullerton. The search was conducted to identify all previous cultural resources work and previously recorded cultural resources within a 0.5-mile radius of the project APE. The CHRIS search included a review of the NRHP, the CRHR, the California Points of Historical Interest list, the California Historical Landmarks list, the Archaeological Determinations of Eligibility list, and the California State Historic Resources Inventory list. The records search also included a review of all available historic USGS 7.5- and 15-minute quadrangle maps. A summary of the records search is included as Appendix A.

4.1.1 Previously Conducted Studies

The SCCIC records search identified nine previous studies within a 0.5-mile radius of the project APE, none of which are within the APE (Table 1). The National Archaeological Database listings for these studies are included with the records search summary in Appendix A.

Table 1 Previous Cultural Resource Studies within 0.5-Mile of the APE

Report Number	Author	Year	Title	Relationship to APE
LA-02120	Singer, C. A.	1990	*Cultural Resources Survey and Impact Assessment for an Area Adjacent to Parcel Map 20423 in Malibu, Los Angeles County, California*	Outside
LA-02950	Anonymous	1992	*Consolidated Report: Cultural Resource Studies for the Proposed Pacific Pipeline Project*	Outside
LA-03554	Leonard, N. N. III	1968	*UCAS-304 Survey of Griffith Park, Los Angeles County*	Outside
LA-04909	Atchley, S. M	2000	*Cultural Resources Investigation for the Nextlink Fiber Optic Project, Los Angeles and Orange Counties, California*	Outside
LA-08122	Billat, L.	2007	*New Tower ("nt") Submission Packet, FCC Form 621, Cingular Griffith Park, LA-0090a*	Outside
LA-08254	McKenna, J. A.	2004	*Results of a Phase I Cultural Resources Investigation of the Proposed Los Angeles Department of Water and Power River Supply Conduit, Los Angeles County, California*	Outside

Report Number	Author	Year	Title	Relationship to APE
LA-08255	Arrington, C. and N. Sikes	2006	*Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction and Project State of California: Volumes I and II*	Outside
LA-10642	Tang, B. T.	2010	*Preliminary Historical/Archaeological Resources Study, Antelope Valley Line Positive Train Control (PTC) Project Southern California Regional Rail Authority, Lancaster to Glendale, Los Angeles County, California*	Outside
LA-10768	Tang, B. T., and M. Hogan	2010	*Identification and Evaluation of Historic Properties – Grade Crossing Safety Improvement Program, San Fernando Road/Broadway/Brazil Street, cities of Glendale and Los Angeles, Los Angeles County, California*	Outside
LA-12526	Ehringer, C., K. Ramirez, and M. Vader	2013	*Santa Clarita Valley Sanitation District Chloride TMDL Facilities Plan Project, Phase I Cultural Resources Assessment*	Outside

Source: South Central Coastal Information Center, June 2017

4.1.2 Previously Recorded Resources

The SCCIC records search identified four previously recorded cultural resources within a 0.5-mile radius of the project APE. None of these are located within the APE (Table 2).

Table 2 Previous Cultural Resource Studies within 0.5-Mile of the APE

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status	Relationship to APE
P-19-175297	N/A	Historic structure	Griffith Park	C. McAvoy 1994	Recommended eligible	Outside
P-19-186638	N/A	Historic structure	Streamline Moderne office building	P. O'Connor 2000	Recommended ineligible	Outside
P-19-188007	N/A	Historic structure	San Fernando Road	J. McKenna 2006	Recommended eligible	Outside
P-19-190897	N/A	Historic structure	Los Angeles River Channel, Glendale Narrow Section	D. Slawson 2013	Recommended ineligible	Outside

Source: South Central Coastal Information Center, June 2017

4.2 Native American Heritage Commission

As part of the process of identifying cultural resources within or near the project APE, Rincon contacted the Native American Heritage Commission (NAHC) to request a review of the Sacred Lands File (SLF). Rincon received the results from the NAHC on June 7, 2017, which stated that the SLF request produced negative results. The NAHC provided a list of five groups or individuals who may have additional information regarding cultural resources that may exist within the APE. Rincon prepared and mailed letters to each of the five contacts on June 23, 2017, requesting information, and made follow-up phone calls on July 7, 2017.

Rincon received one response via letter from Andrew Salas of the Gabrieleno Band of Mission Indians – Kizh Nation on July 12, 2017, stating that the project APE is located within a sensitive area. Rincon attempted to contact Mr. Salas via telephone on July 7 and July 27, 2017 and left voicemails requesting to discuss the project. Mr. Salas responded via telephone on July 31, 2017 and stated that the project vicinity is considered highly sensitive for Native American cultural resources and that the river was a major trade route. He discussed the presence of the village of *Maungna* in Elysian Park and villages in Griffith Park and the Los Feliz area. Mr. Salas expressed doubt that an archaeologist was present during the original construction of the plant and recommended that an archaeological and Native American monitor be present for all project-related ground disturbance.

No other contacts expressed concern regarding the project. As of September 27, 2017 Rincon has not received any additional responses. Documentation of communication with the NAHC and Native American scoping is included in Appendix B.

In accordance with Assembly Bill 52, Rincon provided technical support to Kennedy/Jenks Consultants to provide to Los Angeles Sanitation for consultation.

4.3 Historic Group Consultation

Rincon initiated historic group consultation for the project on June 23, 2017. Rincon mailed letters to the Los Angeles Conservancy and the Los Angeles City Historical Society requesting consultation for the proposed project. Follow-up consultation was conducted via telephone on July 7, 2017. As of September 27, 2017, Rincon has not received any responses.

4.4 Local Historical Information

A review of the *Kirkman-Harriman Pictorial and Historical map of Los Angeles County*, a historic map of the Los Angeles basin that depicts the locations of principal historic sites, highways, and battlefields ca. 1860 A.D. to 1937 A.D., indicates the possible presence of a village site in the vicinity of the project APE (Kirkman 1938). The village is depicted in the area on the east bank of the Los Angeles River east of Griffith Park. The village is not labeled, thus its name is not known and it could not be further researched.

The project APE is located within the Northeast Los Angeles River Revitalization Project Area (NELA), which was surveyed in 2012 under SurveyLA protocols established by the Los Angeles Office of Historic Resources. The NELA survey did not identify the current APE as a historic resource due to its age. The neighboring property, 4660 W. Colorado Boulevard, was evaluated as significant under the theme of Mid-Century Modern architecture. However, the current project APE is limited to the area of direct impact because it will not be changing the existing use of the APE or setting of the surrounding area.

5 Fieldwork

Rincon Cultural Resources Specialist Megan Szromba conducted a pedestrian survey of the APE on June 16, 2017. The entirety of the APE is developed as a wastewater treatment plant, with all areas covered by pavement, structures, or landscaping. Thus, the survey consisted of walking the plant to document its current condition. Ms. Szromba examined all unpaved ground surface for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock), ecofacts (marine shell and bone), soil discoloration that might indicate the presence of a cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as burrows and drainages were visually inspected. The archaeologist photographed the APE using a digital camera and recorded data on standard archaeological field forms. All field notes, photographs, and records related to the current study are on file at the Rincon Ventura, California, office.

5.1 Results

Ground visibility was poor (less than 5 percent) throughout the project APE due to the presence of pavement, structures, and landscaping which obscured the surface (Figures 3, 4, and 5). No cultural resources were identified within the APE during the survey.



Figure 3. View of portion of APE, facing northwest.



Figure 4. View of APE, facing southwest.



Figure 5. View of APE, facing east.

6 Conclusions and Recommendations

No cultural resources were identified within the APE as a result of the records search, Native American and historic group consultation, or pedestrian survey. Andrew Salas of the Gabrieleno Band of Mission Indians – Kizh Nation expressed concern that the project site was sensitive for Native American cultural resources and recommended Native American and archaeological monitoring of project-related ground disturbance. The Kirkman-Harriman map indicated the presence of a Native American village in the project vicinity, but the exact location of the village is unknown and no additional information regarding a village site in the project vicinity was identified. The plant itself was constructed in 1972 and is therefore not old enough to be considered a cultural resource at the time of the preparation of this report. The APE is adjacent to the Los Angeles River, but the river corridor has been developed since the 1940s when the river was fully channelized after a series of serious flooding events. Channelization of the river included widening and lowering the channel as well as straightening the course of the river, which included heavy ground disturbance to surrounding soils. The project APE has also been heavily developed with a pond and other facilities.

The channelization of the river and the construction of the existing ponds have heavily disturbed soils within the APE, thus the archaeological sensitivity of the APE is considered to be low. Based on the results of the current study and the existing conditions of the APE, it is unlikely that the current undertaking will affect any intact cultural resources. Based on these facts, Rincon recommends a finding of no effect to historic properties and no impact on historical resources for the current undertaking. Furthermore, Rincon recommends no further cultural resources work for the project based on the previous disturbance within the APE. The following measures are recommended in case of unanticipated discoveries.

6.1 Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) must be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA or the NHPA, additional work such as data recovery excavation may be warranted.

6.2 Unanticipated Discovery of Human Remains

The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human

remains are determined to be prehistoric, the Coroner will notify the NAHC, which will determine and notify a most likely descendant (MLD). The MLD shall complete their inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

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Appendix A

Records Search Summary

CHRIS Information Center Records Search Data Sheet

Project Name: LASAN Los Angeles - Glendale Water Reclamation Plant

Project Number: #17-04139 Date: 6/12/17

Information Center: SCCIC

Search Radius: Half Mile: ✓ One Mile: _____ Other: _____

USGS Quadrangle: Burbank

Public Land Survey System (PLSS): Township: 1N Range: 13W Section: 29-32

County: Los Angeles

Previously Recorded Sites: 4

Previous Studies: 10

National Register of Historic Places:	Copies:	Y	~~N~~
California Register of Historical Resources:	Copies:	Y	~~N~~
California Points of Historical Interest:	Copies:	Y	~~N~~
California Historical Landmarks List:	Copies:	Y	~~N~~
Archaeological Determinations of Eligibility:	Copies:	Y	~~N~~
California Historical Resources Inventory:	Copies:	Y	~~N~~

Historic Maps: [illegible]

Santa Monica 1902, 1921 [illegible]

Notes:

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-02120		1990	Singer, Clay A.	Cultural Resources Survey and Impact Assessment for an Area Adjacent to Parcel Map 20423 in Malibu, Los Angeles County, California	C.A. Singer & Associates, Inc.	
LA-02950		1992	Anonymous	Consolidated Report: Cultural Resource Studies for the Proposed Pacific Pipeline Project	Peak & Associates, Inc.	19-000007, 19-000021, 19-000034, 19-000089, 19-000251, 19-000357, 19-000385, 19-000389, 19-000390, 19-000407, 19-000409, 19-000668, 19-000781, 19-000830, 19-000887, 19-000901, 19-000963, 19-001097, 19-001112, 19-001124, 19-001575, 19-001620
LA-03554		1968	Leonard, Nelson N. III	Ucas-304 Survey of Griffith Park, Los Angeles County	UCAS,Department of Recreation and Parks City of Los Angeles	19-175297
LA-04909		2000	Atchley, Sara M.	Cultural Resources Investigation for the Nextlink Fiber Optic Project, Los Angeles and Orange Counties, California	Jones & Stokes	
LA-08122		2007	Billat, Lorna	New Tower ("nt") Submission Packet, Fcc Form 621, Cingular Griffith Park, La-0090a	EarthTouch, Inc.	
LA-08254		2004	McKenna, Jeanette A.	Results of a Phase 1 Cultural Resources Investigation of the Proposed Los Angeles Department of Water and Power River Supply Conduit, Los Angeles County, California	McKenna et al.	19-001945, 19-003304, 19-003307, 19-003789, 19-100281, 19-150416, 19-186585
LA-08255		2006	Arrington, Cindy and Nancy Sikes	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project State of California: Volumes I and Ii	SWCA Environmental Consultants, Inc.	
LA-10642		2010	Tang, Bai "Tom"	Preliminary Historical/Archaeological Resources Study, Antelope Valley line Positive Train Control (PTC) Project Southern California Regional Rail Authority, Lancaster to Glendale, Los Angeles County, California	CRM Tech	19-001124, 19-001534, 19-002105, 19-002132, 19-002530, 19-002681, 19-003536, 19-003558, 19-003582, 19-150037, 19-150324, 19-180638, 19-186688, 19-186689
LA-10768		2010	Tang, Bai "Tom" and Michael Hogan	Identification and Evaluation of Historic Properties - Grade Crossing Safety Improvement Program, San Fernando Road/Broadway/Brazil Street, cities of Glendale and Los Angeles, Los Angeles County, California	CRM Tech	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-12526		2013	Ehringer, Candace, Ramirez, Katherine, and Vader, Michael	Santa Clarita Valley Sanitation District Chloride TMDL Facilities Plan Project, Phase I Cultural Resources Assessment	ESA	19-002150, 19-002233, 19-002234, 19-002681, 19-004321, 19-179645, 19-186112, 19-186541, 19-186567, 19-186859, 19-187055, 19-188007, 19-190312, 19-190313, 19-190314, 19-190315, 19-190316, 19-190317, 19-190318, 19-190319, 19-190320, 19-190321, 19-190322, 56-001262, 56-151768

19-175297

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Prop 097813

Primary # _____
HRI # Hist Res Doc-M-94-0442-9999
Trinomial _____
NRHP Status Code 2S2

Page 1 of 13

Other Listings _____
Review Code _____ Reviewer Christy J. McAvoy Date _____

P1. Resource Identifier: GRIFFITH PARK

P2. Location: **a. County** Los Angeles and (**Address** and/or **UTM Coordinates**. Attach Location Map as required.)

b. Address RIVERSIDE DR

City Los Angeles Zip _____

c. UTM: USGS Quad _____ **(7.5'/15') Date** _____; **Zone** _____ , _____ **mE/** _____ **mN**

d. Other Location Data (e.g., parcel #, legal description, directions to resources, additional UTMs, etc., when appropriate):

P3. Description Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries):

P4. Resources Present: ☐ Building ☐ Structure ☐ Object ☐ Site ☒ District ☐ Element of District

P5. Photograph or Drawing (photograph required for buildings, structures, and objects.)

P6. Date Constructed/Age:
☐ Prehistoric ☒ Historic ☐ Both
1896-1944

P7. Owner and Address:

P8. Recorded by (Name, affiliation and address): Christy J. McAvoy
Historic Resources Group
1728 N. Whitley Ave
Los Angeles, CA 90028

P9. Date Recorded: 10/31/94

P10. Type of Survey: ☐ Intensive
☐ Reconnaissance ☒ Other
Describe: Survey of earthquake damaged properties for purposes of Section 106 Review.

P11. Report Citation (Provide full citation or enter "none."): _____
1994 Northridge Earthquake Project Review

Attachments: ☐ NONE ☒ Map Sheet ☒ Continuation Sheet ☐ Building, Structure, and Object Record
☒ District Record ☐ Linear Resource Record ☐ Other (List): _____

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
DISTRICT RECORD

Primary # 19-175297
HRI #
Trinomial

D1. **Resource Identifier:** Griffith Park
D2. Historic Name: Griffith Park
D3. Common Name: Griffith Park

D4. **Detailed Description** (Discuss overall coherence of the district, its setting, visual characteristics, and minor features. List all elements of district.): Griffith Park is located five miles west of Downtown Los Angeles and includes approximately 4,000 acres of natural and designed landscape features. For the most part, the Park is comprised of mountainous terrain suitable only for hiking; however, as stated by Charles Moore *et al* in Los Angeles: The City Observed, "it has many of the amenities traditionally associated with large American urban parks including: picnic areas, playing fields, tennis courts, bridle trails, golf courses, a merry-go-round, fountains, and a pleasant zoo." Contributing features of the Park include buildings, structures, and natural and designed landscapes. Those features which appear to be contributing or have been previously evaluated as individually significant include the following:
(See Continuation Sheet.)

D5. **Boundary Description** (Describe limits of district and attach map showing boundary and district elements.): The Park is bound on the east by the Golden State Freeway (I5); on the north by the Los Angeles River, although the Equestrian Center and Picnic Grounds are located between the River and Riverside Drive; on the west by Forest Lawn and Mount Sinai Memorial Parks and the Hollywood Hills; and on the south by a line one half mile north of and parallel to Los Feliz Boulevard. A small finger of land extends from the southeast corner of the park along Riverside Drive to Hyperion Avenue.

D6. **Boundary Justification:** Existing park boundaries.

D7. **District Attributes** (List major attributes and codes.): HP31--Public Park

D8. **Significance:** Theme Parks and Recreation Area Los Angeles
Period of Significance 1896-1944 Applicable Criteria A
(Discuss district's importance in terms of its historical context as defined by theme, period of significance, and geographic scope. Also address the integrity of the district as a whole.) Griffith Park is significant under National Register Criterion A as the largest urban park in the City of Los Angeles, and more importantly in the United States. The Park, as well as many of its individual features, has figured prominently in the history of the city. It has provided recreational space for the community since 1898 and is home to the Los Angeles Zoo, the Griffith Park Observatory, and the Planetarium. The Park was also regularly used as an unofficial "backlot" for the early motion picture industry located in nearby Burbank and Hollywood.

As is the history of virtually every public park in Los Angeles, Griffith Park was not reserved by city fathers for public use. Traditionally public (See Continuation Sheet.)

D9. **References** (Give full citations including the names and addresses of any informants, where possible.): Lynn Bowman, Los Angeles: Epic of a City, 1974; George Hjjelte, Footprints in the Park, 1977; "Mayor Acts to Save Adobe House" in Los Angeles Times, 12/2/1921, pt. II, p. 7; "Unique Swimming Pool Being Built by City" in Los Angeles Times, 6/5/1927, pt. V, p. 3; "City's Largest Swimming Pool Opened" in Los Angeles Times, 8/4/1927; "Landscape Design for Playground" in American City, June 1930, pp. 90-92; Historical Society of Southern California Journal, vol. 43, 1961, pp. 192-94.

D10. **Evaluator:** Christy Johnson McAvoy **Date:** 9/30/94
Affiliation and Address: Historic Resource Group, 1728 N. Whitley Avenue, Hollywood, CA 90028

Hist Res DOE-19-94-0442- NR:202

D4 DESCRIPTION (Continued from District Record)

Prop-100859 -0001 Contributing: Prop-100860 -0002

Ferndell and **Mt. Hollywood** are two notable natural landscape features. As stated by Charles Moore *et al* in Los Angeles: The City Observed, "Ferndell, a year-round spring has caused fragrant sycamores and soft green ferns to crowd the bottom of a steep ravine, a place that has been cool and refreshing since prehistoric times, when it was the site of a Gabrielino Indian village." The **Bird Sanctuary** is a third notable landscape feature of the Park. It features wide parallell paths separated by trees and ferns and a double row of narrow, cascading fountains.

Prop-100861 -0003

-0004 Prop-100862

Previously surveyed in 1976, the **Griffith Park Observatory and Planetarium** was deemed individually eligible for listing in the National Register and given a Status Code of 3s. The **Astronomers' Monument**, which stands directly opposite the main entrance to the Observatory and Planetarium was erected in 1934 and designed by Archibald Garner. It features likenesses of the astronomers Herschel, Newton, Kepler, Galileo, Copernicus, and Hipparchus.

Prop-100870 -0005

Prop-100871 -0006 The **Los Feliz Adobe** is believed to have been constructed in 1853 by Paco and Antonio Feliz. Altered in the 1920s, to be the Park Rangers Headquarters, it is significant for its association with recreational uses as well as for being the only remnant of the park's 19th century rancho history.

Prop-100872 -0007 The **Merry-Go-Round** was constructed in 1926 and moved to its current location in 1936.

Prop-100873 -0008 Prop-100874 -0009 Prop-100875 -0010

The **Harding Golf Course Clubhouse**, the **Swimming Pool and Building**, and the **Boys' Camp** (the old Girls' Camp) were constructed in 1927 and all appear to be substantially intact.

Prop-100876 -0011

Dedicated in 1940, **Mulholland Fountain** honors William Mulholland (1855-1935), whose brainchild, the Owen's River Aqueduct allowed for the development of not only the Los Angeles Municipal water system, but also of the modern Los Angeles metropolis.

NON-CONTRIBUTING features are as follows: NR:6Y2

Prop-100877 -0012

Founded in 1885, the **Los Angeles Zoo** was originally located adjacent to East Lake Park (now Lincoln Park). It was moved to Griffith Park in 1914; however, the current zoo opened in 1966.

Prop-100878 -0013

The **Greek Theater** was designed by a staff architect for the City of Los Angeles in 1930, and was significantly altered in 1956 based upon designs by William Woollett. These alterations may assume significance over time. The Theater is culturally significant and may qualify as a local landmark.

Prop-100879 -0014

The new **Girls' Camp** (AKA Hollywoodland Camp) includes a post and beam structure by the architecture firm Smith, Jones and Contini. It is Modern in style and dates from 1949. The structure may eventually be considered significant once it achieves fifty years of age. Its integrity is unknown at this time.

Prop-100880-0015

In the northeast edge of the park is **Travel Town**, a transportation museum which dates from December of 1952. It is located on 40 acres of land donated by W.I. Hollingsworth, a real estate developer. Forest Lawn Drive originally bore the name Hollingsworth Drive in honor of his gift. It may eventually be considered significant when once it achieves fifty years of age.

The **Gene Autry Western Heritage Museum** was constructed in the 1980s.

Prop-100881 -0016

D8 SIGNIFICANCE (Continued from District Record)

parks in Los Angeles have either been developed on unwanted land or, as is the case with Griffith Park, donated by a prosperous citizen. The benefactor of Griffith Park was Griffith J. Griffith who purchased the northern 4,071 acres of Rancho Los Feliz in 1882 and four years later, donated 3,015 of those acres to the City of Los Angeles for use as a public park. The gift was not originally accepted by the City Council, whose members thought that land five miles from the downtown district was a poor location for a public park. They were also concerned about the fiscal impact to the city of removing such a large parcel from the property tax rolls and some even suspected that Griffith had donated the land to avoid paying taxes. Two years later, however, the City accepted title to the property and began to develop it for park purposes.

Griffith J. Griffith was born in Glamorganshire, South Wales in 1850, but left as a child to live with relatives in the United States. He eventually settled in California and his first occupation was journalism, although it was through speculation on gold mining property that he prospered. He had amassed a small fortune by the time he married, but the wealth that financed the purchase of Rancho Los Feliz came to him via his new bride, Christina Mesmer.

Since Griffith's original gift of 3,015 acres, approximately 1,000 acres have been added to the Park. The flat land between the base of the Park's mountains and the Los Angeles River was not originally part of the Park, but rather was sold to the City by Griffith for the purpose of creating recreational area, golf courses, and a zoo. This land also contains the underground water supply which is used to irrigate the golf courses and planted areas and to supply fire protection.

After being released from prison for attempting to murder his wife, the aforementioned Christina Mesmer, Griffith donated $100,000 to the City for the construction of an observatory. Viewed by many as an attempt to regain an honorable position in the community, the donation was rejected. The gift of $1,000,000 for park improvements and the erection of the Greek Theater and the Observatory was eventually accepted, but only as a posthumous bequest in 1919.

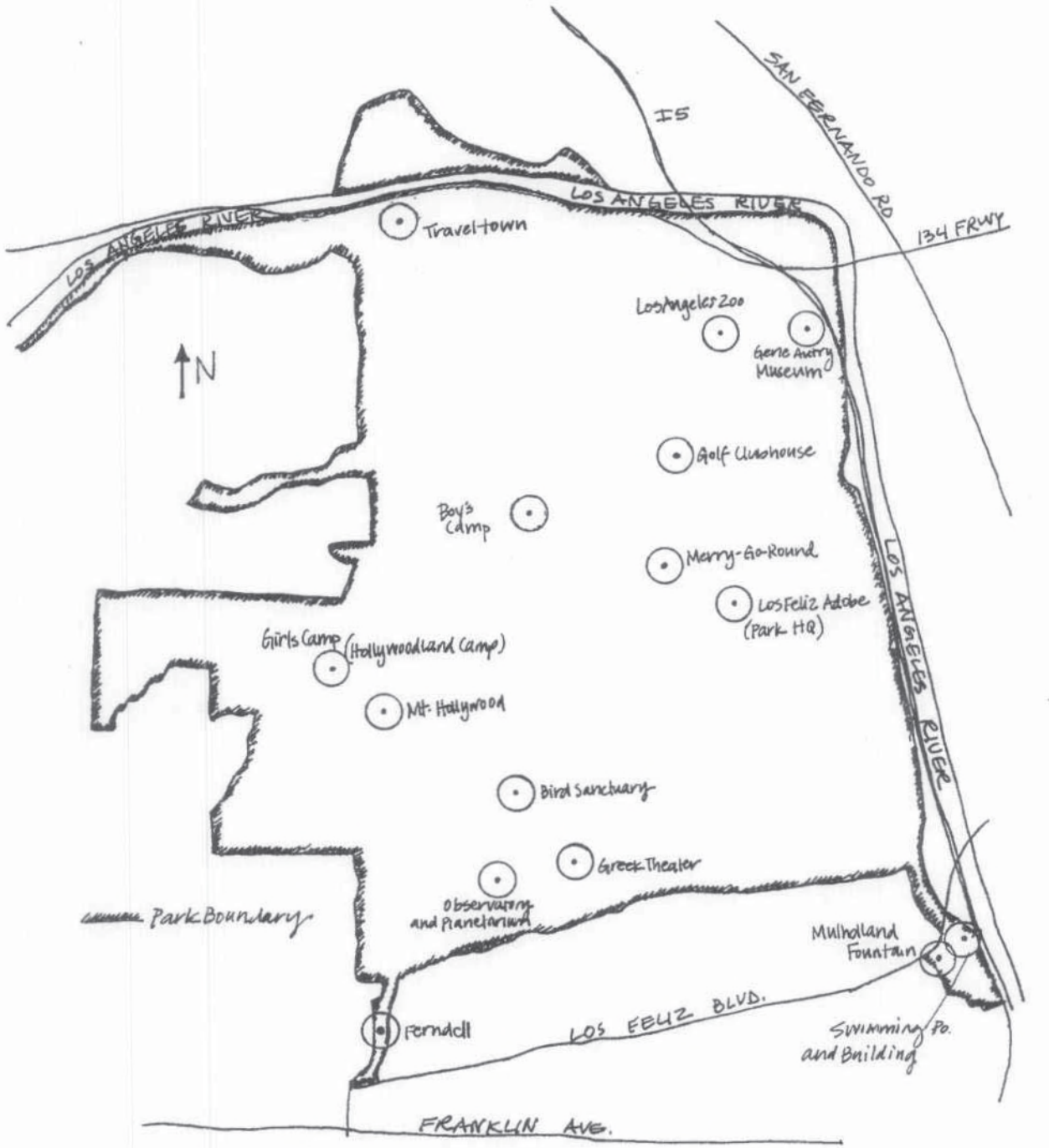
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

MAP SHEET

Primary # 19-175297
HRI#/Trinomial

Page 5 of 13
Resource Identifier: Griffith Park
Map Name: Boundary and Features Scale: Date: 09/30/94

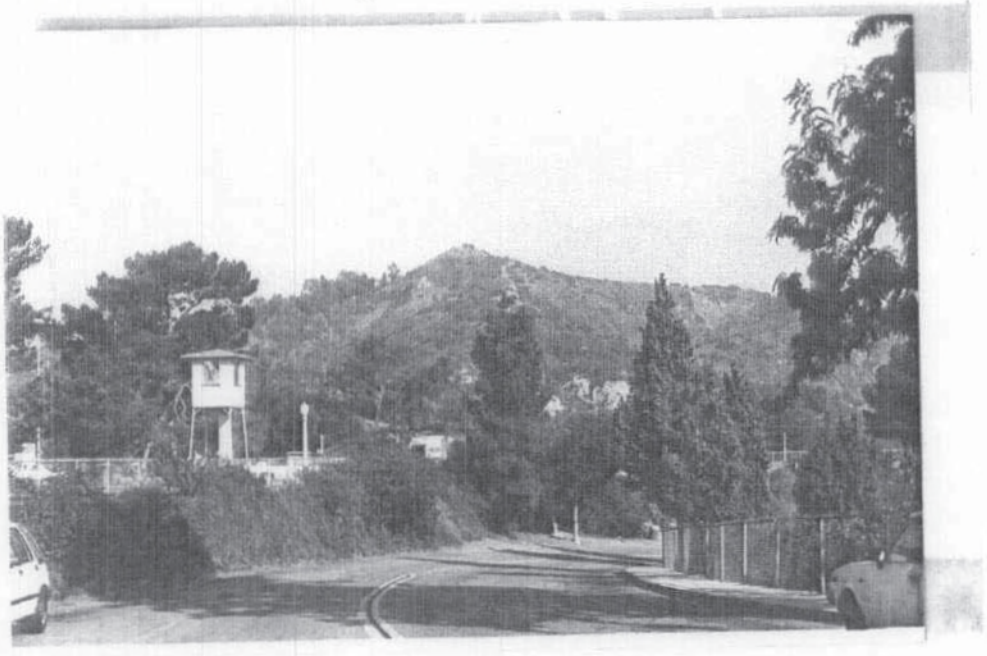
Note: Include bar scale and north arrow on map.





19-176293
100859

Ferndell-S - Contributing



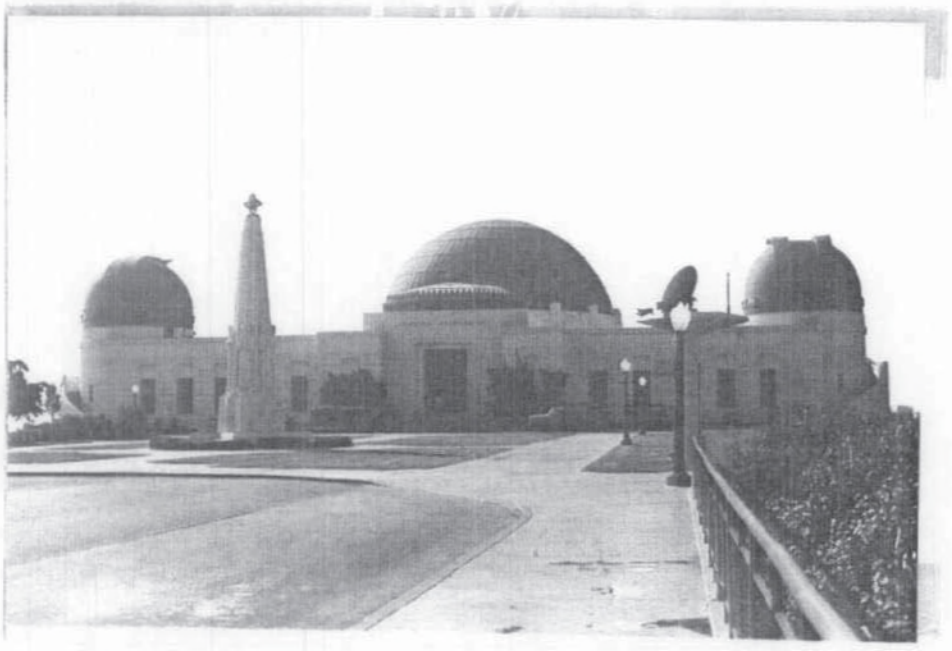
19-176294
100860

Mt. Hollywood-N - Contributing

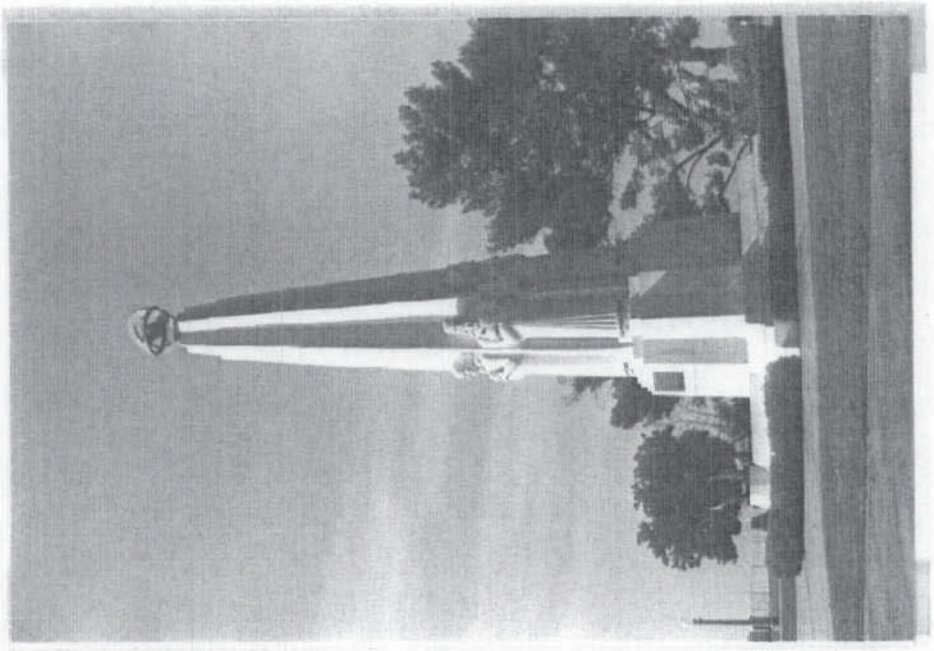


19-176295
100861

Bird Sanctuary-NE - Contributing



Observatory and Planetarium-S - Contributing



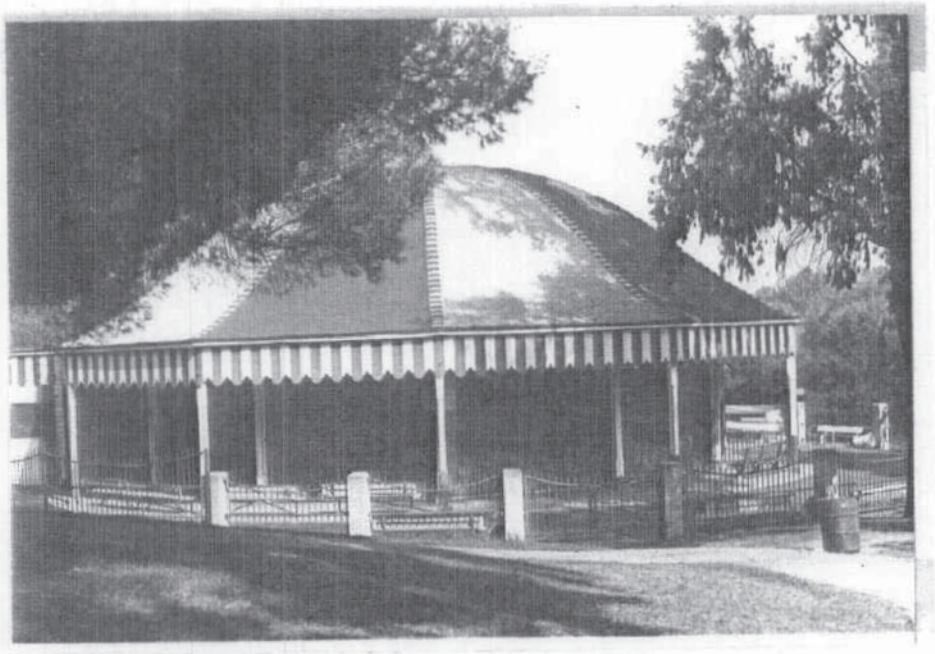
19-176296
100870

Astronomers' Monument-SW - Contributing



19-176297
100871

Los Feliz Adobe (Park Rangers Headquarters)- NE - Contributing



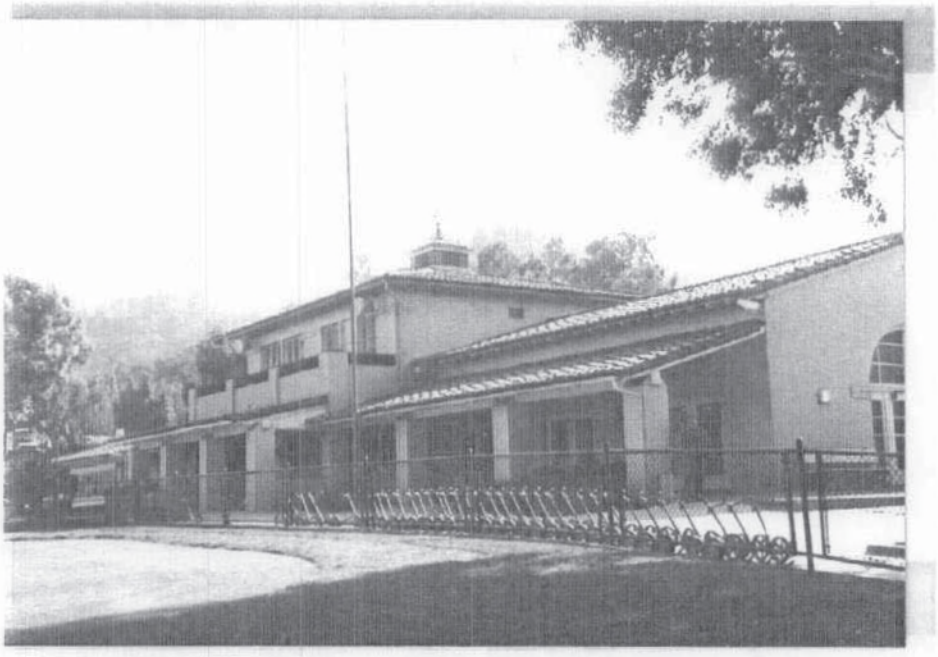
19-176298
100872

Merry-Go-Round-N - Contributing

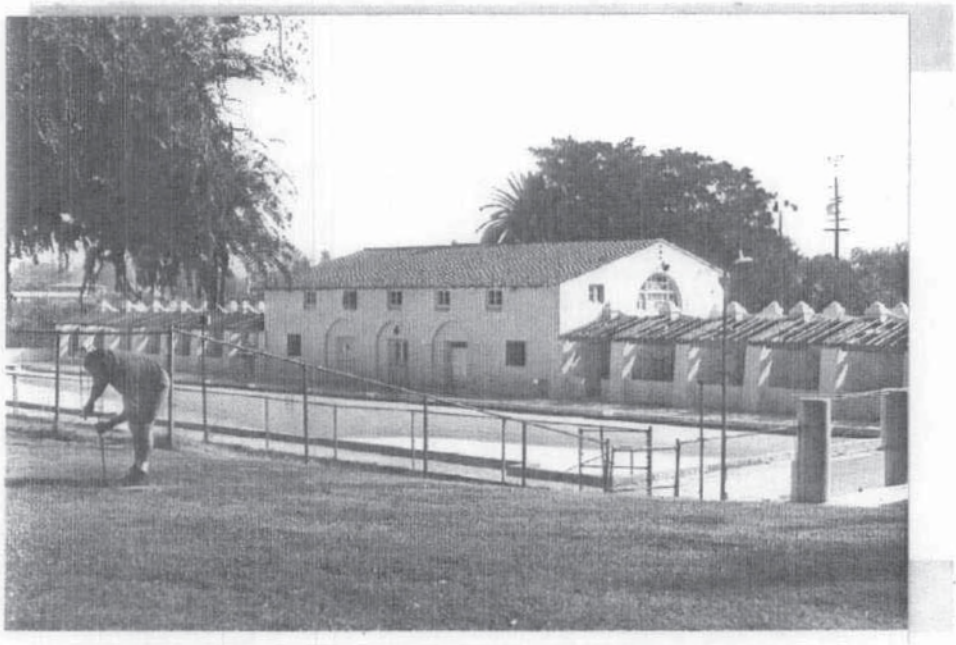


19-176299
100873

Harding Golf Clubhouse- NW - Contributing



Harding Golf Clubhouse-SW - Contributing



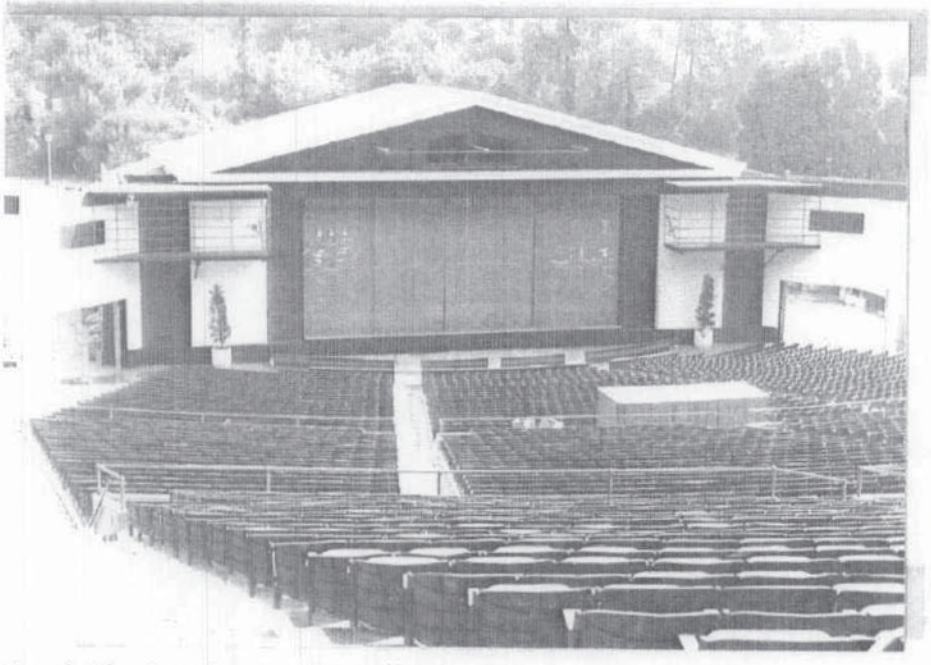
Swimming Pool and Building-SE - Contributing

19-176300
100874



19-176302
100876

Mulholland Fountain-E -Contributing



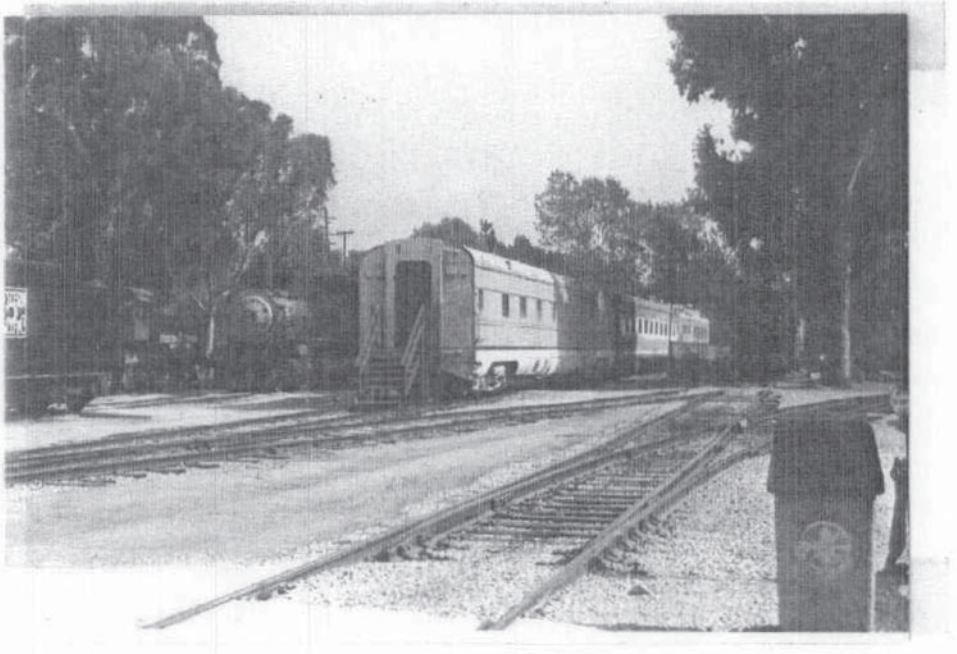
19-176304
100878

Greek Theater-E - Non-contributing



19-176306
100880

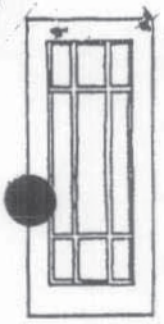
Traveltown, Los Feliz Passenger Station-NE - Non-contributing



Traveltown-SE - Non-contributing

No Photographs Are Available For:

Boys' Camp - Contributing 19-176301, 100875
Los Angeles Zoo - Non-contributing 19-176303, 100877
Girls' Camp - Non-contributing 19-176305, 100879
Gene Autry Western Heritage Museum - Non-contributing 19-176307, 100881



HISTORIC RESOURCES GROUP

19-175297

April 11, 1994

Sandro Amaglio
Regional Environmental Officer
Federal Emergency Management Agency
Disaster Field Office
150 East Colorado Boulevard, Suite 303
Pasadena, California 91105-1937

Re: Greek Theater, 2600-2700 N. Vermont Av., Los Angeles
FEMA 1008-DR-CA, P.A. 037-91081
FEMA Memorandum Dated March 11, 1994

Dear Mr. Amaglio:

We have reviewed the above-referenced memorandum and a preliminary field survey was performed on March 15, 1994. We find the following:

1. The Greek Theater is not eligible for listing in the National Register pursuant to 36 CFR Section 60.4.

   It was designed by staff of the City of Los Angeles and constructed in 1930. Alterations designed by architect William Woollett were implemented in 1956, obscuring much of the original stage area. These alterations may assume significance over time. Substantial support functions are uniquely located under the amphitheater seating. However, the Greek Theater is culturally significant and may qualify as a local landmark. The Los Angeles Cultural Heritage Commission utilizes the Secretary of the Interior's Standards in reviewing proposed alterations to landmarks. The applicant is encouraged to rehabilitate the theater using the Secretary of the Interior's Standards.

2. Photodocumentation of the before and after conditions should be required of the project applicant.

1728 N. Whitley Ave., Hollywood, California 90028 (213) 469-2349

19-175297

Should you have any questions, please contact me.

Sincerely,

Cherilyn Widell, SHPO

Christy Johnson McAvoy

By: Christy Johnson McAvoy, Principal
Historic Resources Group as
SHPO Representative

cc: Thomas Ottoman

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # 19-186638
HRI #
Trinomial
NRHP Status Code
Other Listings
Review Code _____ Reviewer _____ Date _____

Page 1 of 2 *Resource Name or #: (Assigned by recorder) VY019-02

P1. Other Identifier:

***P2.** Location: ☐ Not for Publication ☒ Unrestricted *a. County Los Angeles
and (P2b and P2c or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad Burbank Date 1966 (1972) T 1 N ; R 13 W ; Unsectioned ; S.B. B.M.

c. Address 5245 West San Fernando Road City Los Angeles Zip 90039

d. UTM: (Give more than one for large and/or linear resources) Zone 11 ; _____ mE / _____ mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries) Two-story office/industrial structure in the Streamline Moderne style. The building has a central vertical tower. Moderne elements include the curved corners of the building, the flat roof with parapet, smooth stucco wall surface and horizontal banding. A decorative wing-like relief is located above the entrance door. The tower rises in a slightly stepped fashion and each side has a vertical groove. The building does not appear eligible for the National Register of Historic Places.

***P3b. Resource Attributes:** (List attributes and codes) HP15 (Educational Building); HP6 (Commercial Building); HP8 (Industrial Building)

***P4. Resources Present:** ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photograph or Drawing: (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: (View, data, accession #) East elevation of building

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1937; Los Angeles County Assessor

***P7. Owner and Address:**
Spiszman Family Trust
4710 Ledge Ave
North Hollywood, CA 91602

***P8. Recorded by:** (Name, affiliation, and address): Pam O'Connor, for LSA Assoc., Irvine, CA

***P9. Date recorded:** Sept 1, 2000

***P10. Survey Type:** (Describe) Cultural Resource Assessment

***P11. Report citation:** (Cite survey report and other sources or enter "none.") Cultural Resource Assessment for Pacific Bell Wireless Facility VY 019-02, County of Los Angeles, California LSA Associates, Inc. 1 Park Plaza, Suite 500, Irvine, CA 92614

Attachments: ☐None ☒Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐Other (List) _____

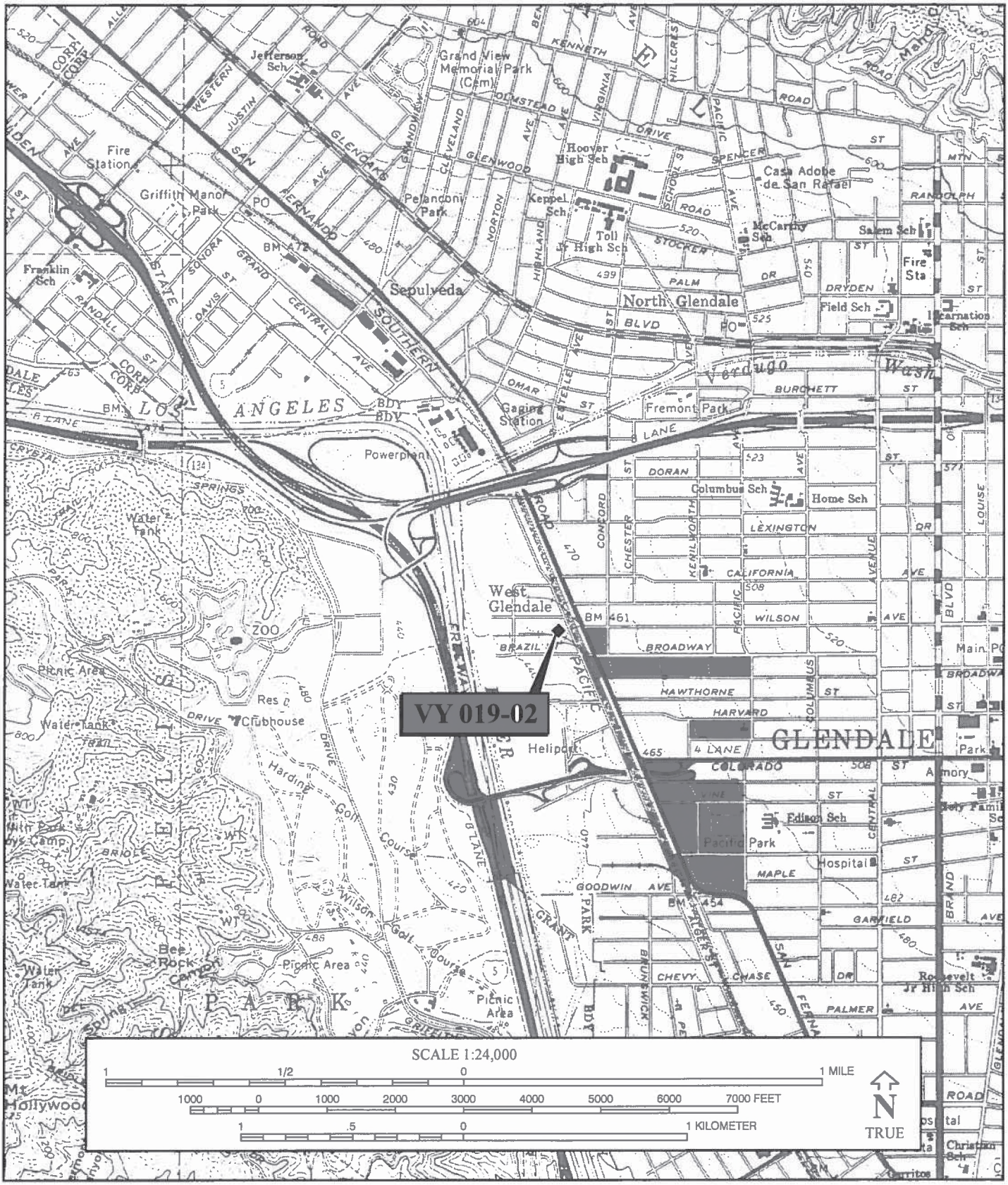
DPR 523A (1/95) ***Required Information**

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # 19-186638
HRI #
Trinomial

Page 2 of 2 *Resource Name or # (Assigned by recorder) VY 019-02

*Map Name: Burbank Quad *Scale: 1:24,000 *Date of Map: 1966 (1972)



DPR 523J (1/95)

*Required Information

State of California
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #_____
HRI #_____
Trinomial_____
NRHP Status Code 3S
Other Listings _____
Review Code_____Reviewer_____Date_____

***Page** 1 of 17 ***Resource Name or #:** T-Mobile West LLC SV00019A/VY019 Aeroscopic *update.
***P1. Other Identifier:** Beauty College
***P2: Location:** Not for publication Unrestricted **X** a. County: Los Angeles
And (P2b and P2c or P2d. Attach a location map as necessary.)
***b. USGS Quad** Burbank ***Date:** 1975 T; R; ¼ of ¼ of Sec. _____ B.M._____
c. Address: 5245 West San Fernando Road City: Los Angeles Zip: 90039
d. UTM: (Give more than one large or linear resources) Zone: Me/ mN
e. Other Locational Data (e.g. parcel #, directions to resource, elevation, etc. as appropriate);
APN: 5593-010-016

***P3a. Description** (Describe resource and its major elements, include design, materials, condition, alterations, size, setting and boundaries.)

The subject property is s two-story, asymmetrical, irregular shaped, Streamline Moderne style, commercial office building located on a main commercial artery in a heavily industrialized area of Los Angeles. The building has a concrete foundation, stucco exterior and a flat roof. The building's design is defined by classic Streamline Moderne detailing. The ends of the building have curved walls, horizontal incised lines accent the upper portion of the front walls, and the entrance has Streamline Moderne elements above the door. The Streamline Moderne elements extend up the front façade and meld into a stepped tower with Streamline Moderne detailing. Vertical detailing accents the tower and the lower area of the tower includes a rectangular section of metal framed, multilite windows. The tower terminates in curved sections. Windows are metal framed, multilite, casement style windows set in long rows across the facades. Doors are single metal doors that provide access to the multiple office units located within the structure. The rear of the building contains a metal stair section leading to the roof and a long concrete ramp leading to a rear entrance. A parking lot is located behind the building. The building is in good condition with no major alterations noted.

***P3b. Resource Attributes:** (List attributes and codes) HP 6: 1-3 Story Commercial Building



P4. Resources Present: **Building X** Structure Object Site District Element of District
P5b. Description of Photo: (View, date Accessions #) View W/12/19/2012
***P6. Date Constructed/Age and Source Historic X** Prehistoric Both c. 1940/Los Angeles County Assessor's Records ***P7. Address:** Margil Spiszman, 4710 Ledge Avenue, North Hollywood, CA 91602
***P8: Recorded by:** (Name, Affiliation, Address) K.A. Crawford, Michael Brandman Associates, 220 Commerce St., Irvine, CA ***P9. Date Recorded:** 12/19/2012
***P10. Type of Survey:** (Describe) Intensive ***P11: Report Citation** (Cite Survey Report and other sources, or enter "None".) None
***Attachments:** None Location Map Sketch Map **Continuation Sheet X Building, Structure and Object Record X** Archaeological Record District Record Liner Resource Record Milling Station Record Rock Art Record Artifact Record Photograph Record Other (List):

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
RESIDENCE, STRUCTURE, AND OBJECT RECORD

Primary #
HRI#
***NRHP Status Code** 3S

***Page** 2 of 17 ***Resource Name or # (Assigned by Recorder):** T-Mobile West LLC SV00019A/VY019 Aeroscopic

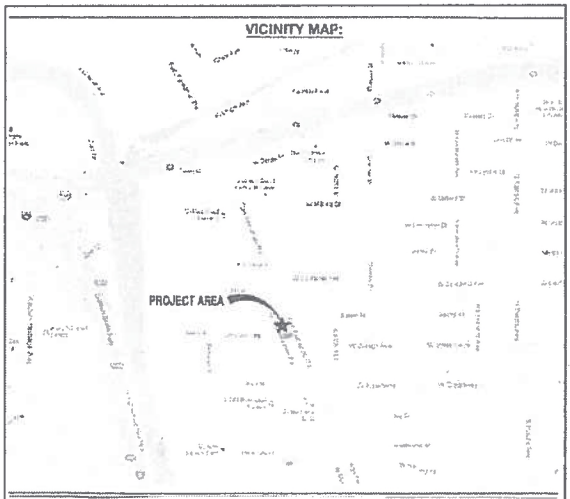
B1. Historic Name: None
B2: Common Name: Beauty College
B3. Original Use: Commercial/Office
B4: Present Use: Commercial/Office
***B5: Architectural Style:** Streamline Moderne
***B6: Construction History:** (Construction Date, alterations and dates of alterations)
The subject building was constructed in approximately 1940. No major alterations to the building were noted.
***B7. Moved?** X **No** Yes Unknown Date: Original Location
***B8. Related Features:** None
B9a. Architect: Unknown **b. Builder:** Unknown
***B10. Significance:** Development of Northeast Los Angeles and Streamline Moderne Architecture
Area: Northeast Los Angeles **Period of Significance:** 1940-Present **Property Type:** Commercial
Applicable Criteria: A and C
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Northeast area of Los Angeles was originally part of the Spanish and Mexican land grants of Rancho San Rafael and Rancho San Pascual. When the original Pueblo de Los Angeles incorporated as the City of Los Angeles in 1850, this area was located outside of the downtown commercial core. The area contained San Fernando Road, originally part of State Route 99 and it served as a major connecting artery across the Burbank, North Hills and San Fernando Valley areas. Over the twentieth century, the San Fernando Road area in Northeast Los Angeles became heavily industrialized. The tracks of the Southern Pacific Railroad ran through the center of the area, a prime reason for the location of numerous commercial, manufacturing and shipping industries. .The subject property was located in this area as one of hundreds of commercial properties and served as an office complex. The building is adjacent to another Streamline Moderne building constructed in 1937 but no information was located regarding the original owners or occupants of the two structures. The City of Los Angeles Planning Department files and the records of the Los Angeles Conservancy did not contain information regarding the subject property and it does not appear that the building is listed on any historic registers at this time. The building is in good condition and is a good local example of intact Streamline Moderne architecture.

B11. Additional Resource Attributes: (List attributes and codes) None
***B12. References:** McAlester and McAlester, *A Guide to American Houses*, 1991; Historicaerials.com; County of Los Angeles Assessor's Records; City of Los Angeles Building Department Records; City of Los Angeles Planning Department Records and
B13. Remarks: None
***B14: Evaluators:** K.A. Crawford
***Date of Evaluation:** 12/19/2012

(This space reserved for official comments.)

VICINITY MAP:



State of California – The Resource Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____
HRI# _____
Trinomial _____

Page 3 of 17 *Resource Name or # (Assigned by recorder) T-Mobile West LLC SV00019A/VY019 Aeroscopic

*Recorded by K.A. Crawford/Michael Brandman Associates Date December 19, 2012

Continuation X Update

(Continued from page 2)

Integrity Statement

In regard to the seven aspects of integrity – location, design, setting, materials, workmanship, feeling and association – the c.1940 Streamline Moderne style commercial building on this property has retained its original location. The building has not been moved. The setting, feeling, and association have not remained intact as the urban area surrounding the structure has changed. The design, materials and workmanship appear to be in basically original condition. The integrity level is good and the condition of the building is good.

National Register of Historic Places Eligibility Evaluation

The property was assessed under National Register of Historic Places **Criterion A** for its potential significance as part of any historic trends or events that may have made a significant contribution to the broad patterns of our history. The building was constructed as part of the overall continuing commercial development of the Northeast Los Angeles area which began in the 1880s and continues to the present time. The building is located in an industrial area of the city but does not appear to have played any significant role in the development of this commercial area of the city. It appears to have been one of hundreds of small commercial properties in the immediate area. There is no significant trend or event associated with the property. **Therefore, the property does not appear to meet the criteria for significance under Criterion A: Event.**

The property was assessed under National Register of Historic Places **Criterion B** for its potential significance and association with a person of importance in national history. There is no evidence to suggest that any of the persons associated with the construction or development of the building were considered important in the history of the property or nation. None of the persons associated with the property appear to be historically significant at the level necessary to meet the criteria for National Register of Historic Places. **Therefore, the property does not appear to meet the criteria for significance under Criterion B: Person.**

The property was assessed under National Register of Historic Places **Criterion C** for its potential significance as a property which embodies the distinctive characteristics of a type, period, method of construction or style of Streamline Moderne architecture, represents the work of a master architect, builder or craftsman, possesses high artistic values, or represents a significant or distinguishable entity whose components lack individual distinction. The building's style does rise to a level of significance to qualify for the National Register of Historic Places. The building embodies the key, defining characteristics of the Streamline Moderne style with its curved walls, incised detailing, iconic tower, large window sections and horizontal detailing. No major alterations have altered the building's original design concepts and the building's exterior is in essentially original condition. The building is not a good example of the work of a master architect or craftsman as the no persons associated with the design or construction were identified. Therefore, the building cannot be considered to represent the work of a master architect, builder or craftsman. **Therefore, the property does appear to meet the criteria for significance under Criterion C: Architecture as a good example of Streamline Moderne style architecture.**

The property was assessed under National Register of Historic Places **Criterion D** for its potential significance and its ability to convey information. The property does not yield, or may not be likely to yield, information important in prehistory or history. In order for buildings, structures, or objects to be significant under Criterion D, they need to "be, or must have been, the principal source of information." This is not the case with this property. **Therefore, the property does not appear to meet the criteria for significance under Criterion D: Information Potential.**

In summary, the property does not appear to qualify for the National Register of Historic Places under any of the above criteria. Therefore, the building is not considered to be an historic resource for the purposes of the NHPA. The property was not accessed for eligibility under the California Register or local Los Angeles Register eligibility.

State of California – The Resource Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____
HRI# _____
Trinomial _____

Page 4 of 17 *Resource Name or # (Assigned by recorder) T-Mobile West LC SV00019A/VY019 Aeroscopic

*Recorded by K.A. Crawford/Michael Brandman Associates Date December 19, 2012

Continuation X Update

T-Mobile West LLC/VY019 Aeroscopic
Beauty College/Commercial Building, 5345 W. San Fernando Road, Los Angeles, CA 90039
View North/South and East Facades
December 19, 2012



State of California – The Resource Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____
HRI# _____
Trinomial _____

Page 5 of 17 *Resource Name or # (Assigned by recorder) T-Mobile West LC SV00019A/VY019 Aeroscopic

*Recorded by K.A. Crawford/Michael Brandman Associates Date December 19, 2012

Continuation X Update

T-Mobile West LLC/VY019 Aeroscopic
Beauty College/Commercial Building, 5345 W. San Fernando Road, Los Angeles, CA 90039
View Northwest/South and East Facades
December 19, 2012



State of California – The Resource Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____
HRI# _____
Trinomial _____

Page 6 of 17 *Resource Name or # (Assigned by recorder) T-Mobile West LC SV00019A/VY019 Aeroscopic

*Recorded by K.A. Crawford/Michael Brandman Associates Date December 19, 2012

Continuation X Update

T-Mobile West LLC/VY019 Aeroscopic
Beauty College/Commercial Building, 5345 W. San Fernando Road, Los Angeles, CA 90039
View North/South and East Facades
December 19, 2012



State of California – The Resource Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____
HRI# _____
Trinomial _____

Page 7 of 17 *Resource Name or # (Assigned by recorder) T-Mobile West LC SV00019A/VY019 Aeroscopic

*Recorded by K.A. Crawford/Michael Brandman Associates Date December 19, 2012

Continuation X Update

T-Mobile West LLC/VY019 Aeroscopic
Beauty College/Commercial Building, 5345 W. San Fernando Road, Los Angeles, CA 90039
View Northwest/Main Entrance/East Facade
December 19, 2012



State of California – The Resource Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____
HRI# _____
Trinomial _____

Page 8 of 17 *Resource Name or # (Assigned by recorder) T-Mobile West LC SV00019A/VY019 Aeroscopic

*Recorded by K.A. Crawford/Michael Brandman Associates Date December 19, 2012

Continuation X Update

T-Mobile West LLC/VY019 Aeroscopic
Beauty College/Commercial Building, 5345 W. San Fernando Road, Los Angeles, CA 90039
View West/Main Entrance/East Facade
December 19, 2012



State of California – The Resource Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____
HRI# _____
Trinomial _____

Page 9 of 17 *Resource Name or # (Assigned by recorder) T-Mobile West LC SV00019A/VY019 Aeroscopic

*Recorded by K.A. Crawford/Michael Brandman Associates Date December 19, 2012

Continuation X Update

T-Mobile West LLC/VY019 Aeroscopic
Beauty College/Commercial Building, 5345 W. San Fernando Road, Los Angeles, CA 90039
View Northwest/Tower above Main Entrance/East Facade
December 19, 2012



State of California – The Resource Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____
HRI# _____
Trinomial _____

Page 10 of 17 *Resource Name or # (Assigned by recorder) T-Mobile West LC SV00019A/VY019 Aeroscopic
*Recorded by K.A. Crawford/Michael Brandman Associates Date December 19, 2012
Continuation X Update

T-Mobile West LLC/VY019 Aeroscopic
Beauty College/Commercial Building, 5345 W. San Fernando Road, Los Angeles, CA 90039
View Northwest/East Facade
December 19, 2012



State of California – The Resource Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____
HRI# _____
Trinomial _____

Page 11 of 17 *Resource Name or # (Assigned by recorder) T-Mobile West LC SV00019A/VY019 Aeroscopic

*Recorded by K.A. Crawford/Michael Brandman Associates Date December 19, 2012

Continuation X Update

T-Mobile West LLC/VY019 Aeroscopic
Beauty College/Commercial Building, 5345 W. San Fernando Road, Los Angeles, CA 90039
View Northwest/East Facade
December 19, 2012



State of California – The Resource Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____
HRI# _____
Trinomial _____

Page 12 of 17 *Resource Name or # (Assigned by recorder) T-Mobile West LC SV00019A/VY019 Aeroscopic
*Recorded by K.A. Crawford/Michael Brandman Associates Date December 19, 2012
Continuation X Update

T-Mobile West LLC/VY019 Aeroscopic
Beauty College/Commercial Building, 5345 W. San Fernando Road, Los Angeles, CA 90039
View West/North Facade
December 19, 2012



State of California – The Resource Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____
HRI# _____
Trinomial _____

Page 13 of 17 *Resource Name or # (Assigned by recorder) T-Mobile West LC SV00019A/VY019 Aeroscopic

*Recorded by K.A. Crawford/Michael Brandman Associates Date December 19, 2012

Continuation X Update

T-Mobile West LLC/VY019 Aeroscopic
Beauty College/Commercial Building, 5345 W. San Fernando Road, Los Angeles, CA 90039
View Southeast/North and West Facades
December 19, 2012

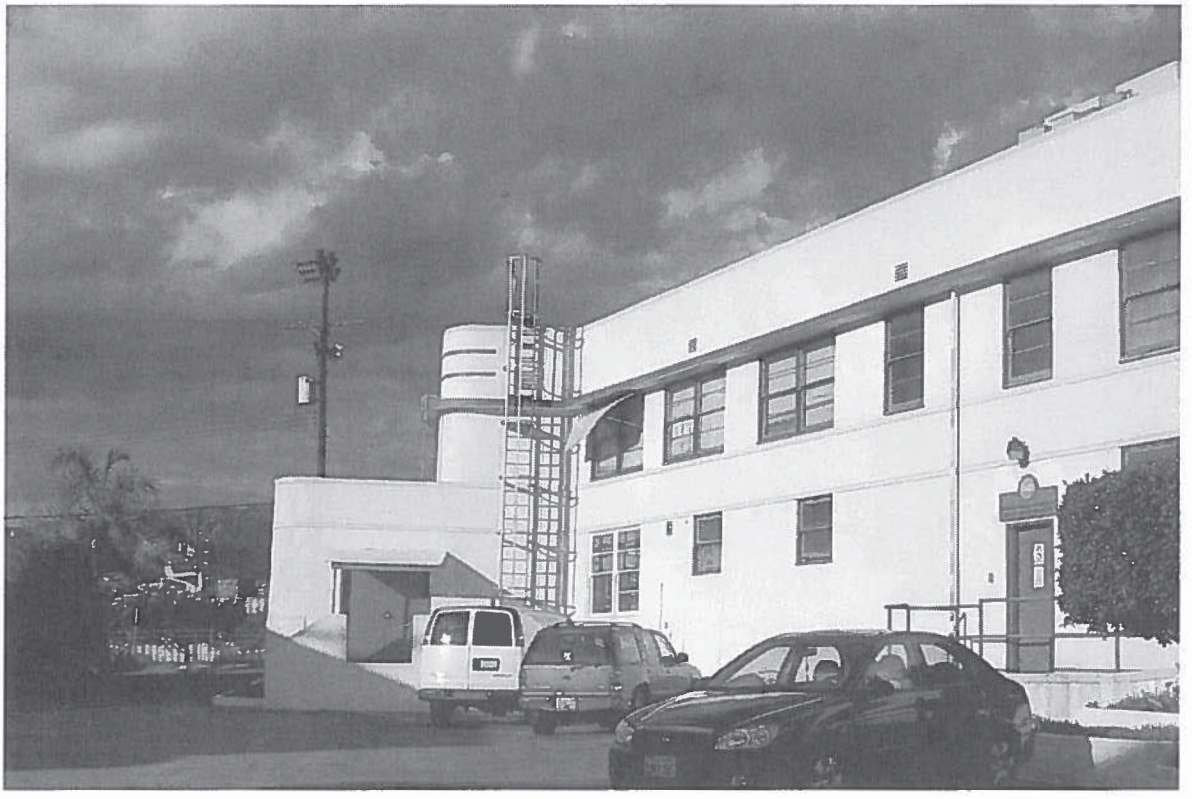


State of California – The Resource Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____
HRI# _____
Trinomial _____

Page 14 of 17 *Resource Name or # (Assigned by recorder) T-Mobile West LC SV00019A/VY019 Aeroscopic
*Recorded by K.A. Crawford/Michael Brandman Associates Date December 19, 2012
Continuation X Update

T-Mobile West LLC/VY019 Aeroscopic
Beauty College/Commercial Building, 5345 W. San Fernando Road, Los Angeles, CA 90039
View North/West Facade
December 19, 2012



State of California – The Resource Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____
HRI# _____
Trinomial _____

Page 15 of 17 *Resource Name or # (Assigned by recorder) T-Mobile West LC SV00019A/VY019 Aeroscopic
*Recorded by K.A. Crawford/Michael Brandman Associates Date December 19, 2012
Continuation X Update

T-Mobile West LLC/VY019 Aeroscopic
Beauty College/Commercial Building, 5345 W. San Fernando Road, Los Angeles, CA 90039
View Southeast/West Facade
December 19, 2012



State of California – The Resource Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____
HRI# _____
Trinomial _____

Page 16 of 17 *Resource Name or # (Assigned by recorder) T-Mobile West LC SV00019A/VY019 Aeroscopic

*Recorded by K.A. Crawford/Michael Brandman Associates Date December 19, 2012

Continuation X Update

T-Mobile West LLC/VY019 Aeroscopic
Beauty College/Commercial Building, 5345 W. San Fernando Road, Los Angeles, CA 90039
View North/West and South Facades
December 19, 2012

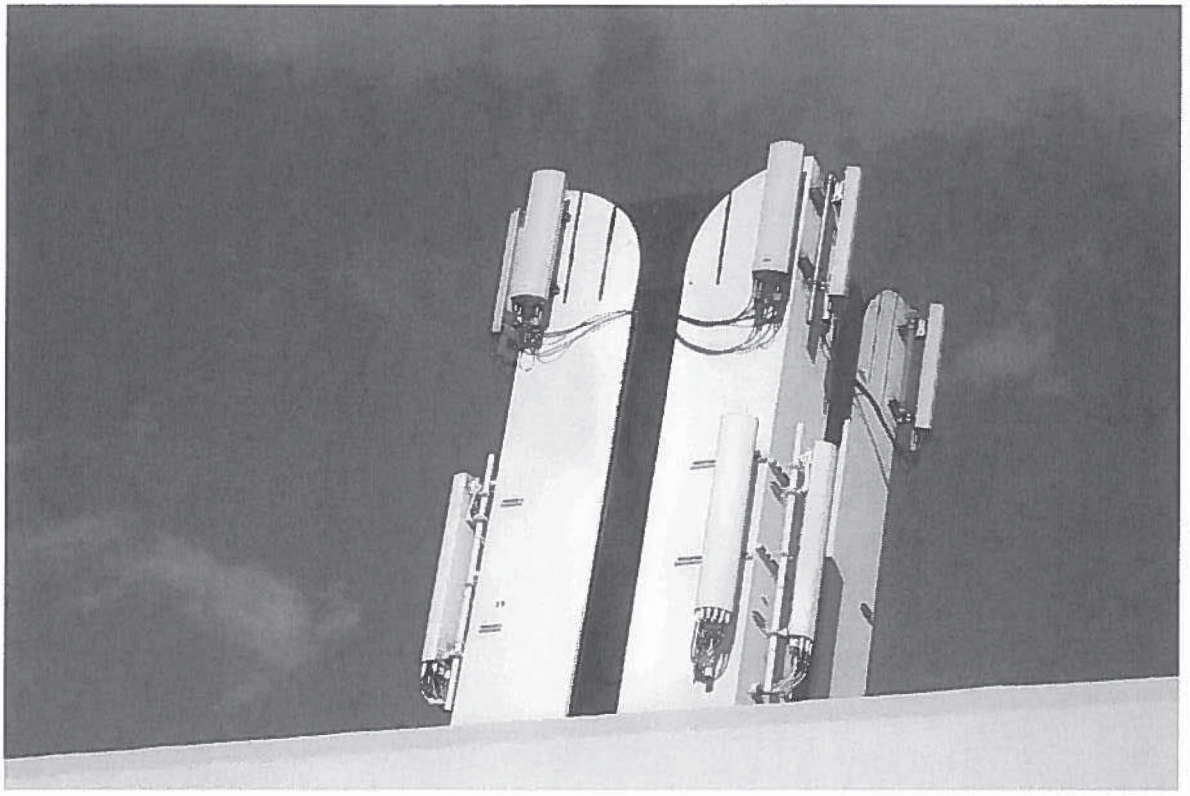


State of California – The Resource Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____
HRI# _____
Trinomial _____

Page 17 of 17 *Resource Name or # (Assigned by recorder) T-Mobile West LC SV00019A/VY019 Aeroscopic
*Recorded by K.A. Crawford/Michael Brandman Associates Date December 19, 2012
Continuation X Update

T-Mobile West LLC/VY019 Aeroscopic
Beauty College/Commercial Building, 5345 W. San Fernando Road, Los Angeles, CA 90039
View Northeast/Cell Tower Location
December 19, 2012



19-188007

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI#
Trinomial

Page 1 of 6 * Resource Name or # (Assigned by recorder) San Fernando Road

P1. Identifier: San Fernando Road

***P2. Location:** ☐ **Not for Publication** X **Unrestricted**

***a. County:** Los Angeles **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad** Hollywood & Los Angeles Date 1981 & 1994 **T** 1S ; **R** 13W ; NA **1/4 of Sec.** NA ; SB **B.M.**

c. Address Not Applicable City Glendale and Los Angeles Zip NA

d. UTM: (Give more than one for large and/or linear resources) Zone 11 ; _____ mE/_____ mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

Alignment of a segment of San Fernando Road between Glendale Avenue (Glendale) and Elm Street (Los Angeles); Northeast of the Los Angeles River and adjacent to the Southern Pacific/Union Pacific Railroad alignment.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Urban roadway, multiple lanes, extending (in total) from Main Street in Downtown Los Angeles; along present-day Ave. 20; continuing northwest as San Fernando Road; extending to Simi Valley and Castaic. Also associated with the "Old Road" (Old Ridge Route) and the original alignments for U.S. Highway 99 and U.S. Highway 6.

***P3b. Resource Attributes:** (List attributes and codes) HP-37 (Highway/Trail)

***P4. Resources Present:** ☐ Building X Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

P5b. Description of Photo: (view, date, accession #) On file, McKenna et al., Whittier, California

***P6. Date of Construction/Age and Source**

X Historic ☐ Prehistoric ☐ Both

1880's to Present Day

***P7. Owner and Address:**

City of Los Angeles and City of Glendale

N/A (see Public Works)

***P8. Recorded by:** (Name, affiliation, and address)

Jeanette A. McKenna (McKenna et al.)
6008 Friends Avenue
Whittier, California 90601-3724
(562) 696-3852 (562) 693-4059 FAX

***P9. Date Recorded:** Oct. 10, 2006

*P10. Survey Type: Phase I Survey

***P11. Report Citation:** (Cite survey report and other sources, or enter "none".) McKenna, Jeanette A. (2006) - Results of a Phase I Cultural Resource Investigation for the Proposed Los Angeles Department of Water and Power Taylor Yard Park Water Recycling Project, Located in the Glendale and Glassell Park Areas of Los Angeles County, California. On file, McKenna et al., Whittier, California.

***Attachments:** NONE X Location Map X Continuation Sheet ☐ Building, Structure, and Object Record

☐ Archaeological Record ☐ District Record X Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record

☐ Artifact Record ☐ Photograph Record X Other (List): Sketch Map

19-188007

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LINEAR FEATURE RECORD

Primary #_____
HRI# _____
Trinomial _____

Page 2 of 6 * **Resource Name or #** (Assigned by recorder) San Fernando Road

L1. **Historic and/or Common Name**: Old Road/San Fernando Road

L2. a. **Portion Described**: □ Entire Resource X Segment □ Point Observation **Designation**: SR-99/SR-6
b. **Location of point or segment**: (Provide UTM coordinates, legal description, and any other useful locational data. Show the area has been field inspection on a Location Map.)

Approximately 2 miles of road between Glendale Avenue and Elm Street, Glendale and Los Angeles (Glassell Park).

L3. **Description**: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

Historic alignment of San Fernando Road, originally established in the 1880s and continuously improved, as needed. Currently identified as a multi-lane roadway in an urban setting.

L4. **Dimensions**: (in feet for historic features and meters for prehistoric features)
a. **Top Width** _____
b. **Bottom Width** _____
c. **Height or Depth** _____
d. **Length of Segment** 2 mi.+

L4e. **Sketch of Cross-Section** (include scale) Facing:

Cross-section not available

L5. **Associated Resources**:

Van de Kamp's Bakery; associated Capitol Records Building; numerous other historic period structures

L6. **Setting**: (Describe natural features, landscape characteristics, slope, etc., as appropriate): **Urban Setting**

L8a. **Photograph, Map or Drawing**

See attached figures

L7. **Integrity Considerations**: Historic integrity lost; alignment intact.

L8b. **Description of Photo, Map, or Drawing** (View, scale, etc.) On file, McKenna Et al., Whittier, California.

L9. **Remarks**: Alignment to be impacted by proposed pipeline construction; possible historic archaeological resources in Area.

L10. **Form Prepared by** (Name, affiliation, and address)
Jeanette A. McKenna (McKenna et al.)
6008 Friends Avenue
Whittier, California 90601
(562) 696-3852 (562) 693-4059 FAX

L11. **Date**: October 10, 2006

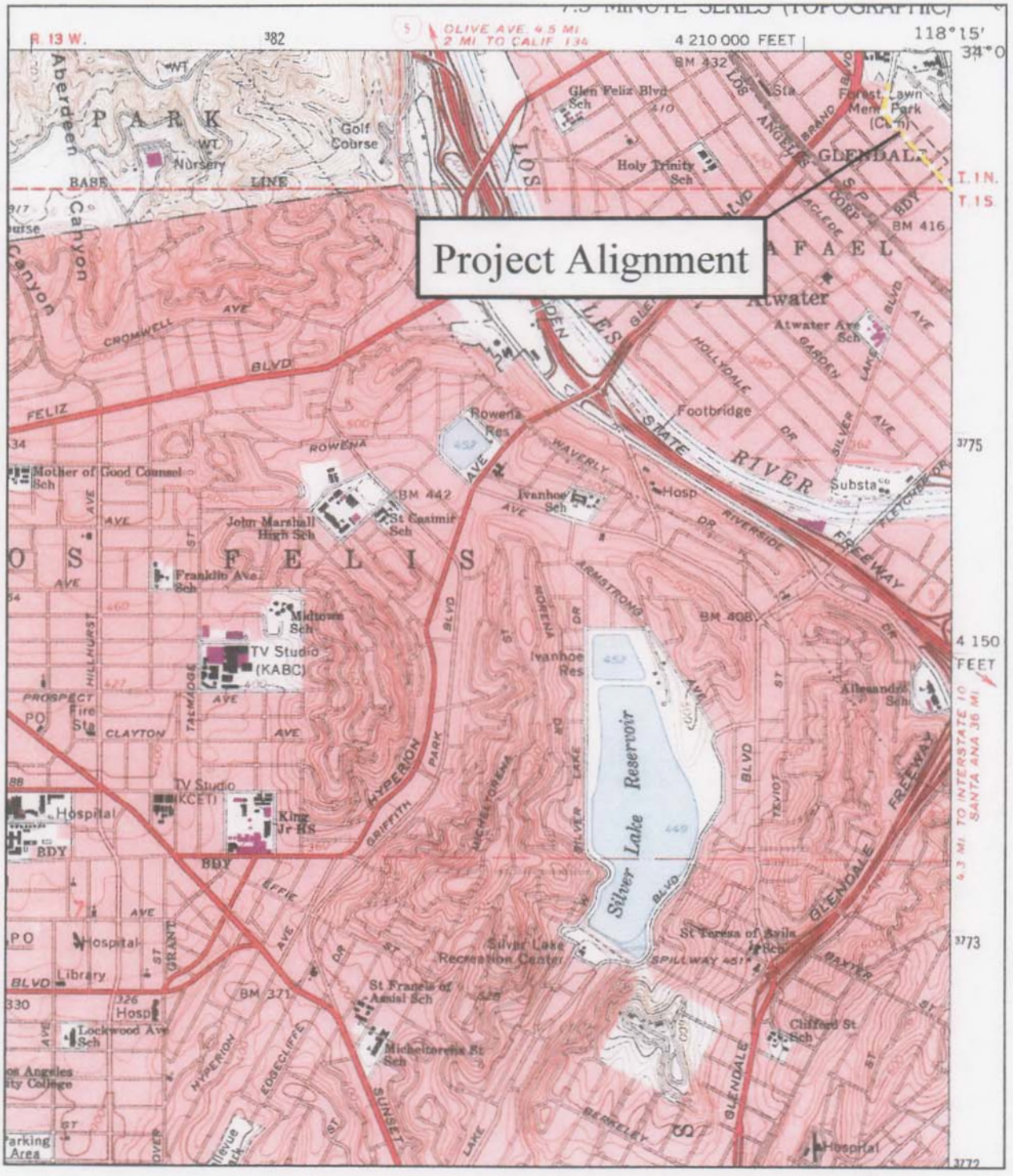
19-188007

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #_____
HRI# _____
Trinomial _____

Page 3 of 6 * Resource Name or # (Assigned by recorder) San Fernando Road
*Name of Map: USGS Hollywood *Scale: 1:24000 *Date of Map 1981



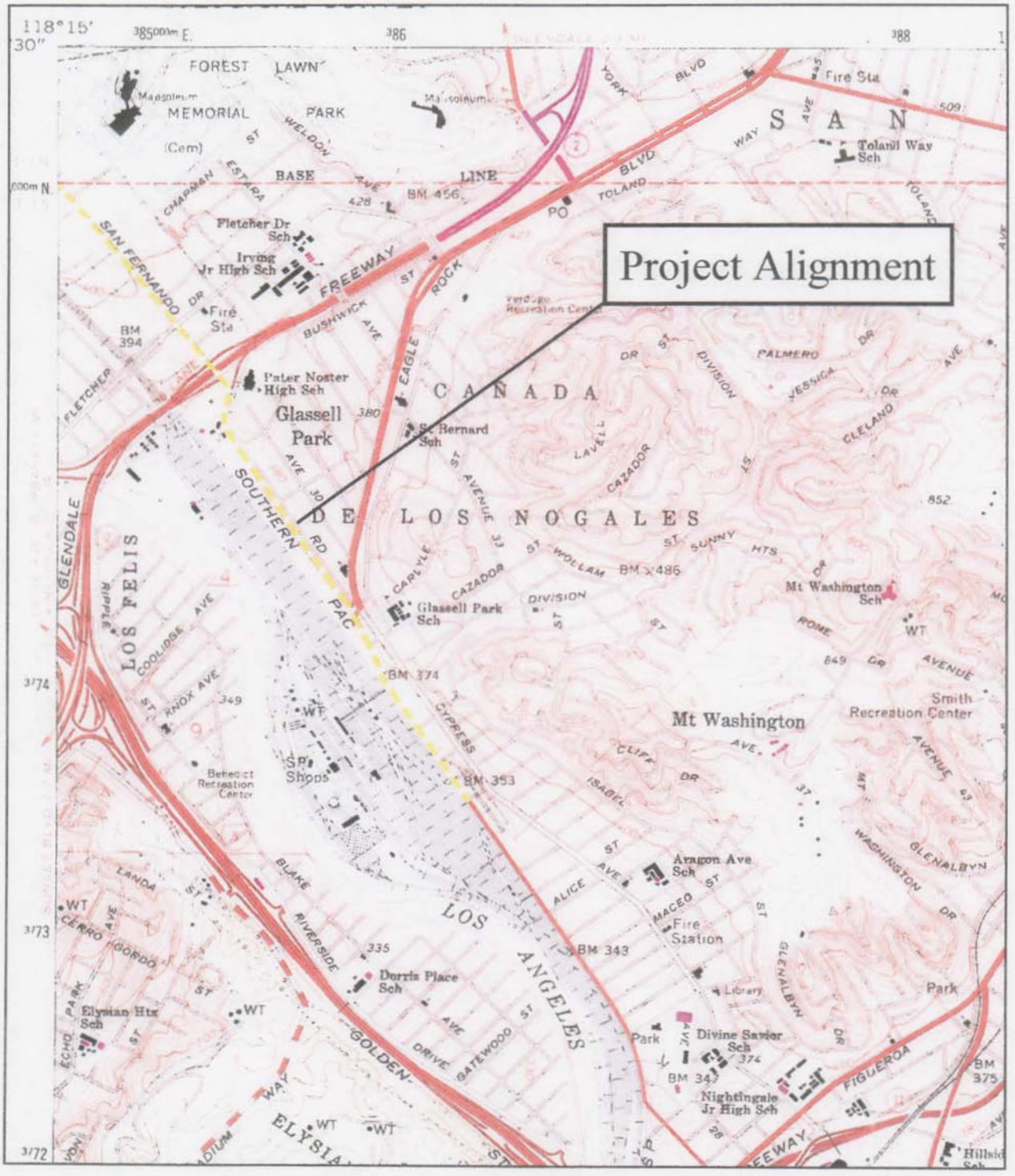
19-188007

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #_____
HRI# _____
Trinomial _____

Page 4 of 6 * Resource Name or # (Assigned by recorder) San Fernando Road
*Name of Map: USGS Los Angeles *Scale: 1:24000 *Date of Map 1994



19-188007

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

SKETCH MAP

Primary #_____
HRI# _____
Trinomial _____

Page 5 of 6 * Resource Name or # (Assigned by recorder) San Fernando Road
*Name of Map: Taylor Yard Park Project *Scale: (No Scale) *Date of Map 2006



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #_____
HRI# _____
Trinomial _____

San Fernando Road is described (www.answers.com) as:

> ... a major street in the city and county of Las Angeles ... San Fernando Road passes through the Sylmar district of Los Angeles and the City of San Fernando ... It enters the City of Glendale ... closely follows that Los Angeles River through the Atwater Village and Glassell Park neighborhoods. San Fernando Road ends at Figueroa Street, where it becomes Avenue 20, and it finally ends at Main Street, northeast of Downtown Los Angeles.
>
> Prior to the construction of Interstate 5, San Fernando Road was old U.S. Highway 99 and U.S. Highway 6 ... it was re-signed as Business Interstate 5 ... Today, San Fernando Road is used as an alterantive to the congested 5 Freeway between Lincoln Heights and the Newhall Pass ...

It should be noted that San Fernando Road, itself, is an historic roadway, dating to the 1880s and likely earlier (as a wagon road or foot path between Los Angeles and San Fernando). A review of historic maps confirmed the presence of San Fernando Road in 1896 and 1900. These two maps also illustrated the presence of structures along San Fernando Road, suggesting a potential for historic archaeological resources.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-19-188007
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code | Reviewer | Date

*Resource Name or #: P-19-188007 (San Fernando Road)

P1. Other Identifier:
*P2. Location: ☐ Not for Publication ■ Unrestricted *a. County: Los Angeles
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
*b. USGS 7.5' Quad and Date: Oat Mountain (1952, rev. 1969), San Fernando (1966, rev. 1988), Van Nuys (1966, rev. 1972), Burbank (1966, rev. 1972), Hollywood (1966, rev. 1981), and Los Angeles (1966, rev. 1981) T 1S, 1N, 2N, 3N; R 13W, 14W, 15W, 16W; ¼ of ¼ of Sec unsectioned; S.B.B.M.
c. Address: City: Zip:
d. UTM: Zone:
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation:
San Fernando Road extends from Sierra Highway to its terminus at North Main Street.

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries) The resource includes four segments (A-D) of the multi-lane, historic San Fernando Road which traverses the cities of Los Angeles, San Fernando, Burbank, and Glendale. A segment of the road was first recorded in 2006 (McKenna, 2006). The road currently extends from Sierra Highway to its terminus at North Main Street in Los Angeles. San Fernando Road was a major thoroughfare in southern California from at least the 1870s to 1963. In the 1920s, the road became part of U.S. Highway 99, which extended from the Meixcan border to the Canadian border. The highway was decommissioned in the 1960s when I-5 was constructed. In 1993 California passed a resolution recognizing the roadway as historically significant and important to the development of the state and allowing for sections to be designated as "Historic U.S. Highway 99."

*P3b. Resource Attributes: (List attributes and codes) HP38: highway
*P4. Resources Present: ☐Building ■Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)



P5b. Description of Photo: (View, date, accession #) Overview of San Fernando Road just south of Balboa Blvd, view to the southeast; December 7, 2011, Img_547.

*P6. Date Constructed/Age and Sources: ■Historic
☐Prehistoric ☐Both

*P7. Owner and Address:
Los Angeles County

*P8. Recorded by: (Name, affiliation, and address)
C. Ehringer, ESA
626 Wilshire Boulevard, Suite 1100
Los Angeles, California 90017

*P9. Date Recorded:
December 7, 2011

*P10. Survey Type: (Describe)
Intensive

*P11. Report Citation: (Cite survey report and other sources, or enter "none.") Ehringer, Candace, and Michael Vader, *Santa Clarita Valley Sanitation District Chloride TMDL Facilities Plan Project: Phase I Cultural Resources Assessment*, prepared for the Santa Clarita Valley Sanitation District, prepared by Environmental Science Associates, January 2013.

*Attachments: ☐NONE ■Location Map ☐Sketch Map ■Continuation Sheet ■Building, Structure, and Object Record ☐Archaeological Record ☐District Record ■Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code 3S

*Resource Name or # (Assigned by recorder) P-19-188007 (San Fernando Road)

B1. Historic Name: San Fernando Road/Avenue 20
B2. Common Name: San Fernando Road
B3. Original Use: Transportation
B4. Present Use: Transportation
*B5. Architectural Style: industrial
*B6. Construction History: (Construction date, alterations, and date of alterations)
1870s - First cleared
1896 - Portions macadamized
1910 - Los Angeles- Burbank section macamdamized
1924 to 1926 – initial steps taken to widen and improve the road to its current condition within Glendale and Burbank
1927 to 1929 - 25 miles widened and paved with asphaltic concrete from Dayton Avenue (present-day North Figueroa Street) to Newhall Pass
1991 – Burbank Media Center Mall constructed

*B7. Moved? ■No ☐Yes ☐Unknown Date: Original Location:
*B8. Related Features: Bridges CA53C-0226, CA53C-0300, and CA53C-0302
B9a. Architect: unknown
b. Builder: multiple
*B10. Significance: Theme: Transportation
Area: Los Angeles County
Period of Significance: ca. 1924-1963
Property Type: Road/Highway
Applicable Criteria: A/1
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

San Fernando Road extends from Sierra Highway to its terminus at North Main Street in Los Angeles. The road was first recorded in 1871, although the name of the road is mentioned at least as early as 1863 in Los Angeles newspapers (Los Angeles Star, 1863; Yamada, 2002). Prior to that, the road was likely a route used by Native American groups and, later, Spanish explorers who passed through the area traveling between Mexico and Northern California. When the road was recorded during the "Great Partition of 1871," the court ordered San Fernando Road remain a public road indefinitely (Yamada, 2002).

The road, not more than a dirt trail at the time, was first cleared and packed by Remi Nadeau, to facilitate the transport of silver ore wagons from Owens Valley to Los Angeles) in the 1870s. (Roderick, 2001: 40; West Adams Heritage Association, 2012).

(see continuation sheet)

B11. Additional Resource Attributes: (List attributes and codes) HP38:highway

*B12. References: (see continuation sheet)

B13. Remarks:

(Sketch Map with north arrow required.)
See attached map

*B14. Evaluator: C. Ehringer

*Date of Evaluation: May 2012

(This space reserved for official comments.)

LINEAR FEATURE RECORD

 Resource Name or #: (Assigned by recorder) P-19-188007 (San Fernando Road)

L1. Historic and/or Common Name: San Fernando Road

L2a. Portion Described: ☐ Entire Resource ■ Segment ☐ Point Observation **Designation:** Segments A-D

b. Location of point or segment: (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map) Segment A extends from the northern terminus of San Fernando at Sierra Highway to the northern end of Truman Street. Segment B extends from the southern end of Truman Street to North Lincoln Street/Victory Place (presently referred to as North San Fernando Boulevard at this location). Segment C extends from Allen Avenue to Goodwin Avenue (at this point the historical route of San Fernando Road doglegged along present-day Los Angeles Street and Garfield Avenue). Segment D extends from Garfield Avenue to its terminus at North Main Street.

L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.) The resource includes four segments (A-D) of the multi-lane, historic San Fernando Road which traverses the cities of Los Angeles, San Fernando, Burbank, and Glendale.

L4. Dimensions: (In feet for historic features and meters for prehistoric features)

a. Top Width:

b. Bottom Width: varies from 55-65 feet in width

c. Height or Depth:

d. Length of Segment: Segment A: 4.35 miles; Segment B: 8.05 miles; Segment C: 2.99 miles; Segment D: 4.5 miles

L5. Associated Resources:
Bridges CA53C-0226, CA53C-0300, and CA53C-0302

L4e. Sketch of Cross-Section (include scale) **Facing:**

L6. Setting: (Describe natural features, landscape characteristics, slope, etc., as appropriate.) The resource traverses urban areas of the citites of Burbank, Glendale, and Los Angeles.

L7. Integrity Considerations: The alignment of San Fernando Road has changed little in the past 90 years and the setting remains largely industrial/commercial.

L8a. Photograph, Map or Drawing



L8b. Description of Photo, Map, or Drawing (View, scale, etc.)
San Fernando Road at Ratner, view to the southeast

L9. Remarks:

L10. Form Prepared by: (Name, affiliation, and address)
M. Vader
ESA
626 Wilshire Boulevard, Suite 1100
Los Angeles, California 90017

L11. Date: January 7, 2013

State of California- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

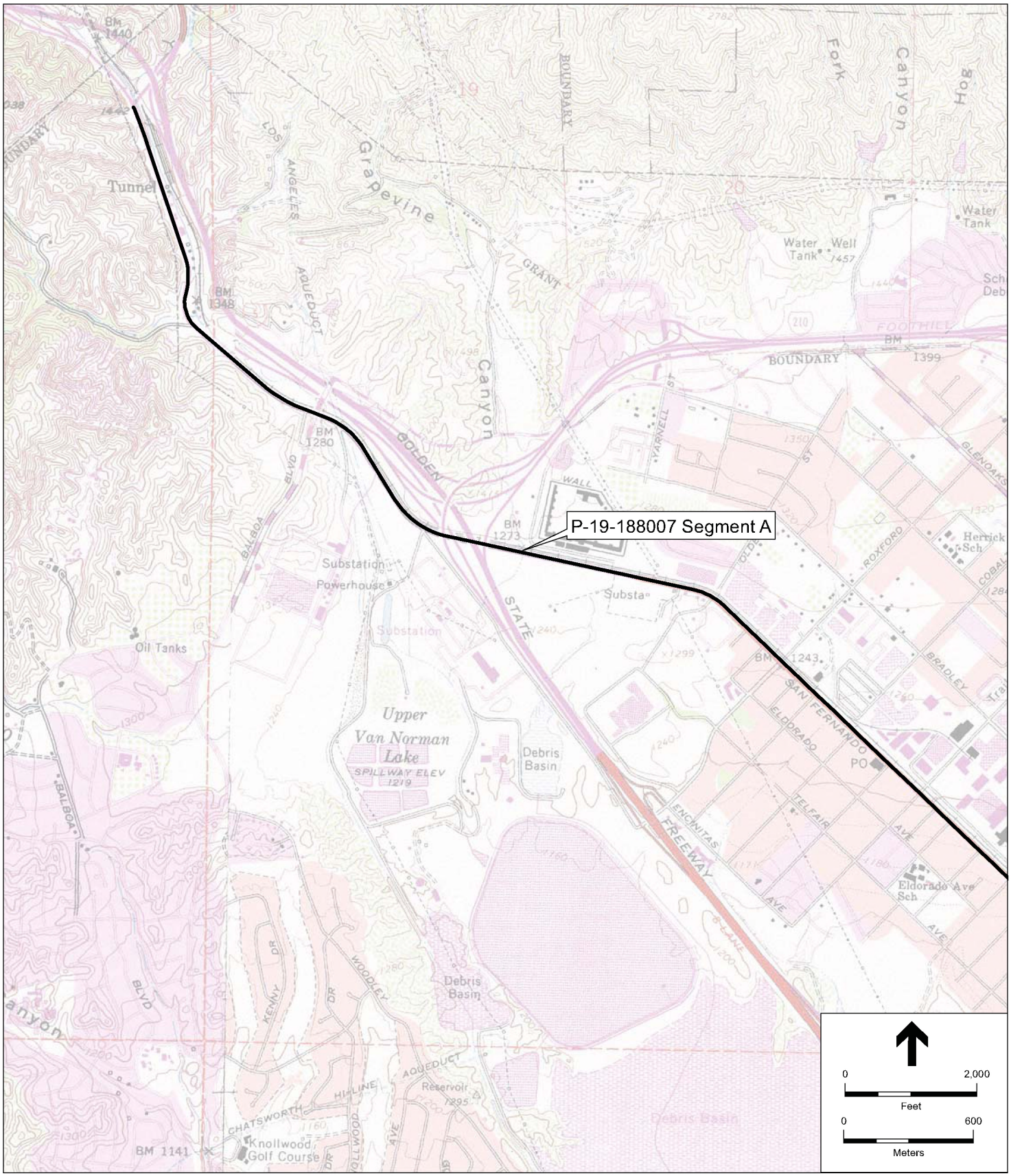
Primary # P-19-188007
HRI #
Trinomial

* Resource Name or Number: P-19-188007 Segment A

*Map name: Oat Mountain and San Fernando

*Scale: 1:24000

*Date of Map: 1972, Photorevised 1978



State of California- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

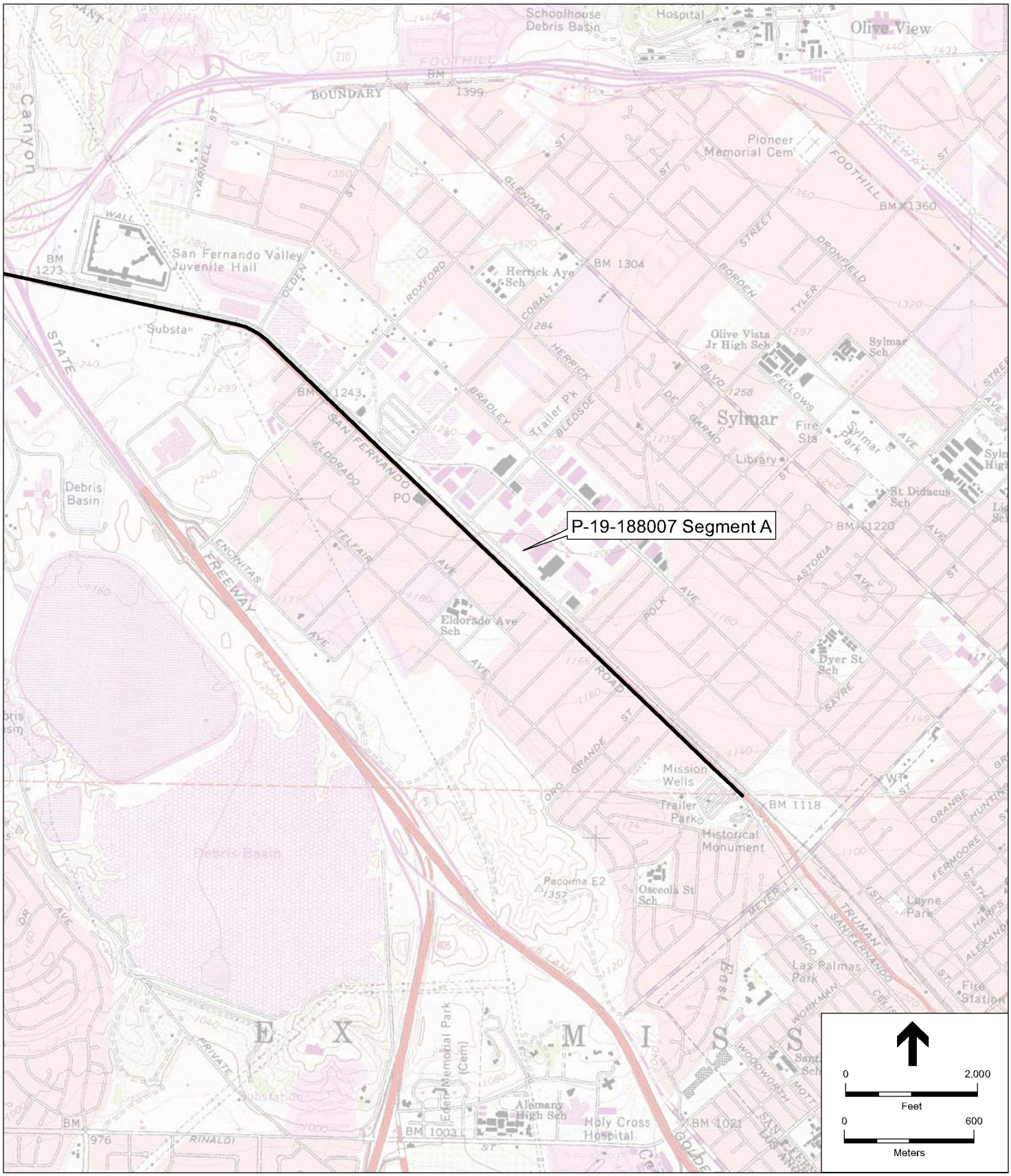
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*Map name: Oat Mountain and San Fernando

*Scale: 1:24000

*Date of Map: 1972, Photorevised 1978



State of California- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

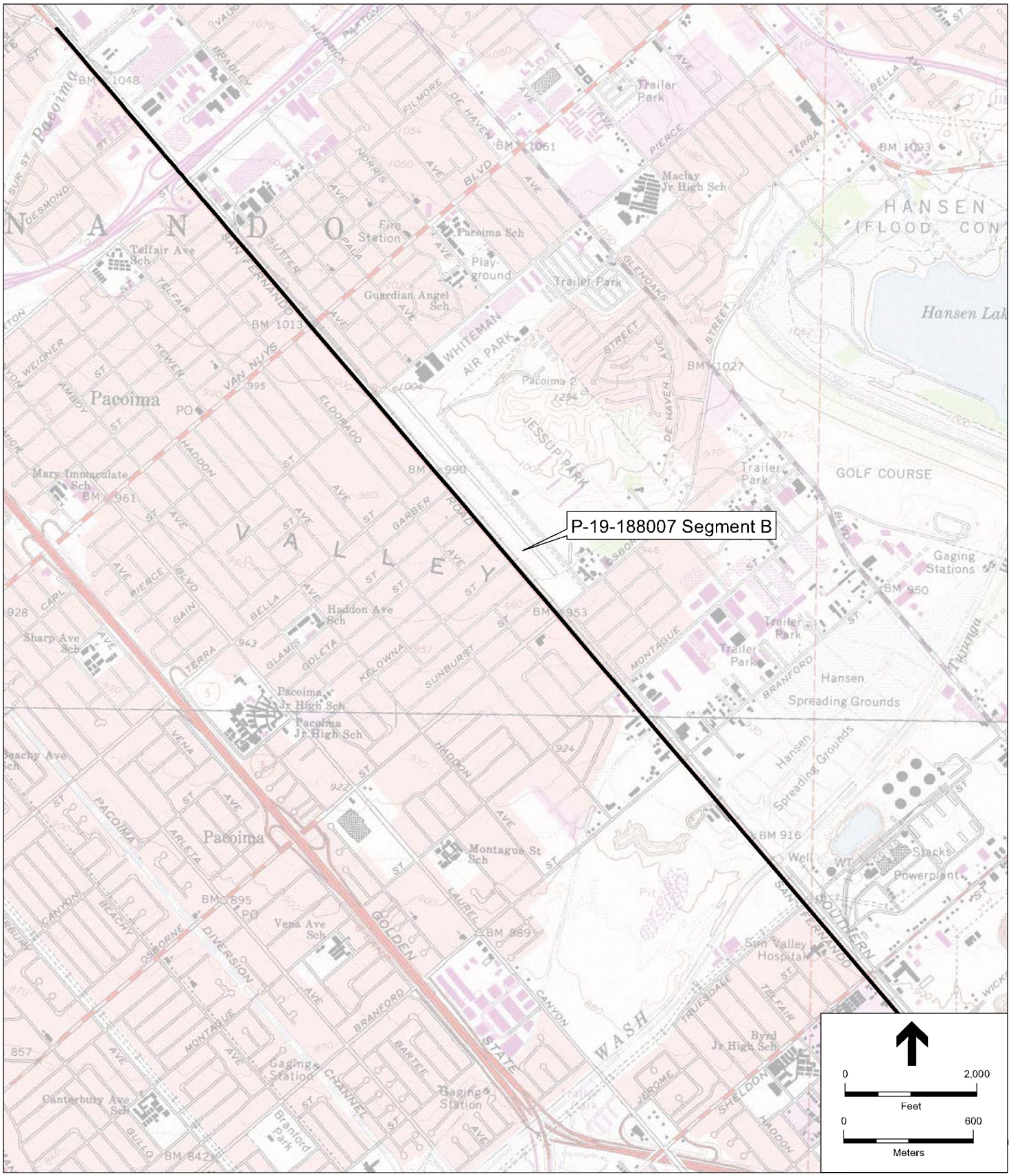
Primary # P-19-188007
HRI #
Trinomial

* Resource Name or Number: P-19-188007 Segment B

*Map name: San Fernando and Van Nuys

*Scale: 1:24000

*Date of Map: 1972, Photorevised 1978



State of California- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

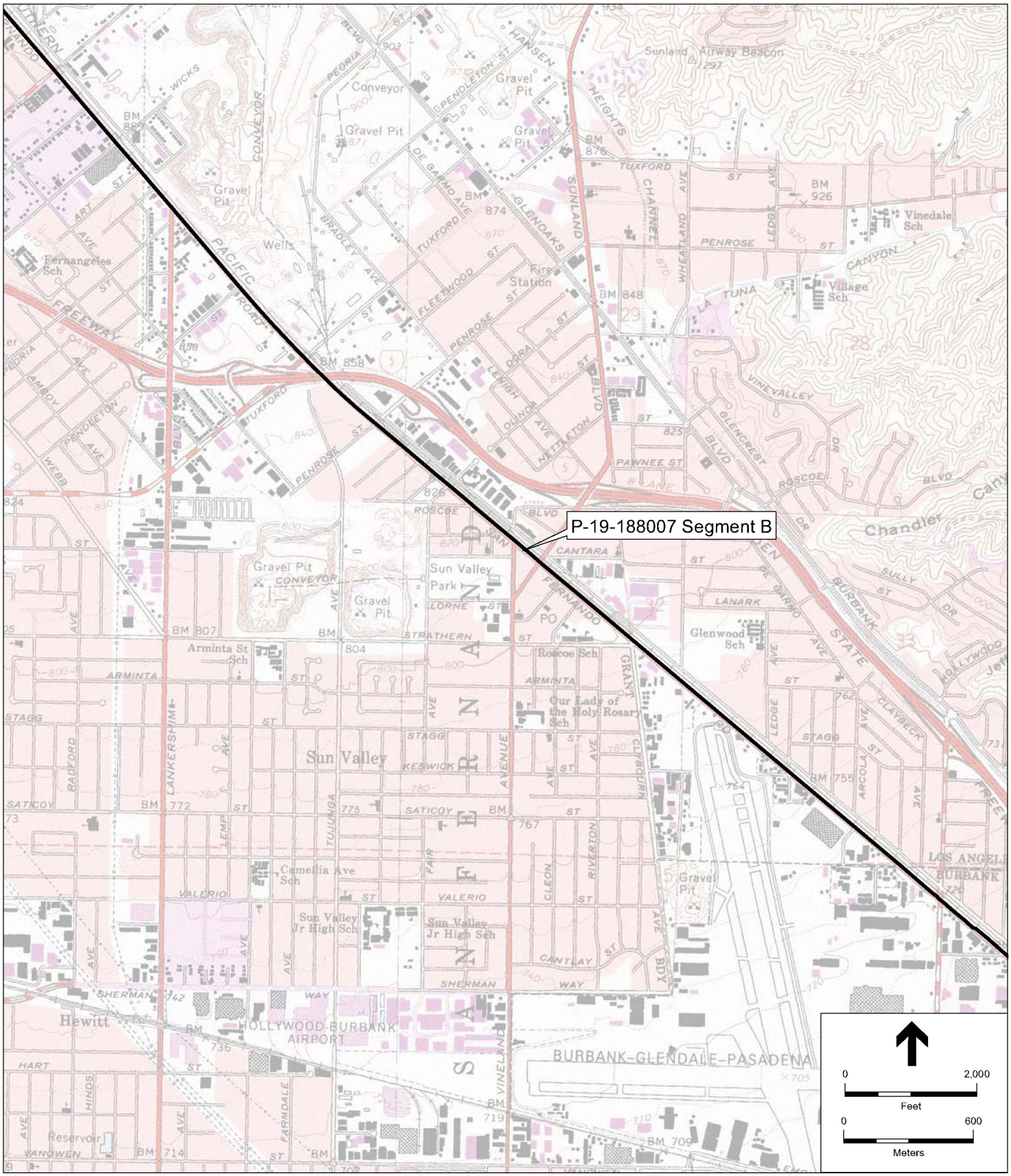
Primary # P-19-188007
HRI #
Trinomial

* Resource Name or Number: P-19-188007 Segment B

*Map name: Van Nuys and Burbank

*Scale: 1:24000

*Date of Map: 1972, Photorevised 1978



State of California- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

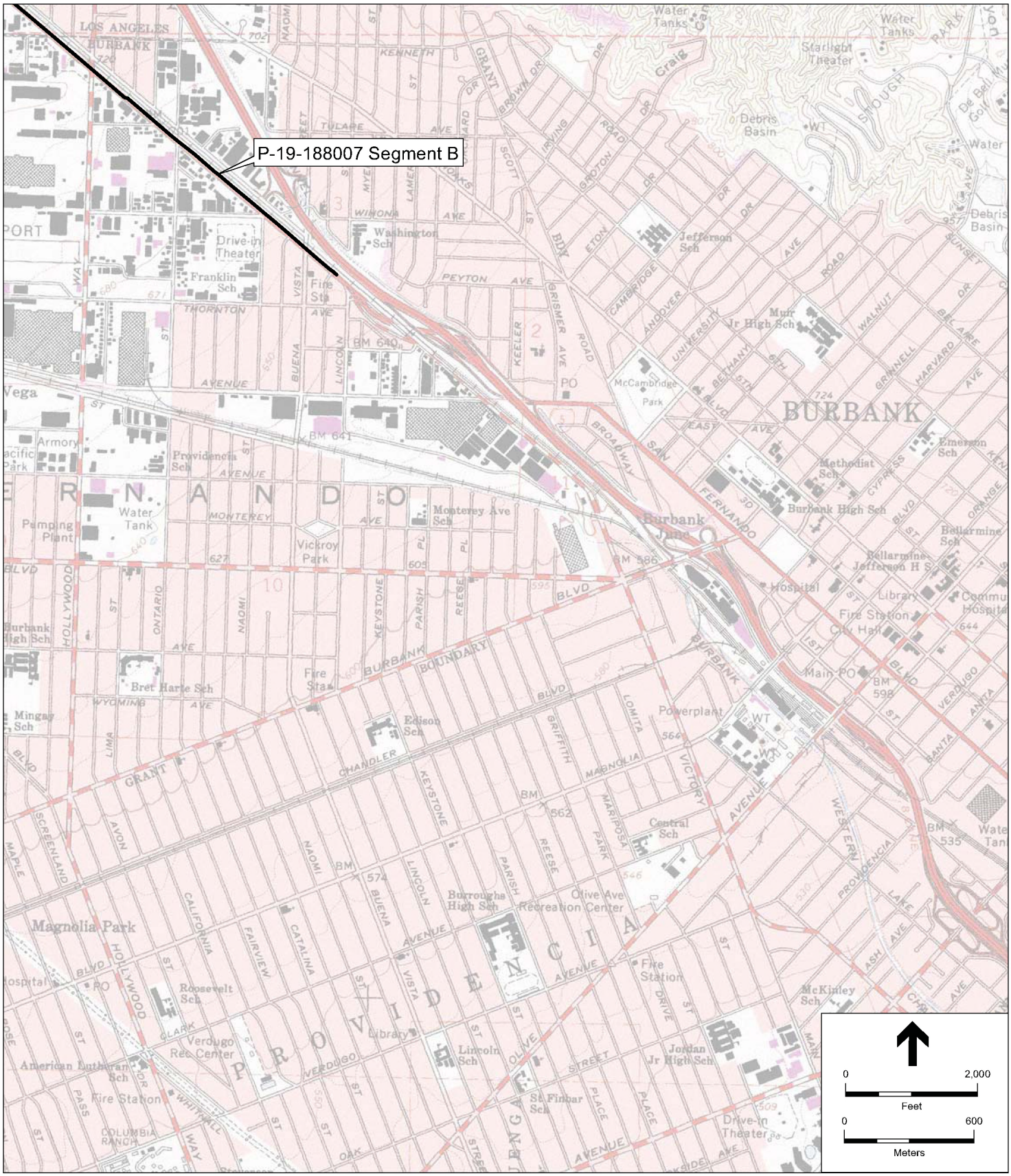
Primary # P-19-188007
HRI #
Trinomial

* Resource Name or Number: P-19-188007 Segment B

*Map name: Burbank

*Scale: 1:24000

*Date of Map: 1972, Photorevised 1978



State of California- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

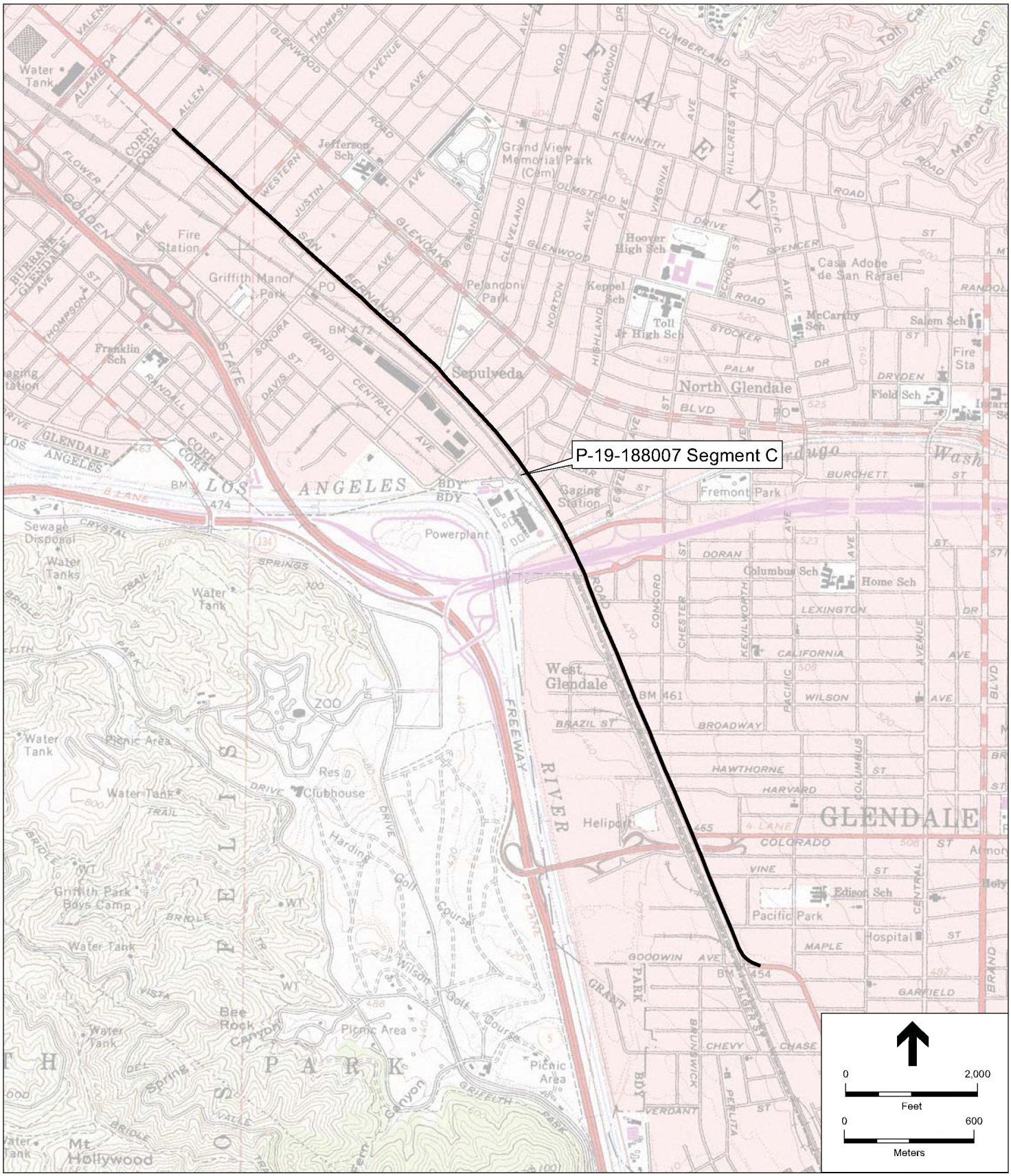
Primary # P-19-188007
HRI #
Trinomial

* Resource Name or Number: P-19-188007 Segment C

*Map name: Burbank

*Scale: 1:24000

*Date of Map: 1972, Photorevised 1978



State of California- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

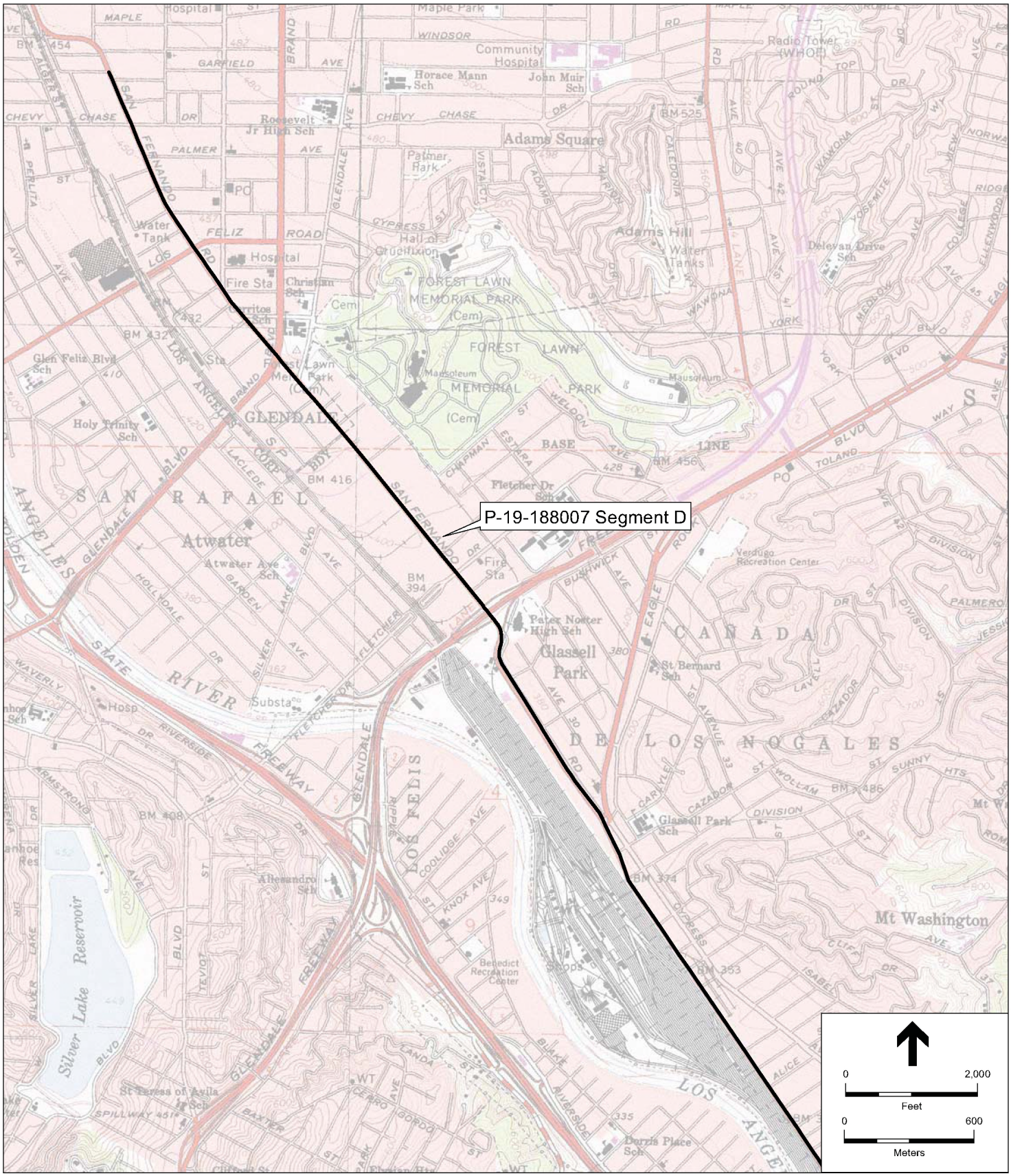
Primary # P-19-188007
HRI #
Trinomial

* Resource Name or Number: P-19-188007 Segment D

*Map name: Burbank, Hollywood, Los Angeles

*Scale: 1:24000

*Date of Map: 1972, Photorevised 1978



State of California- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

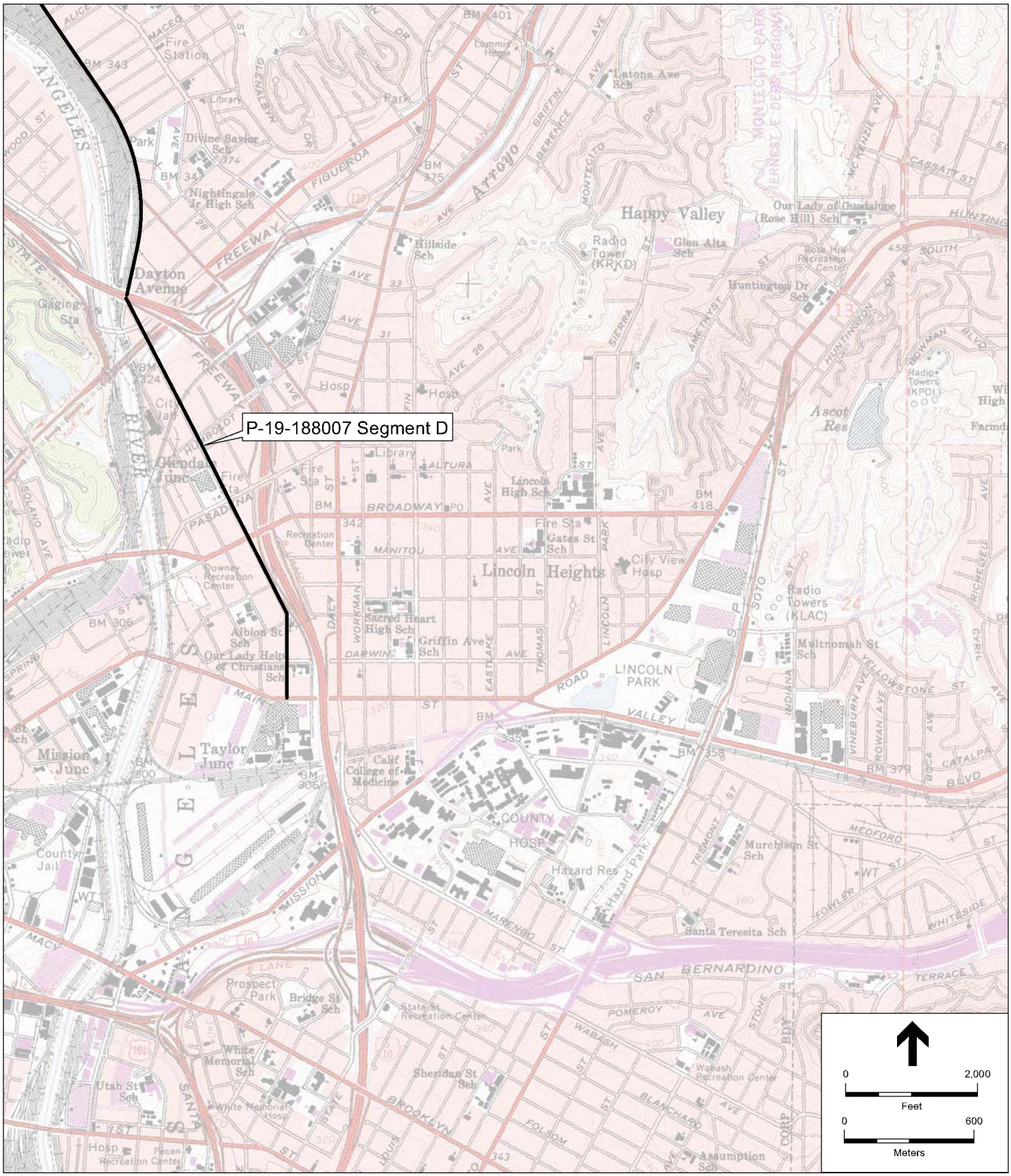
Primary # P-19-188007
HRI #
Trinomial

* Resource Name or Number: P-19-188007 Segment D

*Map name: Los Angeles

*Scale: 1:24000

*Date of Map: 1972, Photorevised 1978



***B10. Significance:**

By 1890, the unpaved roadway was one of the most frequently used routes in Los Angeles County. Its upkeep was of concern to area residents, who relied on it for transporting agricultural products from the valley to city markets (Sherer, 1890; LAT, 1892a). The portion within the city limits of Los Angeles was perhaps the worst-kept part of the route. By July of 1892, several improvements had been made. The road was widened and holes filled. Also, an agreement was struck between the County of Los Angeles and residents to sprinkle the road – the County would sprinkle, if residents supplied the water (LAT, 1892b; 1892c).

The state of the road continued to improve and by 1896 newspaper accounts were declaring San Fernando Road "one of the best in the district" (LAT, 1896). The road was touted as one of the best for cycling from Los Angeles to Burbank, and at least part of it had been macadamized (LAT, 1897). Macadamization was named after John Loudon MacAdam, a Scotsman who invented the process circa 1820. The first macadam road in the United States was constructed in 1823 (curbstone, 2009). These roadbeds were built by laying down large, then medium, and then small crushed, angular rocks. Water was often used as a binder, though asphalt could be used as well. Macadimized roads drained well, meaning wagons were less likely to get stuck in the mud. Their smoother surface also required less horse power. Farming became more productive and profitable in areas with macadamized roads (McNichol, 2005: 30; Stilgoe, 2001). Bicyclists preferred them as well.

However, as one of the most used roads in the county, San Fernando Road required constant maintenance and improvement to keep pace with increased traffic as Southern California's population grew. The segment of San Fernando Road within the city limits remained the worst-kept portion (Goode, 1903). In a 1905 letter to the Los Angeles Times, Mr. Eshelman noted "perhaps no other public road entering the city is so extensively used." Trade between the San Fernando Valley and Los Angeles relied on this route. The author reported, "One morning seventy-three wagon loads of melons came into the city over this road" (Eshelman, 1905). A more permanent solution than gravel was needed to keep the traffic (and commodities) flowing.

In 1904, Jim Hanley was elected Street Superintendent for the City of Los Angeles, in part because during his previous tenure as Los Angeles County Supervisor (1892 to 1902), he had built San Fernando road into "one of the finest roadbeds in the State" transforming a dusty track into a fine road using decomposed granite for roadbed (LAT, 1904a). Hanley, known as the "road builder," was needed to improve streets throughout the City of Los Angeles, as he had done for the county (Los Angeles Herald, 1905).

By 1908, plans were underway to improve roads throughout Los Angeles County with macadam or asphalt (LAT, 1908; 1910a; 1914a). The completion of San Fernando Road, over which "San Fernando Valley products are nearly all brought to Los Angeles by team…will interest more people directly than almost any other piece of work" (LAT, 1910b). Improvement of San Fernando Road would allow for increased travel and trade (Wilson, 1910). By December 1910 almost all of San Fernando Road from Los Angeles to Burbank had been paved, using crushed rock from the Pacoima quarry (LAT, 1910c; 1910d). The macadam center was to be 16 feet wide, but that width was later found insufficient and modified to 20 feet wide. The entire project was completed by 1914, with San Fernando Road being the most costly roadway improved at $528,599 (LAT, 1914a).

Despite these improvements, by November 1911 some portions of San Fernando Road were already undergoing repairs, specifically in Los Angeles and from the city limits to Burbank (LAT, 1911). These repairs must have been successful because by November of 1912, San Fernando Road was being advertised as "an excellent macadam driveway extending from Los Angeles through the entire valley" (LAT, 1912).

This road remained the choice of transport for valley farmers to get their product to Los Angeles, as shipment by rail was more costly. The recent creation of an auto trucking industry also cut costs and allowed farmers to remain in the fields while someone else transported their goods to market overnight. The city was thus provided with the freshest produce, and the farmer could command the highest prices (LAT, 1912). During the same timeframe, San Fernando Road was chosen by gas and oil companies to convey natural resources from the San Joaquin Valley to the City of Los Angeles. Pipelines had been laid within the street right-of-way. These main pipelines would also serve growing communities north of Los Angeles, such as Burbank (LAT, 1912).

Prior to about 1910, most waterways along the road were not spanned by bridges. Intermittent watercourses, such as the Pacoima Wash, Tujunga Wash, and Verdugo Wash, were usually impassable during inclement weather, making travel along San Fernando Road difficult if not impossible during the wet season. The Los Angeles Times reported that "there are half a dozen channels through which a great deal of water runs just below the town of San Fernando and the washing out of the roadbed here has often tied up traffic for several days" (LAT, 1910b). Bridges were the much-needed solution that would keep San Fernando Road open year-round.

***B10. Significance:**

By 1910, several wooden pile trestle bridges with concrete abutments had been completed on San Fernando Road (LAT, 1910e). A concrete bridge had also been proposed for crossing the Verdugo Wash. This bridge would remove "one of the bad spots on the much-traveled thoroughfare to the north" (LAT, 1910b). These bridges would put an end to the "perilous fording of washes" on one of the busiest routes in Los Angeles County (LAT, 1910f).

Of exception was the crossing of the Arroyo Seco at San Fernando Road (often referred to as Avenue 20 after crossing Arroyo Seco), where a bridge was in already in place by 1904. The bridge was the main route of trade from the San Fernando Valley to Los Angeles. In 1904, 566 San Fernando Valley ranching teams passed over the San Fernando Road (Avenue 20) Bridge in a 24-hour period, compared to 80 over Cahuenga Pass and 40 over Avenue 26 (LAT, 1904b). The bridge was damaged by floods in 1909 and eventually replace by a concrete two-span structure in 1913 (LAT, 1909), which survived the floods of 1914 and is still standing (LAT, 1914b; Sachse, 1920: 220).

About ten years later, the call to widen and improve San Fernando Road was again heard, as the road remained the major business route from Los Angeles to the San Fernando Valley, as well as other points north (LAT, 1924a). The automobile had become the preferred mode of transport and the population of the region was increasing at a fast pace (Bottles, 1987: 58-59). "This highway, said to rival Harbor Truck Boulevard in tonnage carried, has been one of the most congested roads, and therefore one of the greatest obstacles, in the development of Northeastern Los Angeles" (LAT, 1927a). Petitions were circulated in December of 1923 urging agencies to widen the roadway to 60 feet, thereby relieving the congestion (LAT, 1923).

In 1924, the Los Angeles Times noted that the roadway was the original route from the north to Los Angeles and that it was too narrow to serve today's traffic. San Fernando Road's improvement was "essential to the intercommunity traffic of the valley as well as the flood of intercounty business northward from Los Angeles" (LAT, 1924b). Toward these improvements, the County appropriated $60,000 for widening and paving the road within the city limits of Glendale. Burbank also began taking steps to widen and pave the segment of the roadway within its city limits, including the removal of a dangerous bend known as "Turkey Neck Curve" (LAT, 1924a; 1924c). However, work along the entire route would not be completed for several more years.

In August 1927, the Los Angeles City Council adopted the first of three ordinances required to proceed with widening and paving San Fernando Road from Dayton Avenue (present-day North Figueroa Street) to the Newhall Pass, a distance of 25 miles (LAT, 1927b). Completion of the project would "result in a wide, well-paved highway for the entire length of the San Fernando Valley, helping to develop the valley through making it more accessible by automobile" (LAT, 1928a). The total cost was projected to be $1.2 million (LAT, 1928b). E. L. Fleming was awarded one contract worth $578,331.01 and the George R. Curtis Paving Company another, valued at $432,479 (LAT, 1928b).

The first section to be undertaken was between Burbank and the southern city limits of San Fernando, a distance of 6.8 miles. The existing pavement, which averaged about 22 feet in width, was widened to 55 feet. Both the street and shoulders were composed of an 8-inch-thick layer of asphaltic concrete (a mixture of asphalt and aggregate), chosen for its ability to withstand heavy traffic (LAT, 1928c).

The second section to be complete was the section from the northern city limits of San Fernando to the Newhall Pass. This portion of the road would be widened to 36 feet, with 5 foot gravel shoulders (LAT, 1928a). Contract for work was awarded in August 1928, with work to begin immediately (LAT, 1928d).

The final section, from Dayton Avenue to the Glendale city limits, had been held up by legal action by property owners (LAT, 1928e). It was completed in 1929 by contractor P.J. Akman. This portion was the final link in U.S. Highway 99, which had been designated in 1926 (LAT, 1929). U.S. Highway 99 extended from Mexico to Canada and was to become the "busiest truck route in the nation" (McWilliams, 1980).

Glendale widened and paved a 5-mile portion of San Fernando Road within the city limits in 1930 at a cost of $223,000. Width of the new pavement varied from 62.5 to 66 feet and allowed the route to become "the fast traffic speedway for all motorists from San Fernando Valley en route to Los Angeles" (LAT, 1930). All of this work was successful and by 1949 the route continued as the main artery for traffic in Southern California, moving "more tonnage… by truck than over any other highway in the nation" (LAT, 1949).

***B10. Significance:**

Bridges carrying San Fernando Road over waterways were also in need of repair or replacement. The 1924 collapse of a wooden trestle bridge spanning the Arroyo Seco at Avenue 26 brought bridge rehabilitation to the fore. The wooden bridges were too narrow to accommodate widening efforts and unable to handle the weight of heavy, modern vehicular traffic (LAT, 1924d). One of the bridges identified for replacement was the San Fernando Road Bridge over the Pacoima Wash, whose collapse had been prevented by the installation of temporary posts. The new bridge would be 100 feet long and 40 feet wide. It would be placed so that a dangerous curve in the road would be eliminated, resulting in one of the few modifications made to the original alignment of San Fernando Road in its history (LAT, 1924e). The new concrete bridge was designed by John A. Griffin, City of Los Angeles, and constructed by Hogan Construction Company at a cost of $37,500 (Caltrans, 2003a; LAT, 1926a).

Heavy rains in February of 1926 damaged the wooden trestle bridge that carried San Fernando Road across Tujunga Wash (LAT, 1926b). The bridge was repaired, but severely damaged again later that year by flooding in April (LAT, 1926c). However, the wooden bridge would not be replaced with a concrete bridge until the 1930s. In1934, the San Fernando Road over Tujunga Wash was identified as one of 16 bridge projects to be funded by the Public Works Administration (LAT, 1934a). In 1935, the State opened bidding for the construction of the new bridge spanning the wash (LAT, 1935a). State and federal funds in the amount of $225,000 were granted for its construction (LAT, 1935b). A contract from the State Department of Public Works was awarded to Griffith Company of Los Angeles in the amount of $91,119 for the construction of a bridge on San Fernando Road across Tujunga Wash (LAT, 1935c). Replacement of the old bridge with a new, wider concrete bridge removed the last bottleneck impeding traffic along the widened San Fernando Road (LAT, 1936).

The existing San Fernando Road Bridge over Verdugo Wash was constructed part of a U.S. Army Corps of Engineers flood control project in the 1930s. After a disastrous flood on New Year's Day in 1934 took the lives of 30 individuals and caused $5 million in damages, the Los Angeles County Flood Control District appealed to the Civil Works Administration for aid in controlling the Verdugo Wash run-off (LAT, 1934b; 1934c). The project was approved in 1935. Six miles of the existing Verdugo Wash conduit would be widened from 43 to 85 feet through Glendale to the washes' discharge into the Los Angeles River, just west of San Fernando Road (LAT, 1935d). Fernando Road Bridge over Verdugo Wash was completed in 1939.

Improvements were again needed to keep pace with the post-World War II boom. Seven miles of San Fernando Road from the city limits of San Fernando to Hollywood Way in Burbank needed to been widened to accommodate all the trucks (LAT, 1949). To alleviate the effects of truck traffic through the small San Fernando business district in 1952, the city completed Truman Street, parallel to San Fernando Road, and instituted one-way traffic through the area (LAT, 1964). But by 1958 the problem had gotten so bad that the City of San Fernando threatened to ban truck traffic entirely if the State did not help (LAT, 1958). Burbank had faced the same problem in 1943 and had re-routed truck traffic around the downtown business district (LAT, 1943). Glendale reported in 1956 that "truck traffic now on San Fernando has reached a virtual saturation point" (LAT, 1956). As in 1905, a more permanent solution was needed to keep the traffic (and commodities) flowing.

The solution was on the way – the Golden State Freeway (Interstate 5 [I-5]). The freeway was first proposed in 1953 and would extend from the Mexican border to the Canadian border, supplanting San Fernando Road (U.S. Highway 99) as the major inland thoroughfare in the region. The final San Fernando Valley section was completed in 1963 and the heyday of San Fernando Road came to an end (LAT, 1963). The City of San Fernando gladly welcomed two-way traffic through the City's business district again (LAT, 1964).

Most of the bridges within the San Fernando Road alignment required alterations to accommodate the widened roadway. The San Fernando Road Bridge over Pacoima Wash was improved in 1940, with assistance from the Works Progress Administration (LAT, 1940). The 1913 San Fernando Road Bridge over Arroyo Seco was modified in the late 1930s or early 1940s during the channelization of the Arroyo Seco when one of the two arch spans was backfilled (Caltrans, 2003a; Strauss et al., 2003). The San Fernando Road Bridge over Tujunga Wash was improved in 1951, possibly as part of the Tujunga Wash flood control project (LAT, 1950). Only the bridge over Verdugo Wash has not been altered since its original construction in 1939 (Caltrans, 2011).

In the late 1960s, 1970s, and 1980s, stretches of San Fernando Road were popular for cruising and drag racing (LAT, 1969; 1982; Chawkins, 1987; Nielsen, 1985; Stein 1979). In 1991, the Burbank Media Center Mall opened, which cut San Fernando Road in half. It is no longer a straight shot from Los Angeles to the Newhall Pass. Today, the road is about 25 miles long and is lined with commercial and light industrial businesses. The Metrolink tracks (former Southern Pacific Railroad tracks) run parallel to the route for about 60 percent of its length. Motorists often use the road as an alternative route for I-5 during busy commuting hours. As San Fernando Road remains a major thoroughfare in Los Angeles County, it continues to undergo improvement and modifications (City of Glendale, 2011; DPW, 2009).

***B10. Significance:**

Evaluation

Resource P-19-188007 (San Fernando Road) is a historic-period road. As part of U.S. Highway 99, the roadway has been recognized historically significant and important to the development of the state (Assembly Concurrent Resolution No. 19, 1993). Research conducted as part of this assessment indicates that resource P-19-188007 (San Fernando Road) appears to be eligible for listing in the National Register and California Register at the state level. San Fernando Road was a major thoroughfare in southern California from at least the 1870s to 1963. Prior to the completion of I-5, the road was instrumental in the development of the City of Los Angeles and the San Fernando Valley, serving as a major transportation and trade route. Based on the 1993 resolution and the results of the archival research, San Fernando Road appears to be eligible for listing in the National Register and California Register under Criterion A/1 (associated with events that have made a significant contribution to the broad patterns of history) for its contribution to the development of the state of California, the City of Los Angeles, and the San Fernando Valley.

The resource does not appear to be eligible for listing in the National Register or California Register under Criteria B/2, C/3, or D/4. Research did not reveal that San Fernando Road is associated with any significant individuals. Therefore, this resource does not appear eligible for listing under Criterion B/2 as it is not associated with the lives of persons important in our past. The materials and construction style of this resource is consistent with typical construction of roadways, which consisted of asphaltic concrete. Therefore, this resource does not appear eligible for listing in the National Register or California Register under Criterion C/3 as it does not embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values. Nor does it appear to be eligible for listing in the National Register or California Register under Criterion D/4 as it is unlikely to yield information important in prehistory or history. For a resource to be considered eligible, it must maintain its integrity. The alignment of San Fernando Road has changed little in the past 90 years and, as such, the road maintains its integrity of location. In addition, the surrounding area has remained largely industrial/commercial and the road maintains its integrity of setting. Therefore, San Fernando Road appears to be eligible for the National Register and California Register under Criterion A/1 for its contribution to the development of California, the City of Los Angeles, and the San Fernando Valley. The period of significance for San Fernando Road has been defined as ca. 1924 to 1963, the date when initial steps were taken to widen and improve the road to its current condition to the date when I-5 was completed in the San Fernando Valley supplanting San Fernando Road as the major north-south thoroughfare.

***B12. References:**

Assembly Concurrent Resolution No. 19, Relative to Historic U.S. Highway 99, filed with Secretary of State September 3, 1993.

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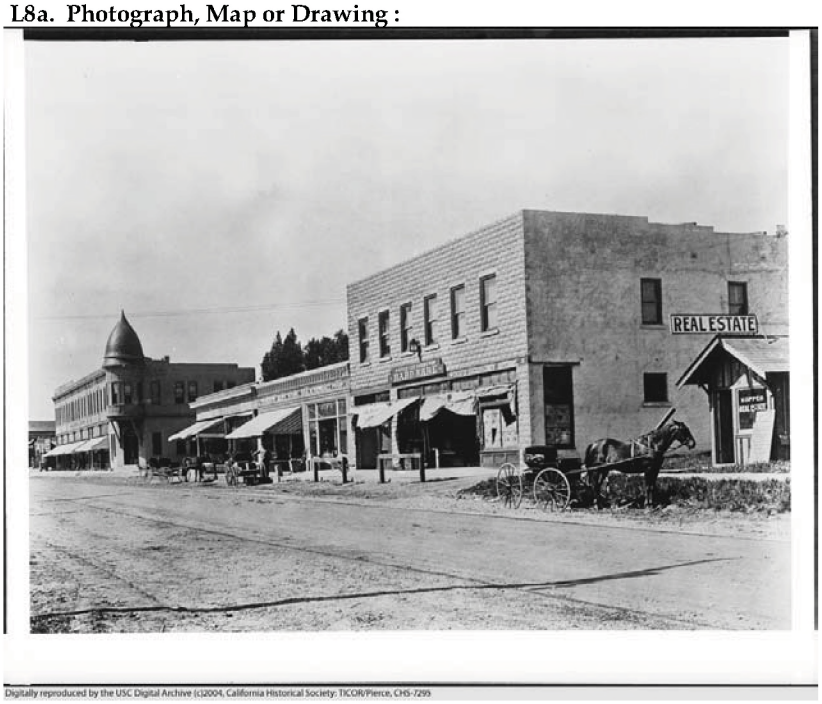
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L8a. Photograph, Map or Drawing :

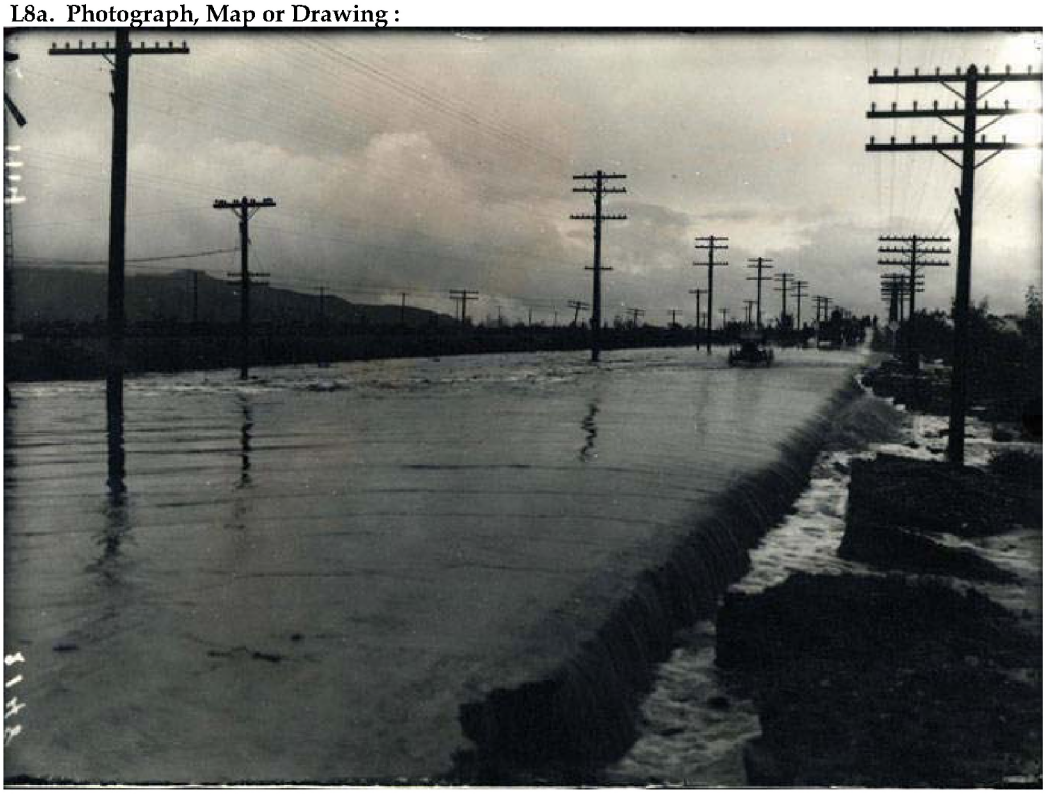


Unpaved San Fernando Road in Burbank, 1905
USC Digital Library – California Historical Society Collection



Gas line along San Fernando Road, 1910
CSUN Oviatt Library Digital Collection – San Fernanro Valley History Digital Library

L8a. Photograph, Map or Drawing :

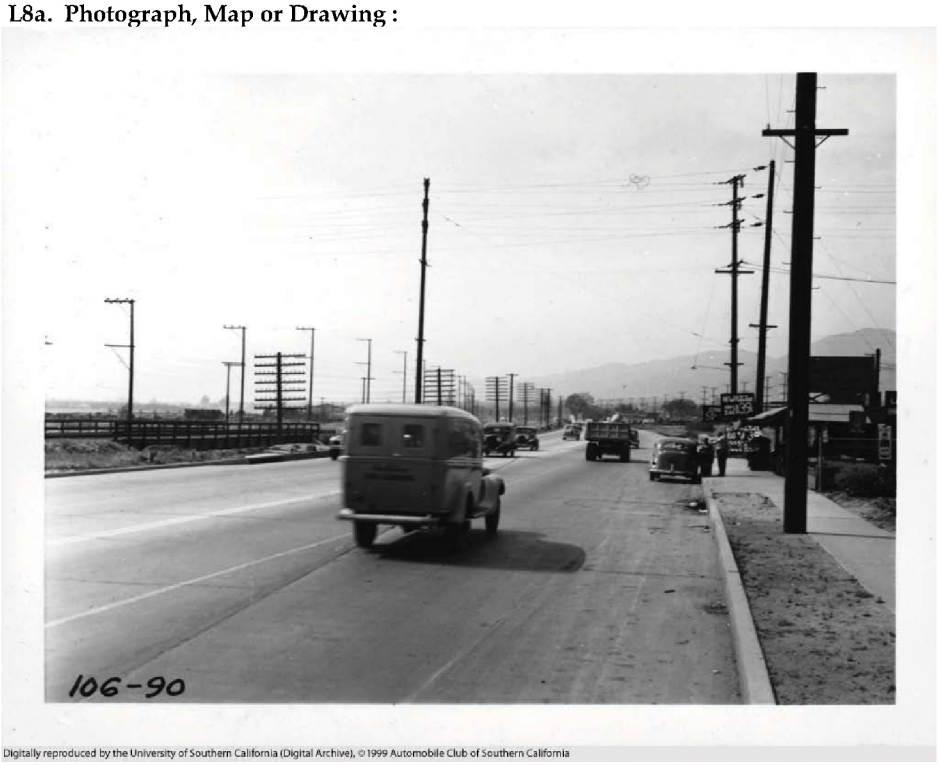


San Fernando Road Flooded, 1914
CSUN Oviatt Library Digital Collection



San Fernando Road Paving circa early 1920s
CSUN Oviatt Library Digital Collection

L8a. Photograph, Map or Drawing :



San Fernando Road at Verdugo Wash, view to the north, 1938
USC Digital Library – Automobile Club of Southern California Collection



Intersection of San Fernando Road and Broadway in Glendale, 1942
CSUN Oviatt Library Digital Collection

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code
Other Listings LA Historic-Cultural Monument No. 942
Review Code Reviewer Date

 *Resource Name or #: Los Angeles River Channel, Glendale Narrow Section

P1. Other Identifier:

*P2. Location: ☐ Not for Publication ☒ Unrestricted *a. County: Los Angeles

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad: Burbank, CA Date: 1991 T 1N; R 13W; unsectioned B.M.

c. Address: None Hollywood + Los Angeles City: Los Angeles Zip: 90039

d. UTM: Zone: 11S; NW cr. 382528mE/3777414mN; NE cr. 382601mE/3777403mN; SW cr. 382554mE/3777308mN; SE cr. 382630mE/3777316mN

e. Other Locational Data: Partially within the boundaries of Griffith Park, bounded by Interstate 5 on the west, between Rigali Ave. and Verdant St. on the east (Atwater Village) side. Elevation: 396-405 feet amsl.

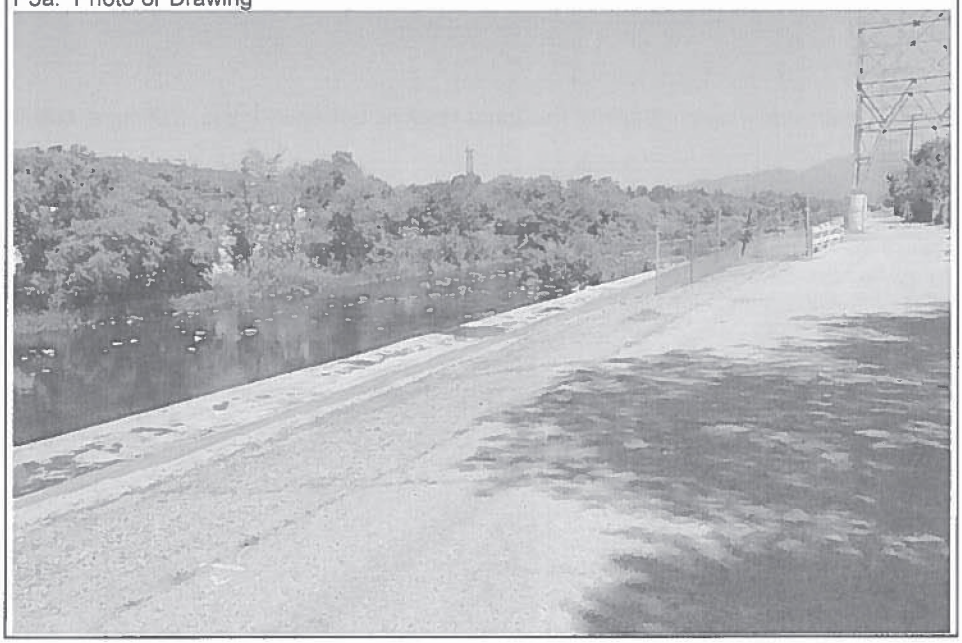
*P3a. Description:

The Glendale Narrows is a 7-mile section of the 52-mile long Los Angeles River that flows between the community of Burbank and the City of Los Angeles neighborhood of Elysian Valley. Griffth Park lies to the west of the river, and Atwater Village is to the east. Glendale Narows is channelized, and has sloping grouted rock and concrete embankment walls and a natural or "soft" bottom that is largely covered by water-worn rocks and cobbles. Flanking the natural riverbed on either side are flat concrete-paved margins. Typically, the river depth within the Narrows is 1-3 feet. A build-up of sediment near the west river bank has created a long, low island that supports abundant vegetation, including a variety of grasses, reeds, bushes, and trees. Flanking the west side of the river channel is an asphalt paved bike path (LA River Bike Path) 15 feet wide, immediately west of which is the Interstate 5 Golden State Freeway. Also adjoining the on the west is an access ramp for an equestrian tunnel that extends beneath the freeway to Griffith Park. Earthen ramps that allow equestrian access to the riverbed have been created on top of the concrete banks on either side. On the east side of the channel, the earthen river berm/levee is elevated 8-10 feet above the surrounding landscape. Atop the levee is a gravel pedestrian/equestrian pathway 10-15 feet wide. (See Continuation Sheets)

*P3b. Resource Attributes: HP20 Canal, HP22 River

*P4. Resources Present: ☐Building ☒Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing



P5b. Description of Photo: Glendale Narrow section of LA River, view to NW from N Atwater Park area. 8/29/13

*P6. Date Constructed/Age and Sources: ☒Historic ☐Prehistoric ☐Both

*P7. Owner and Address:
City of Los Angeles/
Los Angeles County Flood Control District/
US Army Corps of Engineers

*P8. Recorded by:
Dana Slawson
Greenwood and Associates
725 Jacon Way
Pacific Palisades, CA 90272

*P9. Date Recorded: May 29, 2013

*P10. Survey Type: Intensive Survey

*P11. Report Citation: D. Slawson. 2013. *Historic Property Evaluation Report, North Atwater Crossing Project.* Greenwood and Associates. Submitted to LA River Revitalization Corporation and US Army Corps of Engineers, Los Angeles District.

*Attachments: ☐NONE ☐Location Map ☐Sketch Map ☒Continuation Sheet ☒Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List): Documentation of isolates

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD

Primary #
HRI#
NRHP Status Code
Other Listings LA Historic-Cultural Monument No. 942
Review Code Reviewer Date

 *Resource Name or #: Los Angeles River Channel, Glendale Narrow Section

B1. Historic Name:
B2. Common Name: Glendale Narrows Section of the Los Angeles River
B3. Original Use: River Channel B4. Present Use: same
*B5. **Architectural Style:** Utilitarian, concrete and grouted rock
*B6. **Construction History:** (Construction date, alterations, and date of alterations): Existing structure was completed in 1939. The Glendale Narrows was straightened and confined within earthen levees in 1919-1921. An earlier grouted stone channel was constructed in 1935-1936, rebuilt after a 1938 flood.

*B7. **Moved?** ☒No ☐Yes ☐Unknown **Date:** **Original Location:**
*B8. **Related Features:** Glendale Narrows is part of the 52-mile long Los Angeles River and an element of the Los Angeles County Drainage Area (LACDA) system.

B9a. Architect: US Army Corps of Engineers b. Builder: Unknown
*B10. **Significance: Theme:** Water Conveyance Systems/Flood Control **Area:** Los Angeles
Period of Significance: 1939 **Property Type:** River channel **Applicable Criteria:** N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Glendale Narrows segment of the Los Angeles River was among the first sections of the river to be channelized under the supervision of the U.S. Army Corps of Engineers (USACE) following the historic flood of March 3, 1938. Under the Corps' leadership, a comprehensive flood control scheme was conceived that would protect the entire county from future flood events. The USACE program called for channelization of all the county's major rivers, not the Los Angeles River alone, along with a range of other measures. Construction of the Los Angeles River channel commenced in late 1935 and work on the last segment of channel was completed in 1959. (See Continuation Sheets)

B11. Additional Resource Attributes: (List attributes and codes)

*B12. **References:**

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1999 *The Los Angeles River: Its Life, Death, and Possible Rebirth.* The Johns Hopkins University Press, Baltimore, Maryland.

Layne, J.G.
1957 *Water and Power for a Great City.* City of Los Angeles Department of Water and Power, Los Angeles, California.

Paul, Daniel, Meghan Potter, Elizabeth Weaver, Christopher Hetzel, and Michael Eberts
2008 *Historic-Cultural Monument Application for Griffith Park.* ICF Jones & Stokes, Los Angeles, for submission to the City of Los Angeles Cultural Heritage Commission.

B13. Remarks:

*B14. **Evaluator:** Dana Slawson
Greenwood and Associates
725 Jacon Way
Pacific Palisades, CA 90272
(310) 454-3091

*Date of Evaluation: May 29, 2013



(This space reserved for official comments.)

State of California — The Resources Agency	Primary #
DEPARTMENT OF PARKS AND RECREATION	HRI#
CONTINUATION SHEET	Trinomial

 *Resource Name or # (Assigned by recorder): Los Angeles River Channel, Glendale Narrows Section

*Recorded by: Dana Slawson, Greenwood and Associates *Date: May 29, 2013 ☒ Continuation ☐Update

*P3a. Description, continued:

Measured from the top of each sloped bank, the Los Angeles River channel is 309 feet wide and 22 feet deep. The natural portion of the riverbed is approximately 154 feet wide, flanked by horizontal concrete-paved aprons that are roughly 20 feet wide. The Glenndale Narrows lies paritially within the boundaries of Griffith Park. The park in its entirety was designated a Los Angeles Historic-Cultural Monument (No. 942) in 2009.

*B10. Significance, continued:

This same period saw the channelization of all of the county's major rivers and streams, including the San Gabriel River, Rio Hondo, and Ballona Creek. The 7-mile long Glendale Narrows section of the Los Angeles River has the distinction of being the only portion of the river with concrete banks and a natural bottom. This mode of confinement was selected because ground water forces in this location rendered creation of a paved riverbed impossible.

Review of USACE documentation for this section of the Los Angeles River channel indicates that the channel bed is essentially as it was constructed in the late 1930s. Work on this section of the river channel has been confined to routine maintenance activities, such as repairing damaged areas of the interior channel surfaces with comparable materials. The level of historical integrity for this section of the river channel is considered very good, relative to location, design, materials, workmanship, feeling, and association. The historical setting of the resource was significantly compromised by construction of the I-5 Golden State Freeway in the late 1950s. Construction of the 10-lane freeway directly adjacent to the river channel severed the connection between the natural environment of Griffith Park and the waterway that had existed until that time.

The Glendale Narrows section of the Los Angeles River channel does not appear eligible for inclusion in the National Register under Criterion A (Association with Events), nor does it appear eligible for state or local historic designation by merit of its association with important historical events or patterns of events. The river channel is associated with flood control efforts within Los Angeles County in the immediate pre and post World War II era, directed by the US Army Corps of Engineers, and the development of the Los Angeles County Drainage Area (LACDA). The flood control and channelization program had a dramatic impact within Los Angeles County on the appearance of the landscape and alteration of the natural and built environment, as well as its impact on the development of the region brought by essentially eliminating the fear of flooding. The effort opened for use thousands of acres previously deemed unsafe.

While the system as a whole may be viewed as historically important, this particular section of the Los Angeles River channel does not possess any special or noteworthy associations with the flood control program developed and implemented by the USACE, the organization primarily responsible for its implementation.

Similarly, this section of the Los Angeles River channel does not appear eligible for National Register listing under Criterion B (Association with Persons of Historical Importance), nor does it meet the criteria for state or local designation in this category. The effort to channelize the river was led by the USACE Los Angeles District. No individual members of the USACE were identified by the research who bear particular responsibility for the design and construction of this portion of the river channel, or for the LACDA flood control system generally.

This section of the Los Angeles River channel does not appear eligible for National Register listing under Criterion C (Design/Construction), or under state and local historical designation criteria for design. The Glendale Narrows section of the river has played an important role in the history of the region's growth and development, particularly in regards to the City's water supply. Indeed, it was within the Narrows that William Mulholland and the Los Angeles Water Company excavated the infiltration galleries wells that were the City's primary source of water and therefore survival and growth, between the mid 1880s and the completion of the Los Angeles Aqueduct in 1913. The appearance of the river since its taming by way of construction of the current concrete channel in the 1930s does not evoke historical associations with those important events. The existing channel is of standard design and materials, and comparable in appearance and function to the one hundred-plus miles of channels which have carried all of the county's principal rivers since the mid twentieth century. This segment displays no unique or innovative design elements.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI#
Trinomial

 *Resource Name or # (Assigned by recorder): Los Angeles River Channel, Glendale Narrows Section

Photographs



Detail of Glendale Narrows riverbed, looking south from N Atwater Park area.



Glendale Narrows, west bank, looking south from N Atwater Park/Griffith Park area. LA River Bike Path and Interstate 5 are on right.

Appendix B

Section 106 Consultation

LA-Glendale Wastewater Treatment Plant Project Section 106 Correspondence

Contact Information	Date Letter Sent to contact	Follow-up	Date of Response	Comments/Concerns
Andrew Salas, Chairperson Gabrielino Band of Mission Indians – Kizh Nation P.O. Box 393 Covina, CA 91723	June 23, 2017	July 7, 2017; July 27, 2017	July 12, 2017 (letter)	Left a voicemail for Mr. Salas asking him to contact Rincon with any comments or concerns for cultural resources for the project on July 7th and July 27th, 2017. Response received via letter on July 12, 2017. Mr. Salas responded via telephone on July 31st, 2017 and stated that the project vicinity is considered highly sensitive for Native American cultural resources and that the river was a major trade route. He discussed the village of Maungna in Elysian Park and the villages in Griffith Park and the Los Feliz area. Mr. Salas expressed doubt that an archaeologist was present during the original construction of the plant and recommended that an archaeological and Native American monitor be present during ground disturbance.
Anthony Morales, Chairperson P.O. Box 693 San Gabriel, CA 91778	June 23, 2017	July 7, 2017		Mr. Morales concurs with Rincon's recommendation to include standard mitigation measures for unanticipated discoveries.
Sandonne Goad, Chairperson Gabrielino/Tongva Nation 106 ½ Judge John Aiso Street, #231 Los Angeles, CA 90012	June 23, 2017	July 7, 2017		Left a voicemail for Ms. Goad asking her to contact Rincon with any comments or concerns for cultural resources for the project.
Robert Dorame, Chairperson Gabrielino Tongva Indians of California Tribal Council P.O. Box 490 Bellflower, CA 90707	June 23, 2017	July 7, 2017		Mr. Dorame stated that he would like to be notified in the event that unanticipated discoveries are encountered during project implementation.
Linda Candelaria, Co-Chairperson 23453 Vanowen Street West Hills, CA 91307	June 23, 2017	July 7, 2017		Left a voicemail for Ms. Candelaria asking her to contact Rincon with any comments or concerns for cultural resources for the project.
Adrian Scott Fine, Director of Advocacy 523 W. Sixth Street, Suite 826 Los Angeles, CA 90014	June 23, 2017	July 7, 2017		Left a voicemail for Mr. Fine asking him to contact Rincon with any comments or concerns for historical resources for the project.

Contact Information	Date Letter Sent to contact	Follow-up	Date of Response	Comments/Concerns
Todd, Gaydowski, President, Los Angeles City Historical Society P.O. Box 862311 Los Angeles, CA 90086-2311	June 23, 2017	N/A		No phone number available

Rincon Consultants, Inc.
250 East 1st Street, Suite 301
Los Angeles, California 90012
213 788 4842
FAX 908 2200
info@rinconconsultants.com
www.rinconconsultants.com

June 23, 2017

Gabrielino Band of Mission Indians – Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393
Covina, CA 91723

RE: Section 106 Consultation, LASAN LA-Glendale Wastewater Treatment Plant Project, Los Angeles County, California

Dear Chairperson Salas:

Los Angeles Sanitation (LASAN) and City of Glendale co-own Los Angeles-Glendale Water Reclamation Plant (LAGWRP) and LASAN operates and maintains it. LAGWRP is strategically located to serve east San Fernando Valley communities that are both within and outside of the Los Angeles City limits. The plant's highly treated wastewater meets and exceeds the water quality standards for recycled water for irrigation and industrial processes. This water reuse conserves over one billion gallons of potable water per year. By processing flows in the eastern San Fernando Valley, the plant is also able to provide critical hydraulic relief to the City's major sewers downstream, which serve other communities of the City.

LAGWRP was constructed in 1972 and has been in operation since 1976. The plant was designed to treat average dry weather flow of 20 million gallons per day (mgd) and peak weather flow of 30 mgd and via the conventional activated sludge process. The initial plant was designed to be expanded to treat dry weather flow of 50 mgd and wet weather flow of 75 mgd. In 2007, the treatment process was upgraded from conventional activated sludge process to biological nutrient removal (BNR) with no de-rating.

LASAN is preparing California Environmental Quality Act (CEQA) documentation for the proposed project. The project involves the addition of structures to existing uses and a new Personnel Building. The proposed project is subject to the California Environmental Quality Act (CEQA) Plus, which includes an evaluation of project impacts under CEQA and Section 106 of the National Historic Preservation Act (NHPA) in the case that a federal nexus (e.g. federal funding and/or permitting) is established during the course of the project.

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Sincerely,



Christopher A. Duran, M.A., RPA
Archaeological Resources Program Manager & Principal Investigator
On behalf of the City of Los Angeles Department of Public Works, Los Angeles Sanitation

Enclosure: Project Location Map

Rincon Consultants, Inc.
250 East 1st Street, Suite 301
Los Angeles, California 90012
213 788 4842
FAX 908 2200
info@rinconconsultants.com
www.rinconconsultants.com

June 23, 2017

Gabrielino/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693
San Gabriel, CA 91778

RE: Section 106 Consultation, LASAN LA-Glendale Wastewater Treatment Plant Project, Los Angeles County, California

Dear Chairperson Morales:

Los Angeles Sanitation (LASAN) and City of Glendale co-own Los Angeles-Glendale Water Reclamation Plant (LAGWRP) and LASAN operates and maintains it. LAGWRP is strategically located to serve east San Fernando Valley communities that are both within and outside of the Los Angeles City limits. The plant's highly treated wastewater meets and exceeds the water quality standards for recycled water for irrigation and industrial processes. This water reuse conserves over one billion gallons of potable water per year. By processing flows in the eastern San Fernando Valley, the plant is also able to provide critical hydraulic relief to the City's major sewers downstream, which serve other communities of the City.

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June 23, 2017

Gabrielino/Tongva Nation
Sandonne Goad, Chairperson
106 ½ Judge John Aiso St., #231
Los Angeles, CA 90012

RE: Section 106 Consultation, LASAN LA-Glendale Wastewater Treatment Plant Project, Los Angeles County, California

Dear Chairperson Goad:

Los Angeles Sanitation (LASAN) and City of Glendale co-own Los Angeles-Glendale Water Reclamation Plant (LAGWRP) and LASAN operates and maintains it. LAGWRP is strategically located to serve east San Fernando Valley communities that are both within and outside of the Los Angeles City limits. The plant's highly treated wastewater meets and exceeds the water quality standards for recycled water for irrigation and industrial processes. This water reuse conserves over one billion gallons of potable water per year. By processing flows in the eastern San Fernando Valley, the plant is also able to provide critical hydraulic relief to the City's major sewers downstream, which serve other communities of the City.

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June 23, 2017

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Chairperson
P.O. Box 490
Bellflower, CA 90707

RE: Section 106 Consultation, LASAN LA-Glendale Wastewater Treatment Plant Project, Los Angeles County, California

Dear Chairperson Dorame:

Los Angeles Sanitation (LASAN) and City of Glendale co-own Los Angeles-Glendale Water Reclamation Plant (LAGWRP) and LASAN operates and maintains it. LAGWRP is strategically located to serve east San Fernando Valley communities that are both within and outside of the Los Angeles City limits. The plant's highly treated wastewater meets and exceeds the water quality standards for recycled water for irrigation and industrial processes. This water reuse conserves over one billion gallons of potable water per year. By processing flows in the eastern San Fernando Valley, the plant is also able to provide critical hydraulic relief to the City's major sewers downstream, which serve other communities of the City.

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June 23, 2017

Gabrielino-Tongva Tribe
Linda Candelaria, Co-Chairperson
23453 Vanowen Street
West Hills, CA 91307

RE: Section 106 Consultation, LASAN LA-Glendale Wastewater Treatment Plant Project, Los Angeles County, California

Dear Co-Chairperson Candelaria:

Los Angeles Sanitation (LASAN) and City of Glendale co-own Los Angeles-Glendale Water Reclamation Plant (LAGWRP) and LASAN operates and maintains it. LAGWRP is strategically located to serve east San Fernando Valley communities that are both within and outside of the Los Angeles City limits. The plant's highly treated wastewater meets and exceeds the water quality standards for recycled water for irrigation and industrial processes. This water reuse conserves over one billion gallons of potable water per year. By processing flows in the eastern San Fernando Valley, the plant is also able to provide critical hydraulic relief to the City's major sewers downstream, which serve other communities of the City.

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June 23, 2017

Los Angeles Conservancy
Adrian Scott Fine, Director of Advocacy
523 W. Sixth St., Suite 826,
Los Angeles, CA 90014

RE: Section 106 Consultation, LASAN LA-Glendale Wastewater Treatment Plant Project, Los Angeles County, California

Dear Mr. Fine:

Los Angeles Sanitation (LASAN) and City of Glendale co-own Los Angeles-Glendale Water Reclamation Plant (LAGWRP) and LASAN operates and maintains it. LAGWRP is strategically located to serve east San Fernando Valley communities that are both within and outside of the Los Angeles City limits. The plant's highly treated wastewater meets and exceeds the water quality standards for recycled water for irrigation and industrial processes. This water reuse conserves over one billion gallons of potable water per year. By processing flows in the eastern San Fernando Valley, the plant is also able to provide critical hydraulic relief to the City's major sewers downstream, which serve other communities of the City.

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June 23, 2017

Janet Hansen
Deputy Manager, Office of Historic Resources
City of Los Angeles
200 N. Spring Street, Room 559
Los Angeles, CA 90012

RE: Section 106 Consultation, LASAN LA-Glendale Wastewater Treatment Plant Project, Los Angeles County, California

Dear Ms. Hansen:

Los Angeles Sanitation (LASAN) and City of Glendale co-own Los Angeles-Glendale Water Reclamation Plant (LAGWRP) and LASAN operates and maintains it. LAGWRP is strategically located to serve east San Fernando Valley communities that are both within and outside of the Los Angeles City limits. The plant's highly treated wastewater meets and exceeds the water quality standards for recycled water for irrigation and industrial processes. This water reuse conserves over one billion gallons of potable water per year. By processing flows in the eastern San Fernando Valley, the plant is also able to provide critical hydraulic relief to the City's major sewers downstream, which serve other communities of the City.

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June 23, 2017

Los Angeles City Historical Society
Todd Gaydowski, President
P.O. Box 862311
Los Angeles, CA 90086-2311

RE: Section 106 Consultation, LASAN LA-Glendale Wastewater Treatment Plant Project, Los Angeles County, California

Dear Mr. Gaydowski:

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Christopher A. Duran, M.A., RPA
Archaeological Resources Program Manager & Principal Investigator
On behalf of the City of Los Angeles Department of Public Works, Los Angeles Sanitation

Enclosure: Project Location Map

Appendix F: Paleontological Resources Assessment

Rincon Consultants, Inc.
250 East 1st Street, Suite 301
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September 27, 2017
Rincon Project No: 17-04139

J. Lauren Everett
2775 North Ventura Road, Suite 100
Oxnard, California 93036
Via Email: LaurenEverett@kennedyjenks.com

Subject: **Paleontological Resources Assessment for the Los Angeles-Glendale Water Reclamation Plant Primary Effluent Equalization Storage and Personnel Building Project, Los Angeles County, California**

Dear Ms. Everett:

Rincon Consultants, Inc. (Rincon) was retained by Kennedy/Jenks Consultants to conduct a paleontological resources assessment for the Los Angeles-Glendale Water Reclamation Plant (LAGWRP) Primary Effluent Equalization Storage and Personnel Building Project (project) in the city of Los Angeles. The goal of the assessment is to identify the geologic units that may be impacted by development from the proposed project, determine the paleontological sensitivity of geologic units within the proposed project area, assess potential for impacts to paleontological resources from development of the proposed project, and recommend mitigation measures to avoid or mitigate impacts to scientifically significant paleontological resources as necessary.

This paleontological resources assessment consisted of a fossil locality record search at the Natural History Museum of Los Angeles County (LACM), review of existing geologic maps and primary literature regarding fossiliferous geologic units within the proposed project vicinity and region, and assessment of the paleontological sensitivity of the geologic units at the project site and potential for impacts to significant paleontological resources, and proposed mitigation measures to reduce impacts to less than significant. Figures are included in Attachment A.

This paleontological assessment has been prepared to support environmental review under the California Environmental Quality Act (CEQA) and potentially under the National Environmental Policy Act (NEPA) in the event that a federal nexus is established. Rincon understands that Los Angeles Sanitation (LASAN) is the lead agency for the project.

Project Description

The proposed project involves improvements and the construction of additional facilities within the existing LAGWRP, and is located east of the Los Angeles River in Glendale, California (Figure 1). The project is situated in Township 1 N, Range 12 W, Section 29, on the United States Geological Survey (USGS) Burbank, CA 7.5-minute topographic quadrangle. The project proposes operational and administrative improvements at the LAGWRP consisting of three components: the Equalization Storage

Project, the Personnel Building Project, and the rehabilitation of the existing Administration Building. The Equalization Storage Project will construct an equalization tank, two primary clarifiers, three aeration tanks, two secondary clarifiers, and all associated appurtenances and piping. The Personnel Building Project will construct an estimated 7,000-square-foot, two-story building and will remodel the existing Administration Building to provide training rooms and auxiliary space. In addition, the existing lined de-chlorination pond will be restructured to provide space for the proposed equalization improvements and the new personnel building, as well as transportation/traffic circulation infrastructure required to maintain circulation through the site. The project will require ground disturbance for construction of various features including the equalization tank, primary clarifiers, aeration tanks, secondary clarifiers, piping, Personnel Building, de-chlorination pond and various aspects of the site work. The full extent of ground disturbance has not been fully defined, but is estimated to be 22 feet in depth.

Regulatory Setting

Federal Laws and Regulations

A variety of federal statutes specifically address paleontological resources. They are applicable to all projects occurring on federal lands, and may be applicable to specific projects if the project involves a federal agency license, permit, approval, or funding.

National Environmental Policy Act of 1969

NEPA (United States Code, section 4321 et seq.; 40 Code of Federal Regulations, section 1502.25), as amended, directs federal agencies to "Preserve important historic, cultural, and natural aspects of our national heritage (Section 101(b) (4))." The current interpretation of this language has included scientifically important paleontological resources among those resources that may require preservation.

Paleontological Resources Preservation Act of 2009

The Paleontological Resources Preservation Act is part of the Omnibus Public Land Management Act of 2009 (Public Law 111-011 Subtitle D). This Act directs the Secretary of the Interior or the Secretary of Agriculture to manage and protect paleontological resources on federal land, and develop plans for inventorying, monitoring, and deriving the scientific and educational use of such resources. It prohibits the removal of paleontological resources from federal land without a permit issued under this Act, establishes penalties for violation of this Act and establishes a program to increase public awareness about such resources. While specific to activity that occurs on federal lands, some federal agencies may require adherence to the directives outlined in the Act for projects on non-federal lands if federal funding is involved, or the project includes federal oversight.

State Laws and Regulations

The following are California state regulations with respect to paleontological resources.

California Environmental Quality Act

CEQA requires that public agencies and private interests identify the potential environmental consequences of their proposed projects on any object or site considered to be a historical resource of California (California Public Resources Code [PRC], section 21084.1, California Code of Regulations Title 14, section 15064.5). Appendix G of the *State CEQA Guidelines* (California Code of Regulations Title 14,

Chapter 3) provides an Environmental Checklist of questions including a single question related to paleontological resources (Section V.c) as follows: "Would the project directly or indirectly destroy a unique paleontological resource or site…?"

CEQA does not define "a unique paleontological resource or site." However, the Society of Vertebrate Paleontology (SVP) has defined a "significant paleontological resource" in the context of environmental review. The SVP defines a Significant Paleontological Resources as:

> *…fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years).*

The loss of paleontological resources that meet the criteria outlined above (i.e. considered a significant paleontological resource) would be considered a significant impact under CEQA, and the CEQA lead agency is responsible for ensuring that paleontological resources are protected in compliance with CEQA and other applicable statutes.

Public Resources Code Section 5097.5

Section 5097.5 of the PRC states:

> *No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.*

As used in this PRC section, "public lands" means lands owned by, or under the jurisdiction of, the state or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, local agencies are required to comply with PRC 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others.

Local Laws and Regulations

City of Los Angeles General Plan 2035

The City of Los Angeles General Plan contains the following policies relating to paleontological resources and relevant to the current project:

- Policy C/NR 14.1: Mitigate all impacts from new development on or adjacent to historic, cultural, and paleontological resources to the greatest extent feasible.
- Policy C/NR 12.6: Ensure proper notification and recovery processes are carried out for development on or near historic, cultural, and paleontological resources.

Methods

Rincon evaluated the paleontological sensitivity of the geologic units present on the project site based on the results of the paleontological locality search and review of existing information in the primary literature on known fossils within those geologic units. Rincon submitted a request to the LACM for a list

of known fossil localities from the project site and immediate vicinity (i.e., localities recorded on the USGS *Burbank*, 7.5-minute topographic quadrangle), and reviewed geologic maps and primary literature including: Agenbroad (2003); Bell et al. (2004); California Geological Survey (CGS; 2002); Dibblee and Ehrenspeck (1991); Groves (1991); Jefferson (1985, 1989; 1991); Maguire and Holroyd (2016); Merriam (1911); Reynolds et al. (1991); Savage et al. (1954); Scott and Cox (2008); Springer et al. (2009); Squires et al. (2006); Tomiya et al. (2011); Wilkerson et al. (2011); Winterer and Durham (1962);Winters (1954).

Rincon assigned paleontological sensitivity to each geologic unit within the project site. The potential for impacts to significant paleontological resources is based on the potential for ground disturbance to directly impact paleontologically sensitive geologic units.

Paleontological Sensitivity

The SVP broadly defines significant paleontological resources as follows (SVP 2010:11):

> *Fossils and fossiliferous deposits consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years).*

Significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, diagnostically important, or are common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes, or which could improve our understanding of paleochronology, paleoecology, paleophylogeography, or depositional histories. New or unique specimens can provide new insights into evolutionary history; however, additional specimens of even well represented lineages can be equally important for studying evolutionary pattern and process, evolutionary rates, and paleophylogeography. Even unidentifiable material can provide useful data for dating geologic units if radiocarbon dating is possible. As such, common fossils (especially vertebrates) may be scientifically important, and therefore considered highly significant.

The SVP (2010) describes sedimentary rock units as having high, low, undetermined, or no potential for containing significant nonrenewable paleontological resources. This criterion is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present. While these standards were specifically written to protect vertebrate paleontological resources, all fields of paleontology have adopted these guidelines:

I. **High Potential (sensitivity).** Rock units from which significant vertebrate or significant invertebrate fossils or significant suites of plant fossils have been recovered are considered to have a high potential for containing significant non-renewable fossiliferous resources. These units include but are not limited to, sedimentary formations and some volcanic formations which contain significant nonrenewable paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. Sensitivity comprises both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, or botanical and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, ecologic, or stratigraphic data. Areas which contain potentially datable organic remains older than Recent, including deposits associated with nests or middens, and

areas which may contain new vertebrate deposits, traces, or trackways are also classified as significant.

II. **Low Potential (sensitivity)**. Sedimentary rock units that are potentially fossiliferous, but have not yielded fossils in the past or contain common and/or widespread invertebrate fossils of well documented and understood taphonomic, phylogenetic species and habitat ecology. Reports in the paleontological literature or field surveys by a qualified vertebrate paleontologist may allow determination that some areas or units have low potentials for yielding significant fossils prior to the start of construction. Generally, these units will be poorly represented by specimens in institutional collections and will not require protection or salvage operations. However, as excavation for construction gets underway it is possible that significant and unanticipated paleontological resources might be encountered and require a change of classification from Low to High Potential and, thus, require monitoring and mitigation if the resources are found to be significant.

III. **Undetermined Potential (sensitivity)**. Specific areas underlain by sedimentary rock units for which little information is available are considered to have undetermined fossiliferous potentials. Field surveys by a qualified vertebrate paleontologist to specifically determine the potentials of the rock units are required before programs of impact mitigation for such areas may be developed.

IV. **No Potential.** Rock units of metamorphic or igneous origin are commonly classified as having no potential for containing significant paleontological resources.

Results

Locality Search

A search of the paleontological locality records at the LACM paleontological collection resulted in no previously recorded fossil localities within the project boundaries. However, the paleontological literature for early-middle Holocene and Pleistocene-aged geologic units in southern California contains a abundant and diverse fossil record (Agenbroad 2003); Bell et al. 2004; CGS 2002; Jefferson 1985, 1989, 1991; Maguire and Holroyd 2016; Merriam 1911; Reynolds et al. 1991; Savage et al. 1954; Scott and Cox 2008; Springer et al. 2009; Tomiya et al. 2011; Wilkerson et al. 2011; Winterer and Durham 1962;Winters 1954). The various collections of Pleistocene-aged fossils represent diverse assemblages of vertebrate taxa including amphibians, reptiles, birds and mammals. Important invertebrate and plant fossils have also been recovered from Pleistocene-aged alluvial units, providing important information on the environmental setting of the Pleistocene.

Regional Geologic Setting

The proposed project is located in the middle of the Transverse Ranges Geomorphic Province, one of 11 major provinces in the state (CGS 2002). The Transverse Ranges province is characterized by east-west trending mountains and valleys that are oblique to the normal northwest trend of coastal California (CGS 2002). The Transverse Ranges province extends from the offshore islands of San Miguel, Santa Rosa, and Santa Cruz in the west to the San Bernardino Mountains in the east. The Los Angeles Basin is underlain by a structural depression under continuous subsidence since the Miocene. The basin has experienced discontinuous deposition since Late Cretaceous time and continuous, predominantly marine deposition since middle Miocene time (Yerkes et al. 1965). The project is located at the east end of the Santa Monica Mountains at the contact of the northwestern block and northeastern block of the

Los Angeles Basin. The Cenozoic deposition in these sections of the basin resulted in very thick sequences of sedimentary rock reaching 12,000 feet in the central part of the San Gabriel Valley (Norris and Webb 1990). At the project site, close to the Santa Monica Mountain's, sedimentary units are likely substantially less thick, but still in excess of hundreds of feet. Holocene-aged alluvium ranges from 30 feet to over 100 feet thick within the area of the eastern Santa Monica Mountains (State of California Department of Water Resources [DWR] 1961).

The project area includes one (1) geologic unit mapped at the surface (Figure 2): Quaternary (Holocene) gravel and sand of major stream channels (Qg) (Dibblee and Ehrenspeck 1991). Holocene units are comprised of terrestrial sediments. These alluvial sediments consist primarily of river sand (generally well sorted, with little or no fines), with lenses of gravel and cobbles.

Paleontological Sensitivity

Quaternary (Holocene) alluvial deposits at the surface are too young to preserve fossil resources and have low paleontological sensitivity. However, at unknown depths, sediments may transition from too young to support fossils, to early Holocene and/or late Pleistocene in age in which scientifically significant fossils could occur. Alluvial sediments of early Holocene and Pleistocene age have a well-documented record of abundant and diverse vertebrate fauna throughout California, especially within the Los Angeles Basin (Agenbroad 2003; Bell et al. 2004; Hay 1927; Jefferson 1985, 1989, 1991; Maguire and Holroyd 2016; Merriam 1911; Reynolds et al. 1991; Parkman 2005; Savage 1951; Savage et al. 1954; Scott and Cox 2008; Springer et al. 2009; Stirton 1951; Tomiya et al. 2011; Wilkerson et al. 2011; Winters 1954). Existing information (DWR 1961) discusses the general range of geologic unit thicknesses in various regions of the Los Angeles Basin, including along the southern and eastern edge of the Santa Monica Mountains; however, specific information on the depth at which Holocene units mapped at the surface become old enough to support paleontological resources is not available. Ground disturbance deeper than 10 feet has low potential to disturb older alluvium with high paleontological sensitivity.

Impacts Analysis

Quaternary alluvial sediments mapped at the surface are late Holocene in age, and as such have low paleontological sensitivity, therefore, shallow ground disturbance in these areas would not impact scientifically significant paleontological resources. At depths over 10 feet, these sediments may transition into early Holocene or Pleistocene aged sediments with high paleontological sensitivity.

Proposed project ground disturbance is expected to occur to maximum depth of 22 feet in some portions of the project site. Ground disturbing activities deeper than 10 feet may result in disturbance of older alluvium with high paleontological sensitivity, and as such could result in significant impacts to paleontological resources. Mitigation measures are recommended to reduce potential impacts to paleontological resources to a less than significant level.

Recommended Mitigation

Retain a Qualified Paleontologist

Prior to initial ground disturbance, the applicant shall retain a project paleontologist, defined as a paleontologist who meets the SVP standards for Qualified Professional Paleontologist, to direct all mitigation measures related to paleontological resources. A qualified paleontologist (Principal Paleontologist) is defined by the SVP standards as an individual with an M.S. or Ph.D. in paleontology or geology who is experienced with paleontological procedures and techniques, who is knowledgeable in

the geology of California, and who has worked as a paleontological mitigation project supervisor for a least one year (SVP 2010).

Paleontological Worker Environmental Awareness Program (WEAP)

Prior to the start of construction, the project paleontologist or his or her designee shall conduct training for construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction staff. The WEAP shall be fulfilled at the time of a preconstruction meeting at which a qualified paleontologist shall attend.

Paleontological Monitoring

Ground disturbing construction activities (including grading, trenching, foundation work, and other excavations) that exceed 10 feet in depth anywhere on the site should be monitored on a full-time basis by a qualified paleontological monitor during initial ground disturbance. Monitoring should be conducted by a qualified paleontological monitor, who is defined as an individual who has experience with collection and salvage of paleontological resources (SVP 2010). The duration and timing of the monitoring will be determined by the project paleontologist and the location and extent of proposed ground disturbance. If the project paleontologist determines that full-time monitoring is no longer warranted, based on the specific geologic conditions at the surface or at depth, the lead paleontologist may recommend that monitoring be reduced to periodic spot-checking or cease entirely. Ground disturbing activity that does not exceed 10 feet in depth within Quaternary alluvium would not require paleontological monitoring.

Fossil Discovery

In the event of a fossil discovery by construction personnel, all work in the immediate vicinity of the find shall cease and a qualified paleontologist shall be contacted to evaluate the find before restarting work in the area. If it is determined that the fossil(s) is(are) scientifically significant, the qualified paleontologist shall complete the following conditions to mitigate impacts to significant fossil resources.

Salvage of Fossils

If fossils are discovered, the project paleontologist or paleontological monitor should recover them. Typically fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case the paleontologist should have the authority to temporarily direct, divert, or halt construction activity to ensure that the fossil(s) can be removed in a safe and timely manner.

Preparation and Curation of Recovered Fossils

Once salvaged, significant fossils should be identified to the lowest possible taxonomic level, prepared to a curation-ready condition, and curated in a scientific institution with a permanent paleontological collection (such as the Natural History Museum of Los Angeles County), along with all pertinent field notes, photos, data, and maps. Fossils of undetermined significance at the time of collection may also warrant curation at the discretion of the project paleontologist.

Final Paleontological Mitigation Report

Upon completion of ground disturbing activity (and curation of fossils, if necessary) the qualified paleontologist should prepare a final mitigation and monitoring report outlining the results of the mitigation and monitoring program. The report should include discussion of the location, duration and methods of the monitoring, stratigraphic sections, any recovered fossils, and the scientific significance of those fossils, and where fossils were curated.

If you have any questions regarding this Paleontological Resources Assessment, please contact us.

Sincerely,

Rincon Consultants, Inc.



David Daitch, Ph.D.
Senior Paleontologist/Program Manager

Attachments
Attachment A: Figures

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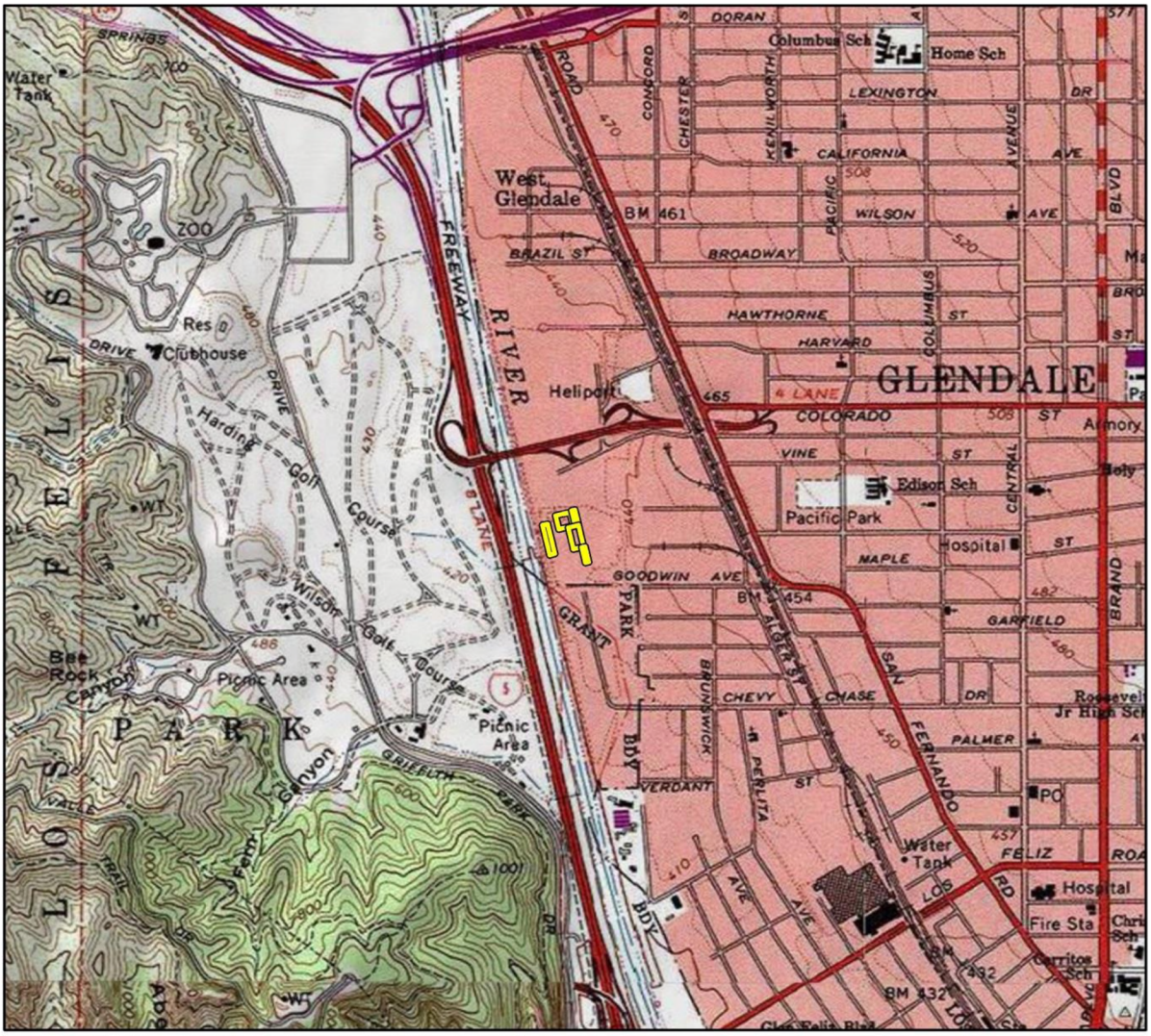
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Attachment A

Figures

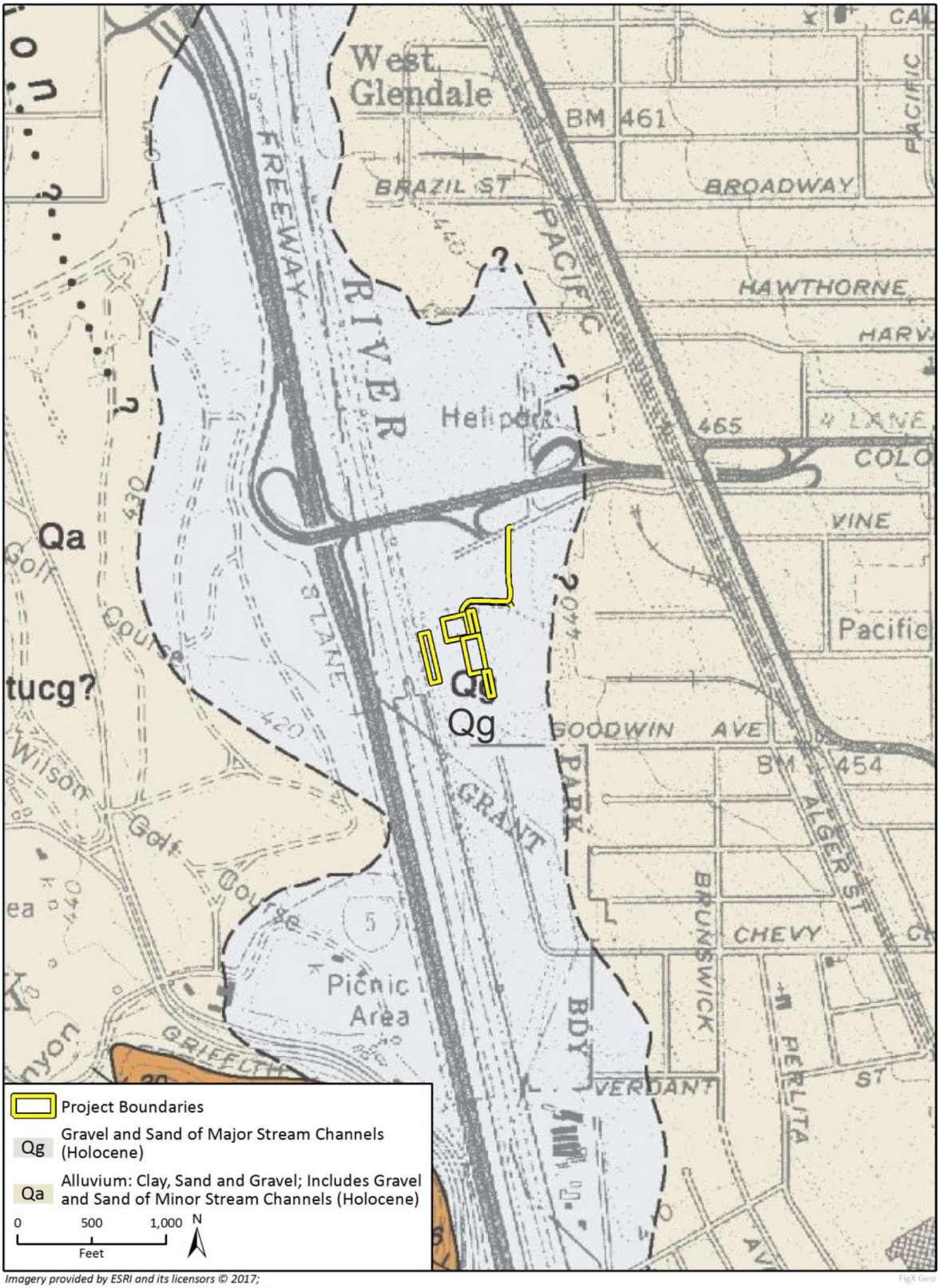
Figure 1 Project Location Map



Imagery provided by National Geographic Society, ESRI and its licensors © 2017. Burbank Quadrangle. T01N R13W S29,30. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

CRFig 1 Proj Vicinity Map

Figure 2 Geologic Map



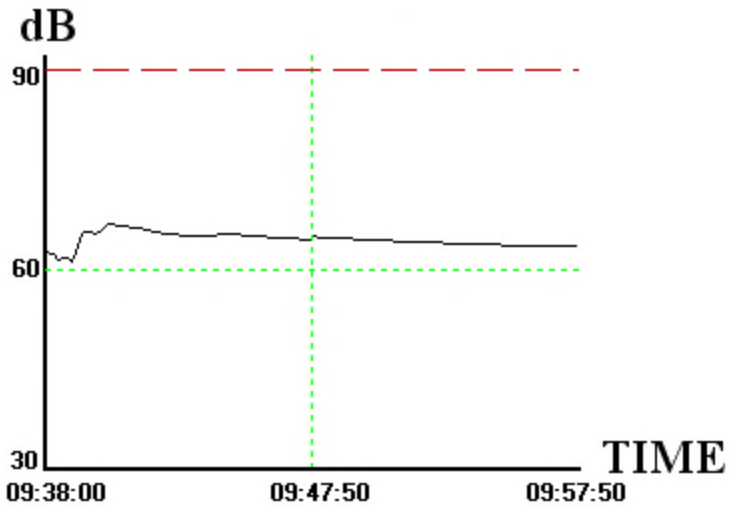
Imagery provided by ESRI and its licensors © 2017;
Additional data provided by Dibblee & Ehrenspeck, 1991.

Appendix G: Field Noise Measurement Data

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L(40)	64.9	64.9	64.9	64.8	64.8	64.8	64.8	64.8	64.7
L(50)	64.7	64.7	64.7	64.6	64.6	64.6	64.6	64.6	64.5
L(60)	64.5	64.5	64.5	64.5	64.4	64.4	64.4	64.3	64.3
L(70)	64.2	64.2	64.2	64.1	64.1	64.1	64.1	64.0	64.0
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Appendix H: Traffic/Transportation Analysis

KUNZMAN ASSOCIATES, INC.

LA-GLENDALE WATER RECLAMATION PLANT EQUALIZATION STABILIZATION REPORT

FOCUSED TRAFFIC IMPACT ANALYSIS

August 7, 2017

Traffic Engineering | Transportation Planning | Parking | Noise/Vibration | Expert Witness
Air Quality | Global Climate Change | Health Risk Assessment

LOS ANGELES-GLENDALE WATER RECLAMATION PLANT EQUALIZATION STABILIZATION REPORT

FOCUSED TRAFFIC IMPACT ANALYSIS

August 7, 2017

Prepared by:

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JN 6966

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LOS ANGELES-GLENDALE WATER RECLAMATION PLANT EQUALIZATION STABILIZATION REPORT

TRAFFIC IMPACT ANALYSIS

This traffic impact analysis contains the analysis of the proposed Los Angeles-Glendale Water Reclamation Plant Equalization Stabilization Report project. The Los Angeles-Glendale Water Reclamation Plant is located at 4600 Colorado Boulevard adjacent to the Los Angeles River and I-5 Freeway within the Glendale Narrows area of the northeast portion of the City of Los Angeles. The Los Angeles-Glendale Water Reclamation Plant Equalization Stabilization Report proposes a combination of the Capital Improvement Program 4176 Los Angeles-Glendale Water Reclamation Plant Primary Effluent Equalization Storage Project, Capital Improvement Program 4187 Blower Air Cleanup System, and the Capital Improvement Program 4170 Los Angeles-Glendale Water Reclamation Plant Personnel Building Project. These measures would be implemented in mid to late year 2018 and would extend for 2 years through the beginning of 2021.

The project site is proposed to obtain access to the regional freeway system using a number of local roadways and wherever possible use designated truck routes to and from the freeways. The freeways located on the haul routes are the I-5 Freeway and SR-134 Freeway. The Los Angeles-Glendale Water Reclamation Plant and the associated truck hauling routes cover two jurisdictional areas which include the City of Los Angeles and the City of Glendale.

The traffic impact analysis contains documentation of existing traffic conditions, trips generated by the project, distribution of the project trips to roads outside the project, determination of Existing Plus Project[1] traffic conditions, calculation of Construction Years (2018 to 2021) traffic conditions without and with the project. For the Construction Years (2018 to 2021), the year with the highest trip generation will be analyzed. Once completed, the Capital Improvement Program projects do not increase the number of staff or traffic volume trips, so there no additional trip generation for the ultimate condition.

Each of these topics is contained in a separate section of the report. The first section is "Findings", and subsequent sections expand upon the findings. In this way, information on any particular aspect of the study can be easily located by the reader. Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with those terms unique to transportation engineering, a glossary of terms is provided within Appendix A.

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[1] The existing plus project conditions has been analyzed to comply with the Sunnyvale West Neighborhood Association v. City of Sunnyvale CEQA court case. This scenario assumes the full development of the proposed project and full absorption of the proposed project trips on the circulation system at the present time.

I. EXECUTIVE SUMMARY

This report contains the traffic impact analysis for the proposed Los Angeles-Glendale Water Reclamation Plant Equalization Stabilization Report project. This section summarizes the project background and description, analysis methodology, existing traffic conditions, project traffic impacts, and the proposed mitigation measures.

A. Project Description

The Los Angeles-Glendale Water Reclamation Plant Equalization Stabilization Report proposes a combination of the Capital Improvement Program 4176 Los Angeles-Glendale Water Reclamation Plant Primary Effluent Equalization Storage Project, Capital Improvement Program 4187 Blower Air Cleanup System Project, and the Capital Improvement Program 4170 Los Angeles-Glendale Water Reclamation Plant Personnel Building Project. As shown on Figure 1, the Los Angeles-Glendale Water Reclamation Plant is located at 4600 Colorado Boulevard adjacent to the Los Angeles River and I-5 Freeway within the Glendale Narrows area of the northeast portion of the City of Los Angeles. The proposed project is located at the existing water reclamation plant site.

B. Capital Improvement Program Projects

Figure 2 illustrates the proposed site plan. A brief description of each of the major components of the project is included below:

1. Capital Improvement Program 4176 Los Angeles-Glendale Water Reclamation Plant Primary Effluent Equalization Storage Project

   Capital Improvement Program 4176 will serve to improve the existing process control at the plant, provide for enhanced operational flexibility and reliability, and add 5 million gallons of storage required for the collection system to provide the required relief at the downstream reaches of the Los Angeles-Glendale Water Reclamation Plant. Specifically, the Capital Improvement Program 4176 will construct the following structures within the existing site:

   (1) One 2.5 million gallon equalization tank
   (2) Two primary clarifiers
   (3) Three aeration tanks
   (4) Two secondary clarifiers
   (5) Appurtenances and Piping (channels, galleries, piping, and existing electrical and control systems integration)
   (6) Site work and Existing Pond Modification in conjunction with Capital Improvement Program 4176 and Capital Improvement Program 4176

2. Capital Improvement Program 4187 Blower Air Cleanup System Project

   Capital Improvement Program 4176 will replace damaged and corroded headworks in addition to adding a bio-trickling filter to scrub captured air before entering the

blowers to keep the headworks building and primary settling tanks at the Los Angeles-Glendale Water Reclamation Plant under negative pressure and prevent odors from escaping.

3. Capital Improvement Program 4170 Los Angeles-Glendale Water Reclamation Plant Personnel Building Project

Capital Improvement Program 4170 will design and construct an estimated 7,000 square foot 2-story building for Los Angeles-Glendale Water Reclamation Plant personnel. The new facility will provide permanent office space, laboratory space, locker room and shower facilities, lunch room, and conference rooms for Los Angeles-Glendale Water Reclamation Plant staff as well as community meeting room. The building is adjacent to the Los Angeles River, but completely inside the Los Angeles-Glendale Water Reclamation Plant site. The existing Administration Building on-site will also be remodeled to provide training rooms and auxiliary space for the City's staff assisting City programs. The remodel of the building is part of the Capital Improvement Program 4170 and will be completed in conjunction with it. The work will be inside of the building and is not intended to provide space for additional workers on-site. It is to support existing staff and provide additional meeting space.

C. Project Construction Timing

The construction would be implemented in mid to late year 2018 and extend for approximately 2 years through the beginning of 2021.

D. Analysis Methodology

This report analyzes the traffic impacts of the proposed project in accordance with the City of Los Angeles Transportation of Department Transportation Impact Study Guidelines (December 2016) and the Los Angeles County 2010 Congestion Management Program. The following definitions of deficiencies and significant impacts have been developed in accordance with the local County and City jurisdictions:

Jurisdiction	Level of Service	Other Criteria[1] or Significant Impact
County of Los Angeles	E or better, unless current level is F	A project related impact is significant if the volume to capacity ratio increases by 0.02 (2%) for Level of Service D, E or F
City of Los Angeles	D or better, unless current level is E or F	A project related impact is significant if the volume to capacity ratio increases by 0.04 (4%) for LOS C, 0.02 (2%) for LOS D and 0.01 (1%) LOS E or F..
City of Glendale	D or better unless current level is E or F	A project related impact is significant if the volume to capacity ratio increases by 0.02 (2%) for Level of Service D, E or F
California Department of Transportation	D or better, unless current level is E or F	Additional freeway analysis is required If the project increases the roadway volume based on the capacity more than 2% for the pre-project level of Service D is and 1% for levels of Service E or F.

[1] Except that a Level of Service E which can be allowed on at any combination of Major Arterials, Expressways, or conventional State Highways as specified in the General Plan and/ or Congestion Management Program.

E. Existing Traffic Conditions

The study area roadways were field inventoried and Figure 3 identifies the existing roadway conditions for study area roadways. The Existing number of through travel lanes, median control (i.e., divided or undivided), and intersection controls are identified.

Figure 4 depicts the Existing average daily traffic volumes. The Existing average daily traffic volumes have been obtained from the 2015 Traffic Volumes on California State Highways by the California Department of Transportation for freeway volumes and factored from peak hour counts using the following formula for each intersection leg:

PM Peak Hour Leg Volume / (K factor) = Average Daily Traffic
or
PM Peak Hour (Approach Volume + Exit Volume) x 10^2 = Leg Volume.

The Levels of Service for Existing traffic conditions have been calculated and are shown in Table 1. Existing Levels of Service are based upon manual morning and evening peak hours turning movement counts obtained by Kunzman Associates, Inc. in May 2017.

F. Project Trips

The project traffic volumes will consist of staff trips to/from the construction site and off-site trucking of material to/from the site. The project schedule is designed to not add project related evening peak hour trips on public roadways. For most operations, the on-site construction activity schedules are from 6:30 AM to 3:30 PM, which will allow construction workers to arrive at and depart from the site before the morning peak period (7:00 AM to 9:00 AM) and after the evening peak period (4:00 PM to 6:00 PM).

Whenever possible, to avoid traffic impacts during the peak hours trucking to/from the site will be restricted between the hours of 9:15 AM to 3:30 PM so that truck trips will occur mid-day between the morning and evening peak periods.

During Construction

Trips for the construction period are summarized in Table 2. The Capital Improvement Program projects (4170, 4176 and 4187) are projected to generate approximately 199 daily Passenger Car Equivalents trips and 8 Passenger Car Equivalents trips during the morning peak hour. No truck trips are anticipated during the evening peak period.

[2] Source: Approximate average evening peak hour K factor for Los Angeles County based on data from the California Transportation Traffic Census Program.

Post Construction

Once completed the Capital Improvement Program projects do not increase the number of staff or site trips, so there are no additional trip generation proposed for the ultimate condition.

G. Traffic Impacts

The project site has access to the I-5 Freeway via Colorado Boulevard and Edenhurst Avenue. In general, construction activity is anticipated to begin at 6:30 AM and end at 3:30 PM, unless otherwise specified. Whenever possible, off-peak (9:15 AM to 3:30 PM) truck delivery is preferred.

1. Existing With Project

   The study area intersections are projected to operate at acceptable Levels of Service during the peak hours for Existing With Project (2017) traffic conditions.

2. Construction Year (2021)

   Without Project

   The study area roadway intersections are projected to operate at acceptable Levels of Service during the peak hours for Year 2021 Without Project traffic conditions.

   With Project

   The study area roadway intersections are projected to operate at acceptable Levels of Service during the peak hours for Year 2021 With Project traffic conditions.

   In addition, the project contribution does not contribute a significant impact as defined by the City of Los Angeles and the project related trips during the peak hours are less than 1.0% of the ramp capacity which could possibility trigger additional freeway ramp capacity analysis.

H. Construction Project Traffic Control Mitigation

The general comments provide additional information or measures to minimize the impact of the project on traffic circulation and facilitate the project and may or may not be applicable for all situations, which arise during construction:

1. Provide to the following jurisdictions (Los Angeles County, California Department of Transportation, and the Cities of Los Angeles and Glendale) detailed project descriptions that include:

   a. Identified hours of construction and hours for deliveries.
   b. Identified haul routes.
   c. Identify location of staff parking for the construction period.

d. Identify the location of material storage.
e. Details for the work at site access locations.

2. The project shall develop procedures to notify the following governmental agencies and public:

   a. Emergency services affected by construction in the study area of possible lane and local access closures and the potential for traffic delays during construction.
      Los Angeles Police Department NE 3353 N San Fernando Rd, Los Angeles, CA
      Los Angeles Fire Station #50 at 3036 Fletcher Drive, Los Angeles, CA 90065
      Los Angeles Fire Station #56 2759 Rowena Avenue, Los Angeles, CA 90039
      Glendale Police Department 131 N Isabel St, Glendale, CA 91206, Glendale, CA
      Glendale Fire Station #21 at 421 Oak Street, Glendale, CA 91204
      Glendale Fire Station #22 at 1201 S Glendale Avenue, Glendale, CA 91205
   b. City of Los Angeles Department of Transportation to assist in moderating congestion on local streets and notification of roadworks.
   c. City of Glendale Public Works to assist in moderating congestion on local streets and notification of roadworks.
   d. Los Angeles Unified School District of possible temporary traffic congestion.
   e. Glendale Unified School District of possible temporary traffic congestion.
   f. Transit providers of possible temporary traffic congestion (Glendale Station Metrolink, Glendale Beeline Bus Service Routes 6, 12, and 94).
   g. The community-at-large of the construction limits/duration and timing.

3. The project should schedule the receipt of construction materials during non-peak travel periods (9:15 AM to 3:30 PM), to the extent possible.

4. The project should require the construction workers to park at the predetermined on-street parking area specified by the applicant.

II. APPLICANT INFORMATION

This section summarizes the applicant and project background, project description of work, and alternatives.

A. Background

The City of Los Angeles Bureau of Sanitation operates and maintains the Los Angeles-Glendale Water Reclamation Plant, which provides wastewater treatment for the eastern San Fernando Valley communities that are both within and outside of the Los Angeles City limits. The Los Angeles-Glendale Water Reclamation Plant was constructed in 1972 and has been operating since 1976 as the first water reclamation plant in the City. The Cities of Los Angeles and Glendale co-own the plant, where each city pays 50 percent of the costs and receives an equal share of the recycled water produced by the plant. The Los Angeles-Glendale Water Reclamation Plant is a regionally strategic facility within the City's overall wastewater system in addition to being a significant recycled water producer. By processing flows in the eastern San Fernando Valley, the plant is able to provide critical hydraulic relief to the City's major sewers downstream, which serve other communities of the City.

The plant is designed to treat average dry weather flow of 20 million gallons per day and peak weather flow of 30 million gallons per day and conventional activated sludge process. Treatment at the plant includes preliminary and primary treatment process, biological nitrogen removal activated sludge process, filtration treatment and disinfection (chlorination) and dechlorinating for product water discharged to the Los Angeles River. The plan product water is pumped to the "Title 22" recycled water distribution system for landscape irrigation; to Griffith Park, the Los Angeles Greenbelt Project and other uses and a balance of flows by gravity to the Los Angeles River. Treatment level "Title 22" standards for water reclamation are established under Title 22, Division 4, Environmental Health, and California's Water Recycling Criteria. All solids removed from the treatment process are returned untreated to the sewer for conveyance to the Hyperion Water Reclamation Plant for downstream treatment.

All recycled water from the Los Angeles-Glendale Water Reclamation Plant is therefore highly treated (tertiary) wastewater that meets and exceeds the water quality standards for recycled water for irrigation and industrial processes. The plant is highly automated and staff can control processes from the on-site control room or at remote locations.

The Los Angeles/Glendale Water Reclaimation Plant Primary Effluent Equalization Storage and Personnel Building Report evaluates the proposed Capital Improvement Program projects. This traffic analysis evaluates potential traffic impacts associated with the construction and implementation of these Capital Improvement Program projects.

B. Project Description of Work

The City of Los Angeles Bureau of Sanitation is proposing to implement both operational and administrative improvements at the Los Angeles-Glendale Water Reclamation Plant.

These projects are included in its Capital Improvement Program 4176 Los Angeles-Glendale Water Reclamation Plant Primary Effluent Equalization Storage Project (Equalization Storage Project), and the Capital Improvement Program 4170 Los Angeles-Glendale Water Reclamation Plant Personnel Building Project (Personnel Building Project) which includes the rehabilitation of the existing Administration Building. A third project, the Capital Improvement Program 4187 Blower Air Cleanup System Project, will be constructed during the same timeframe as the proposed projects. Implementation of the three Capital Improvement Program projects will be coordinated to minimize costs and construction time and to maximize efficiency.

Generally, the Equalization Storage Project will serve to improve the existing process at the Los Angeles-Glendale Water Reclamation Plant, provide for enhanced operational flexibility and reliability, and add 5 million gallons of storage required for the collection system to provide the required relief at the downstream reaches of the Los Angeles-Glendale Water Reclamation Plant. The proposed upgrades will not increase the capacity of the plant, increase the amount of influent to be treated at the plant, nor will it increase the amount of effluent discharged to the Los Angeles River or the volume of solids sent to Hyperion for downstream treatment.

The Personnel Building project will design and construct a new administrative/operations building for Los Angeles-Glendale Water Reclamation Plant personnel. In addition, the existing Administration Building located on-site will be remodeled (interior only).

Brief descriptions of each Capital Improvement Program projects are included below:

1. <u>Capital Improvement Program 4176 Los Angeles-Glendale Water Reclamation Plant Primary Effluent Equalization Storage Project</u>

   The Equalization Storage Project will serve to improve the existing the process at the plant, provide for enhanced operational flexibility and reliability, and add 5 million gallons of storage required for the collection system to provide the required relief at the downstream reaches of the Los Angeles-Glendale Water Reclamation Plant.

   The proposed facilities would be located within the existing fenced boundary of the Los Angeles-Glendale Water Reclamation Plant on land owned by the City of Los Angeles. A preliminary schematic of the proposed facilities' layout per pre-design (CITE) is shown on Figure 2. It is possible that the layouts may change as a result of coordination of all project activities; however it is not anticipated to change to the extent that calculations should be recalculated. Rather, for all construction impact calculations, the most conservative values for potential impact were used in the analysis.

   The Equalization Storage Project would include the construction of modifications/additions to existing structures and equipment within paved areas; and construction of pipelines and other associated facilities in previously disturbed areas. Construction of the modifications/additions, including the associated appurtenances and pipelines, would involve demolition, grading and excavation activities all within the existing Los Angeles-Glendale Water Reclamation Plant site boundary.

Specifically, the Equalization Storage Project will construct the following within the exiting Los Angeles-Glendale Water Reclamation Plant site: a 2.5 million gallons equalization tank, two primary clarifiers, three aeration tanks, two secondary clarifiers with the associated appurtenances and piping.

2. Capital Improvement Program 4187 Blower Air Cleanup System

Another Capital Improvement Program project at the Los Angeles-Glendale Water Reclamation Plant is the addition of a bio-trickling filter. As a means of odor control, the City collects foul air from the headworks building and primary settling tanks at the Los Angeles-Glendale Water Reclamation Plant to keep both facilities under negative pressure and prevent odors from escaping. The captured air is then fed into the process air blowers and reused for aeration. The City is experiencing corrosion and aeration diffuser plugging issues, and as result it is planning to build a bio-trickling filter facility to scrub the air before entering the blowers. This work would involve negligible or no expansion of existing use.

The construction of the bio-trickling filter will occur at the same time as the proposed improvements, and therefore it is discussed here so that any potential cumulative construction related impacts can be identified. This project is also shown on Figure 2.

3. Capital Improvement Program 4170 Los Angeles-Glendale Water Reclamation Plant Personnel Building Project

The Personnel Building Project will design and construct an estimated 7,000 square foot 2-story building for existing Los Angeles-Glendale Water Reclamation Plant personnel. The new facility will provide permanent office space for existing Operations Staff, additional laboratory space for the Environmental Monitoring Division and offices for environmental monitoring staff, and sufficient locker room and shower facilities for Operators and space for Human Resources Development Department staff (safety engineer), lunch room and conference rooms and community meeting room. The building is adjacent to the Los Angeles River; however, completely inside the Los Angeles-Glendale Water Reclamation Plant site.

The existing Administration Building on-site will also be remodeled to provide training rooms and auxiliary space for the City's staff assisting City programs. The remodel of the building is part of the 4170 project and will be completed in conjunction with it. The work will be inside of the building and is not intended to provide space for additional workers on-site. It is to support existing staff and provide additional meeting space.

4. Site Work and Existing Pond Modification

Grading for the proposed project would consist of excavation for construction of building foundations and/or water treatment structures and minor vertical modifications to existing private roads and/or driveways to accommodate building construction. Construction of the additional primary tanks and aeration basins

generally would involve reconfiguration of the existing pond, excavating the expansion site, installing utility lines and piping, erecting formwork and reinforcement, pouring of the concrete foundation and walls, and plumbing to connect with the existing system.

Construction activities for the tank would consist of excavating pits, constructing formwork, and pouring concrete. Piping and accessory structures also would be constructed to allow process water to be routed to and from the storage tank.

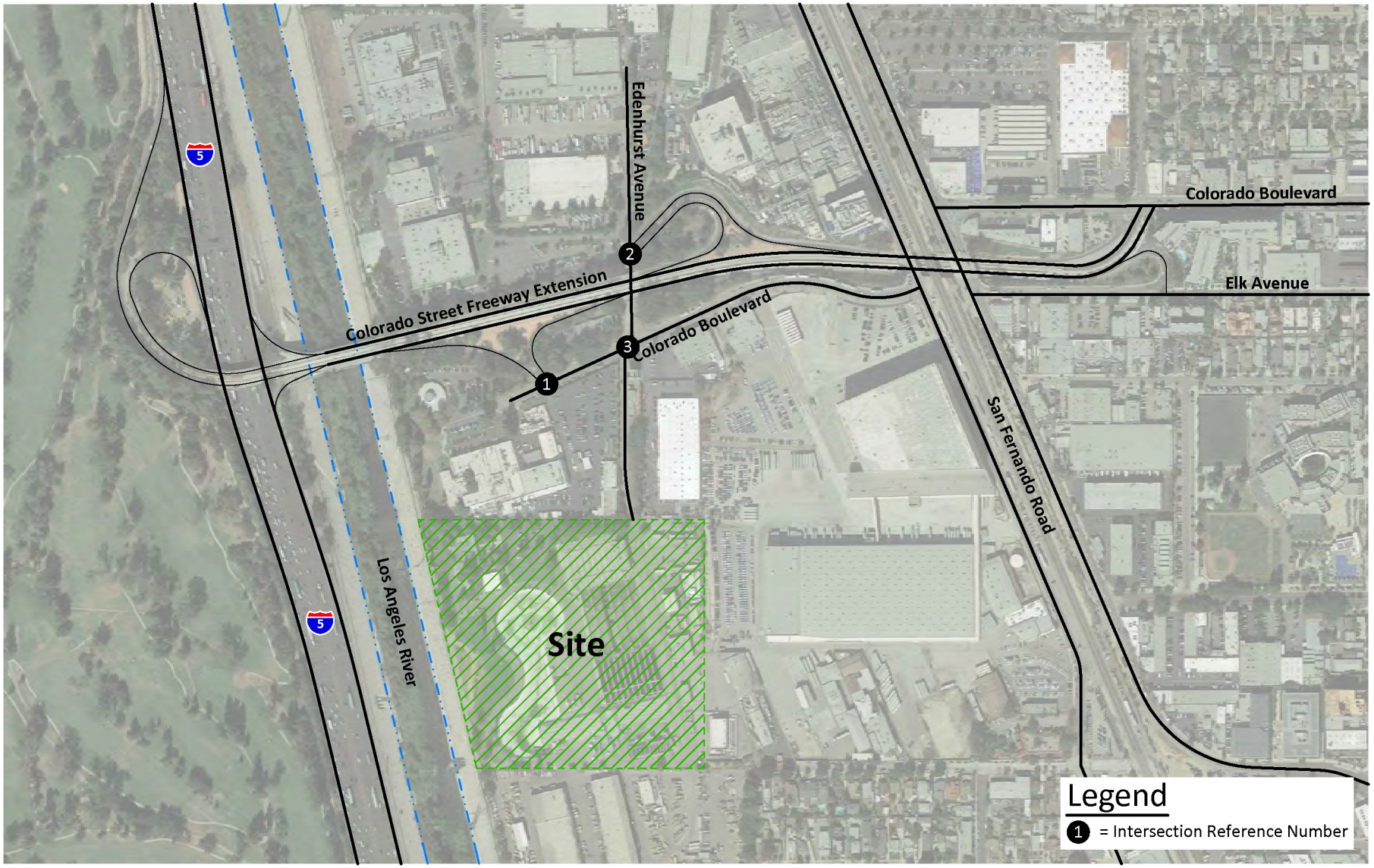
There is an existing, lined de-chlorination pond within the existing boundary of the Los Angeles-Glendale Water Reclamation Plant that is not currently in use (shown on Figure 2). The pond will be restructured in order to make room for the required the equalization storage tanks, the new aeration tanks, and the new Personnel Building as well as transportation /traffic circulation through the plant (for chemical delivery, etc.). The current plan is to create an aesthetically pleasing water feature with the remaining pond site after all modifications are complete.

Grading for the new Personnel Building will extend up to the existing Administration Building per the project plans for sidewalk and landscape continuity.

All construction and earthwork would be on the existing Los Angeles-Glendale Water Reclamation Plant site. Staging areas would be on-site. The City of Los Angeles Bureau of Sanitation has provided maximum estimated earthwork quantities for Capital Improvement Program 4176 and 4187 of approximately 20,000 cubic yards (see Appendix B). For a conservative analysis, the new Personnel Building is estimated to also generate approximately 20,000 cubic yards of excavated soil. It is likely exported excavated soils will be less than the maximum 40,000 cubic yards as on-site fill and re-grading of the de-chlorination pond and circulation roadway will utilized a large portion of the excavated soil material. Exported excavated soil would be used as cover at local landfills, and construction debris would be recycled or disposed local landfills.

In addition, the estimated amount of concrete required for the three Capital Improvement Program projects was also considered in the trip generation analysis for construction truck traffic. for Capital Improvement Program 4176 and 4187 of approximately 5,300 cubic yards of concrete are estimated and for Capital Improvement Program 4170, personnel building, approximately 2,200 cubic yards of concrete are estimated. The design build approach to the project means that these are rough estimates as the designer-contractor will determine the final method of construction.

Figure 1
Project Location Map

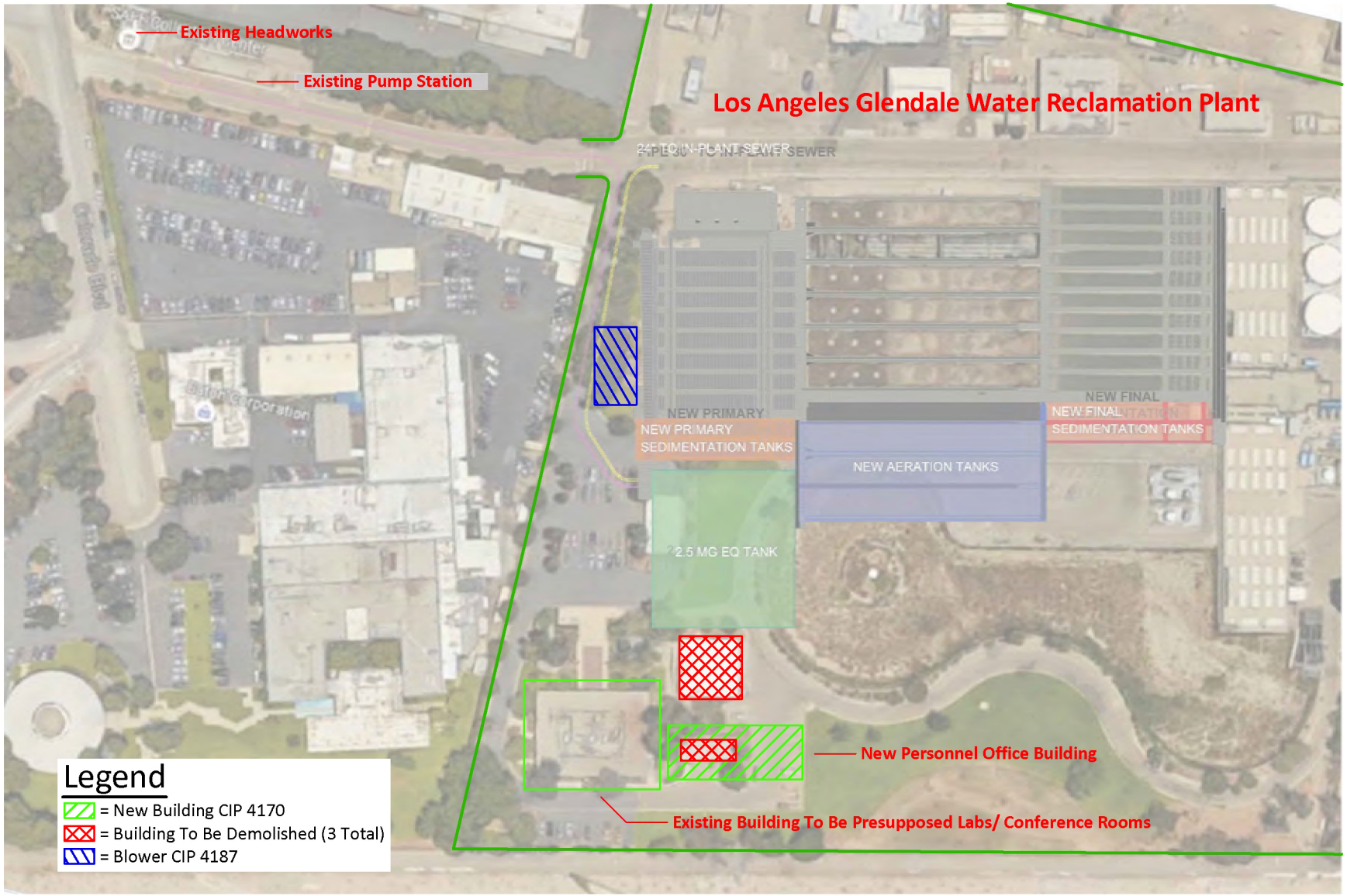


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Figure 2
Site Plan



III. ANALYSIS METHODOLOGY

The purpose of this report is to provide an assessment of the traffic impacts resulting from the proposed development or construction of the Los Angeles-Glendale Water Reclamation Plant Equalization Stabilization and Personnel Building projects, and to identify the traffic mitigation measures necessary to maintain the established Level of Service standard for the elements of the impacted roadway system. The traffic issues related to the proposed land uses and development have been evaluated in the context of the California Environmental Quality Act.

The City of Los Angeles is the lead agency responsible for preparation of the traffic impact analysis, in accordance with the California Environmental Quality Act authorizing legislation. This report analyzes traffic impacts for the anticipated final year of construction, 2021.

This section summarizes the study objectives, analysis methodology, operational criteria and roadway segment analysis.

A. County Congestion Management Program

The Congestion Management Program is a result of Proposition 111 which was a statewide initiative approved by the voters in June 1990. The proposition allowed for a nine cent per gallon state gasoline tax increase over a five-year period.

Proposition 111 explicitly stated that the new gas tax revenues were to be used to fix existing traffic problems and was not to be used to promote future development. For a City to get its share of the Proposition 111 gas tax, it has to follow certain procedures specified by the State Legislature. The legislation requires that a traffic impact analysis be prepared for new development. The traffic impact analysis is prepared to monitor and fix traffic problems caused by new development.

The Legislature requires that adjacent jurisdictions use a standard methodology for conducting a traffic impact analysis. To assure that adjacent jurisdictions use a standard methodology in preparing traffic impact analyses, one common procedure is that all Cities within a County, and the County agency itself, adopt and use one standard methodology for conducting traffic impact analyses.

Although each County has developed standards for preparing traffic impact analyses, traffic impact analysis requirements do vary in detail from one county to another, but not in overall intent or concept. The general approach selected by each County for conducting traffic impact analyses has common elements.

The general approach for conducting a traffic impact analysis is that existing weekday peak hour traffic is counted and the percent of roadway capacity currently used is determined. Then growth in traffic is accounted for and added to existing traffic and the percent of roadway capacity used is again determined. Then the project traffic is added and the percent of roadway capacity used is again determined. If the new project adds traffic to an overcrowded facility, then the new project has to mitigate the traffic impact so that the facility operates at a level that is no worse than before the project traffic was added.

B. Analysis Methodology

If a project adds more traffic than the minimum threshold amount to an intersection, then that intersection has to be analyzed for deficiencies.

This traffic impact analysis has been prepared in accordance with the traffic impact analysis requirements except as noted. The traffic impact analysis not only examined the Congestion Management Program system of roads and intersections, but also other roads and intersections.

The Transportation Research Board Critical Movement Analysis, Circular 212 Planning Methodology, shall be used to analyze traffic operating conditions at the study intersections. Critical Movement Analysis is a method which determines the volume to capacity ratio on a critical lane basis and Level of Service associated with each volume to capacity ratio at an intersection.

The project trip generation is based on employee and truck data provided by the City of Los Angeles Bureau of Sanitation. The project trip distributions are based on trips to and from the site to the adjacent freeway for construction truck trips to the local landfill. The traffic impact analysis has to be prepared by a licensed Traffic Engineer.

The project generated trips were added to intersections, and a full intersection analysis was conducted, even when the project added traffic failed to meet the minimum thresholds that require an intersection analysis.

1. Analysis Requirement Criteria

In general, in the City of Los Angeles if the project increases the morning or evening peak hour trips of a signalized intersection by 42 two-way trips a traffic impact analysis is required, however if the increase is by 25 two-way trips then a technical memorandum maybe required.

The County Los Angeles requires a traffic impact analysis is required for Congestion Management Program intersections if the proposed project results in an increase of 50 two-way peak hour trips at an arterial monitoring intersection, including freeway on and off-ramp intersections or 150 two-way peak hour trips on a freeway segment.

The California Department of Transportation may require a freeway impact analysis if the proposed project increases the roadway volume based on the capacity of a freeway or ramp. The volume to capacity threshold for roadways operating at Level of Service E or F is 1% or more and when operating at Level of Service D is 2% or more.

2. Operational Criteria

County of Los Angeles

Using the ICU methodology, the Los Angeles County 2010 Congestion Management Program has established Level of Service E or better as generally acceptable on the Congestion Management Program network, unless the existing level of service is E or worst in which case an impact is considered significant if the cumulative increase in the volume to capacity ratio equals 0.02.

City of Glendale

Using ICU methodology, the City of Glendale has established, as a Citywide target, threshold Level of Service D on all City maintained intersections and roadway segments as specified in the Glendale General Plan Circulation Element, except where Level of Service E is permitted at state highway intersections and Congestion Management intersections per the Los Angeles County 2010 Congestion Management Program. Additionally, if the without project traffic condition level of service is E a project related increase in volume to capacity of 0.02 (2%), the project impact is considered significant.

California Department of Transportation

The California Department of Transportation, Guide for the Preparation of Traffic Impact Studies states that an endeavor is made to maintain a target Level of Service of between "D" or better on State Highway facilities; however, the California Department of Transportation acknowledges that this may not always is feasible. If an existing State Highway facility is operating at less than the appropriate Level of Service, the existing Measures of Effectiveness for Level of Service should be maintained.

3. Significant Impact

City of Los Angeles

Based on the City of Los Angeles Traffic Study Policies and Procedures (2016), the impact is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

Significant Impact Threshold for Intersections		
Level of Service	Volume/Capacity	Incremental Increase
C	0.701-0.800	0.04 or more
D	0.801-0.900	0.02 or more
E/F	0.901 - more	0.01 or more

A project impact is considered significant if the project contributes 50 or more morning or evening peak hour trips to an intersection which 1) currently operates at

an acceptable Level of Service and then with the contribution of the project then operates at an unacceptable Level of Service with a change in the level of service measurement greater than permissible 2) currently operates at an unacceptable Level of Service and then with the contribution of the with a change in the level of service measurement greater than permissible.

C. Mitigation Measures

If a project is large enough to require that a traffic impact analysis be prepared, and if the project adds traffic to an intersection above a minimum threshold, and if the intersection is operating at above acceptable Levels of operation, then the project must mitigate its traffic impact.

An intersection mitigation measure shall either fix the deficiency, or reduce the volume to capacity ratio so that it is below the level that occurs without the project.

IV. PROJECT DESCRIPTION

This section discusses the project's location, access and timing of construction activities. Figure 1 shows the project location and Figure 2 illustrates the site plan.

A. Location

The existing Los Angeles-Glendale Water Reclamation Plant is located at 4600 Colorado Boulevard adjacent to the Los Angeles River and the I-5 Freeway within the Glendale Narrows area of the northeast portion of the City of Los Angeles.

B. Land Use and Intensity

The proposed project consists of the on-site construction activity for the improvement of the existing water reclamation plant. Off-site activity will consist of vehicle trips to and from the construction site by construction staff and trucks hauling inbound material and outbound sediment or debris.

C. Site Plan

As shown on Figure 2, the Los Angeles-Glendale Water Reclamation Plant Capital Improvement Program includes the Primary Effluent Equalization Storage Project, Blower Air Cleanup System Project, and the Los Angeles-Glendale Water Reclamation Plant Personnel Building Project. The construction area will consist of the area west of the existing water reclamation equipment and south of the existing administration building.

D. Project Access

The project site is proposed to obtain access to the regional freeway system using the adjacent Colorado Boulevard and Edenhurst Avenue I-5 Freeway ramp intersections. The freeways located on the haul routes are the I-5 Freeway and SR-134 Freeway. The Los Angeles-Glendale Water Reclamation Plant and the associated truck hauling routes cover two jurisdictional areas which include the City of Los Angeles and the City of Glendale.

E. Phasing and Timing

The construction activity would be implemented in mid to late year 2018 and would extend for 2 years through the beginning of 2021. The phasing has site work, excavation or grading activities for 16 continuous months for one or the other of the Capital Improvement Program projects, and concrete work for 13 continuous months for one or the other of the Capital Improvement Program projects.

V. EXISTING TRAFFIC CONDITIONS

As a basis of comparison for the projected project traffic impacts, the Existing traffic conditions are discussed below with Tables in which the Level of Service results are shown and Figures on which the resulting traffic volumes are Illustrated.

A. Surrounding Street System

Roadways that will be utilized by project trips include Colorado Boulevard and Edenhurst Avenue. Regional access to the project site is provided by the I-5 Freeway which is located approximately one-half of a mile to the west and the SR-134 Freeway which is located approximately three-quarters of a mile to the north.

Colorado Boulevard: This east-west roadway currently is two lanes undivided in the study area and is classified as a local street (36 feet roadway width) roadway in the City of Los Angeles General Plan Circulation Element. It currently carries approximately 500 to 5,400 vehicles per day in the study area.

Edenhurst Avenue: This north-south roadway currently is two lanes undivided in the study area and is not classified in the City of Los Angeles General Plan Circulation Element. It currently carries approximately 400 to 4,300 vehicles per day in the study area.

I-5/Colorado Street Freeway Extension: This east-west four lane divided freeway is classified as a State Highway on the County of Los Angeles General Plan Circulation Element. This State Highway is also a designated truck route. It currently carries approximately 69,000 vehicles per day in the study area.

I-5 Freeway: This north-south ten lane divided freeway is classified as a State Highway on the County of Los Angeles General Plan Circulation Element. This State Highway is also a designated truck route. It currently carries approximately 248,000 to 258,000 vehicles per day in the study area.

SR-134 Freeway: This east-west ten lane divided freeway is classified as a State Highway on the County of Los Angeles General Plan Circulation Element. This State Highway is also a designated truck route. It currently carries approximately 235,000 to 246,000 vehicles per day in the study area.

B. Existing Traffic Conditions

1. Existing Travel Lanes

Figure 3 identifies the Existing roadway conditions for study area roadways. The number of through lanes for existing roadways, median control (i.e., divided or undivided), and intersection controls are identified.

2. Existing Average Daily Traffic Volumes

Figure 4 depicts the Existing average daily traffic volumes. The Existing average daily traffic volumes have been obtained from the 2015 Traffic Volumes on California State Highways by the California Department of Transportation for freeway volumes and factored from peak hour counts obtained by Kunzman Associates, Inc. in May 2017 (see Appendix C) using the following formula for each intersection leg:

PM Peak Hour Leg Volume / (K factor) = Average Daily Traffic
or
PM Peak Hour (Approach Volume + Exit Volume) x 10^3 = Leg Volume.

3. Intersection Levels of Service

The Intersection Capacity Utilization technique is used to assess the operation of a signalized intersection. An overall average level of service for the intersection legs is shown per the Highway Capacity Manual which represents that portion of intersection capacity utilized if all approaches operate at capacity.

The Intersection Delay Method technique is used to assess the capacity needs of an unsignalized intersection. For a cross street stop intersection, the worst individual movement (or movements sharing a single lane) delay and level of service is shown per the Highway Capacity Manual.

The Levels of Service for Existing traffic conditions have been calculated and are shown in Table 1. Existing Levels of Service are based upon manual morning and evening peak hours turning movement counts obtained by Kunzman Associates, Inc. in May 2017 (see Figures 5 and 6). Traffic count worksheets are provided in Appendix C.

There are two peak hours in a weekday. The morning peak hour is between 7:00 AM and 9:00 AM, and the evening peak hour is between 4:00 PM and 6:00 PM. The actual peak hour within the two hour interval is the four consecutive 15 minute periods with the highest total volume when all movements are added together. Thus, the evening peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15 minute periods have the highest combined volume.

For Existing traffic conditions, the study area intersections currently operate at acceptable Levels of Service during the peak hours. Existing Level of Service worksheets are provided in Appendix D.

C. Existing Transportation Element

Figure 7 shows the current City of Los Angeles Transportation Element. Both existing and future roadways are included in the Transportation Element and are graphically depicted on Figure 7. This figure shows the nature and extent of arterial highways that are needed to

[3] Source: Approximate average evening peak hour K factor for Los Angeles County based on data from California Transportation Traffic Census Program.

adequately serve the ultimate development depicted by the land use element of the General Plan. The City of Los Angeles roadway cross-sections are shown on Figure 8.

D. Transit Service

The study area is currently served by Metro Local Lines 60, and Metro Rapid Service Line 760. The City of Los Angeles Bus and Rail System in the vicinity of the proposed site is shown on Figure 9. In addition to the local bus service, the Metro light rail Washington Station is located on Long Beach Avenue south of Washington Boulevard.

The traffic reducing potential of public transit has not been considered in this report. Essentially the staff traffic projections are conservative in that public transit might be able to reduce the traffic volumes.

E. Bicycle or Non-Motorized Transportation Plan

In order to promote a more bicycle friendly environment and bicycle ridership as a more attractive commuter choice, the City of Los Angeles has designated bicycle routes which are shown in the Glendale Narrows area of northeast City of Los Angeles Bicycle Plan. Both existing and proposed bicycle paths, lanes and routes are included in the Bicycle Plan and are graphically depicted on Figure 10.

Table 1

Existing Intersection Volume to Capacity Ratios and Levels of Service

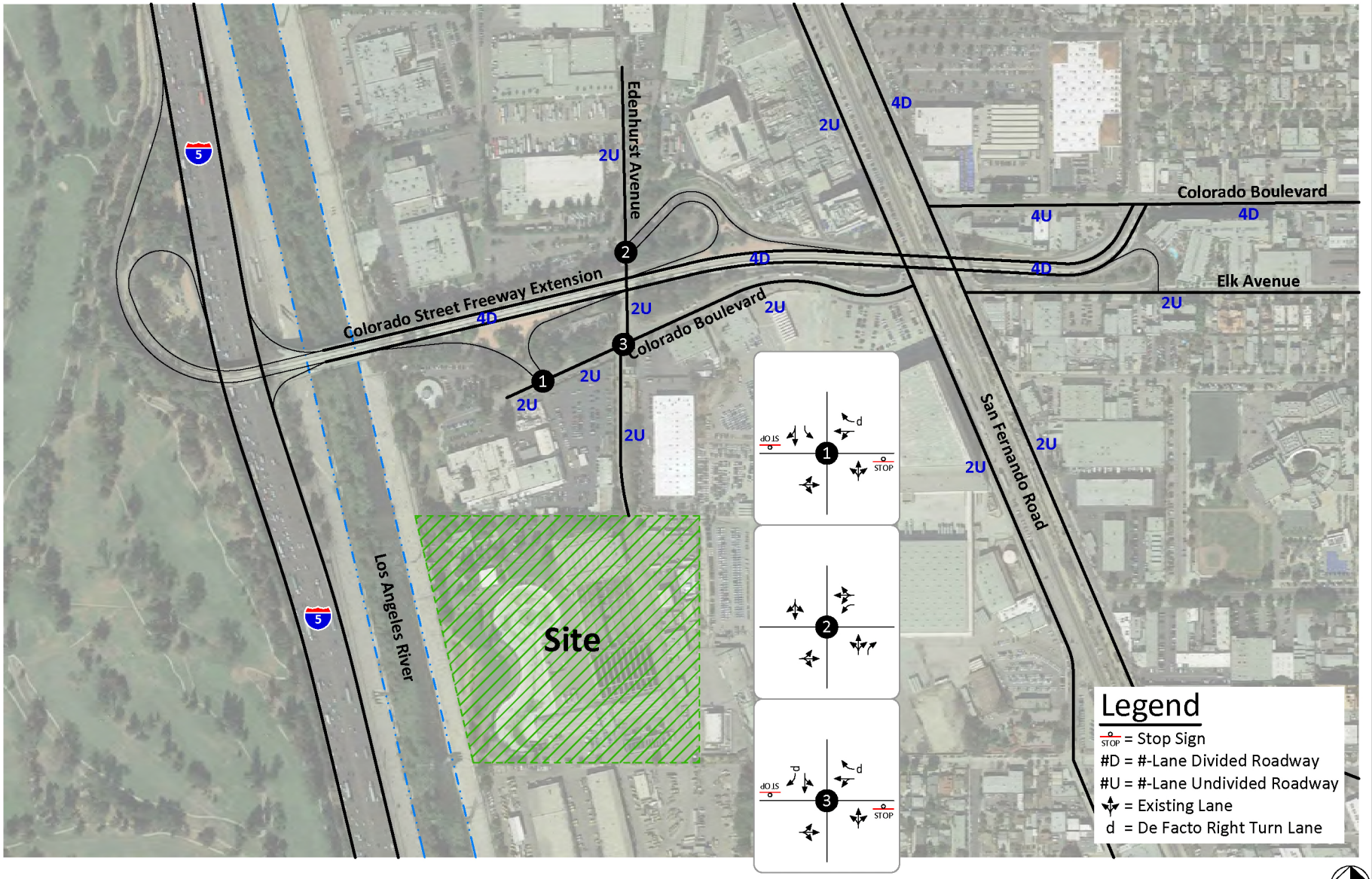
Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour V/C - LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
I-5 Colorado EXT EB Ramps (NS) at:																
Colorado Boulevard (EW) -#1	Los Angeles / Caltrans	CSS	0	<1>	0	1	0.5	0.5	0	<1>	0	0.5	0.5	d	11.3-B	10.7-B
Edenhurst Avenue (NS) at:																
I-5 Colorado EXT WB Ramps (EW) -#2	Los Angeles / Caltrans	CSS	0	<1>	1	0	<1>	0	0	<1>	0	1	<1>	0	23.1-C	12.1-B
Colorado Boulevard (EW) -#3	Los Angeles	CSS	0	<1>	0	0.5	0.5	d	0	<1>	0	0.5	0.5	d	14.8-B	18.6-C

[1] When a right turn lane is designated, the lane can either be striped or unstriped. For a de facto right turn lane (d) to function as a right turn lane, there must be sufficient width for right turning vehicles to pass on the right of the through travel lanes. L = Left; T = Through; R = Right; d = De Facto Right Turn Lane, <1> = Shared Left, Through & Right Lane.

[2] For signalized intersections in the City of Los Angeles, the Intersection Capacity Utilization (ICU), Volume to Capacity Ratio (V/C) or Level of Service (LOS) is typically calculated using the following analysis software: Los Angeles Department of Transportation Circular 212 Method Worksheet, Version LADOT CMA Copy of CalcaDBLite_Beta1i (08/04/2011). For the unsignalized intersections, Delay Methodology (Level of Service) has been calculated using the following analysis software: Vistro, Version 5.00-00. Per the 2010 Highway Capacity Manual, intersections with cross street stop control, the delay and Level of Service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS= Cross Street Stop.

Figure 3
Existing Through Travel Lanes and Intersection Controls



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Figure 4
Existing Average Daily Traffic Volumes

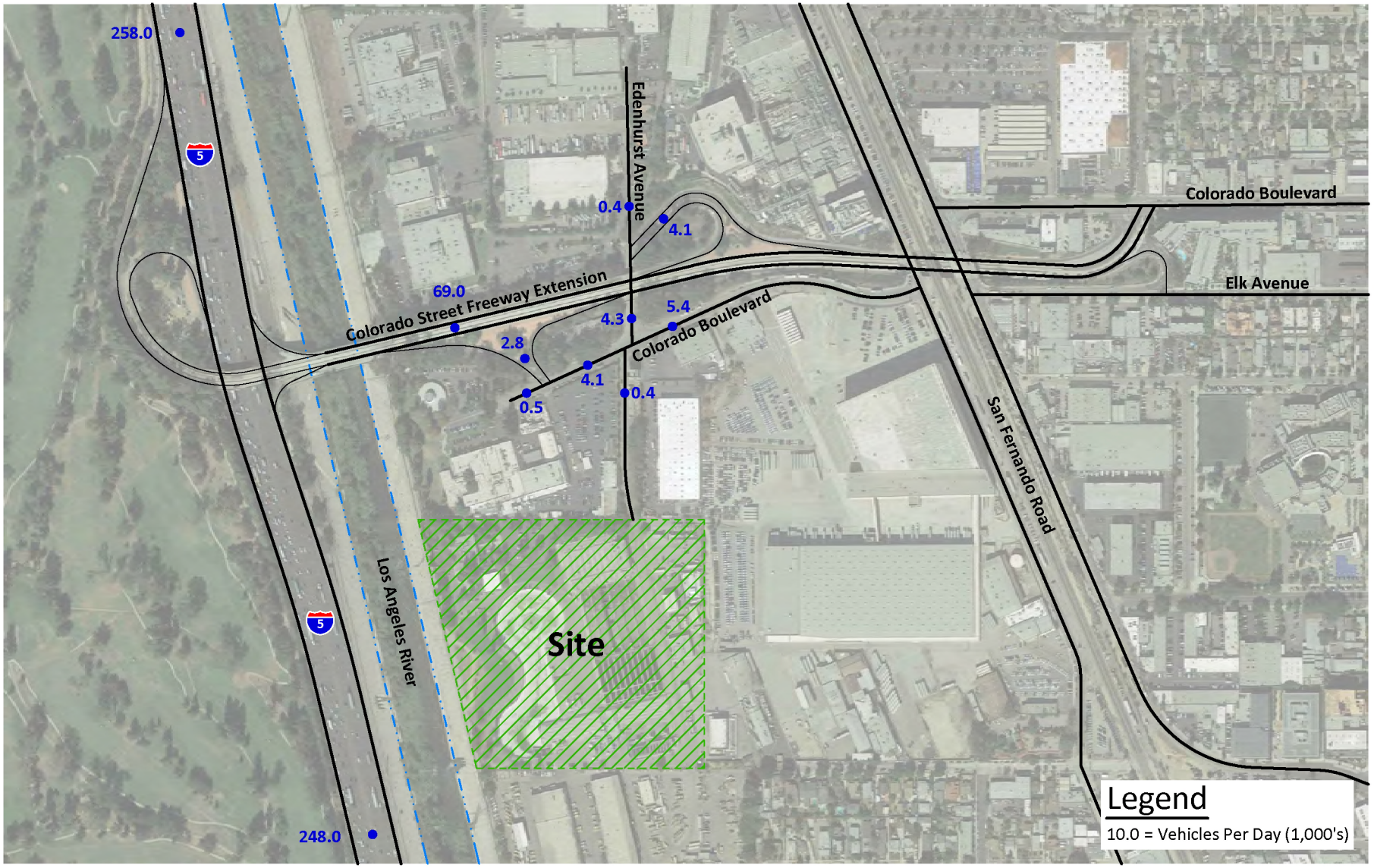
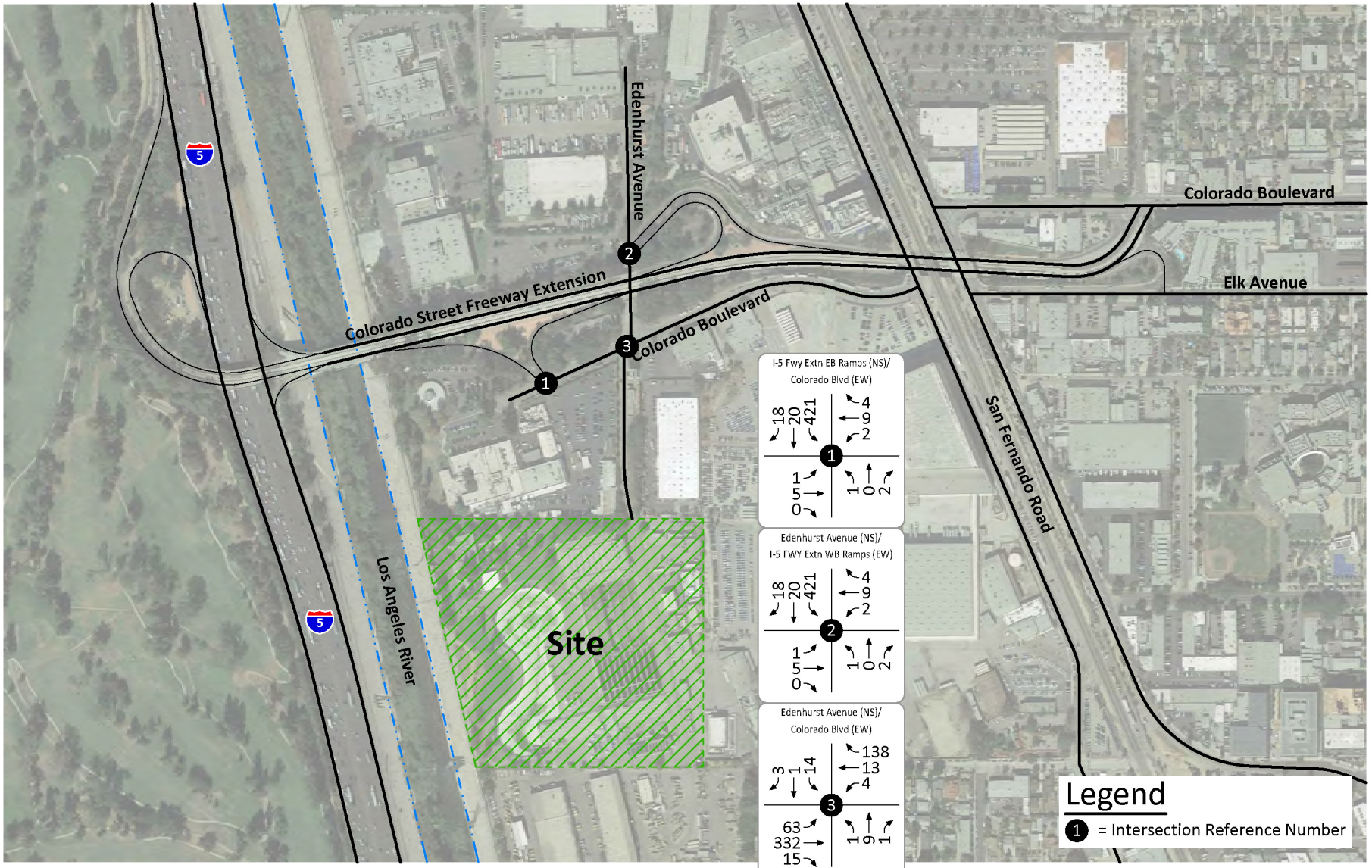


Figure 5
Existing Morning Peak Hour Intersection Turning Movement Volumes

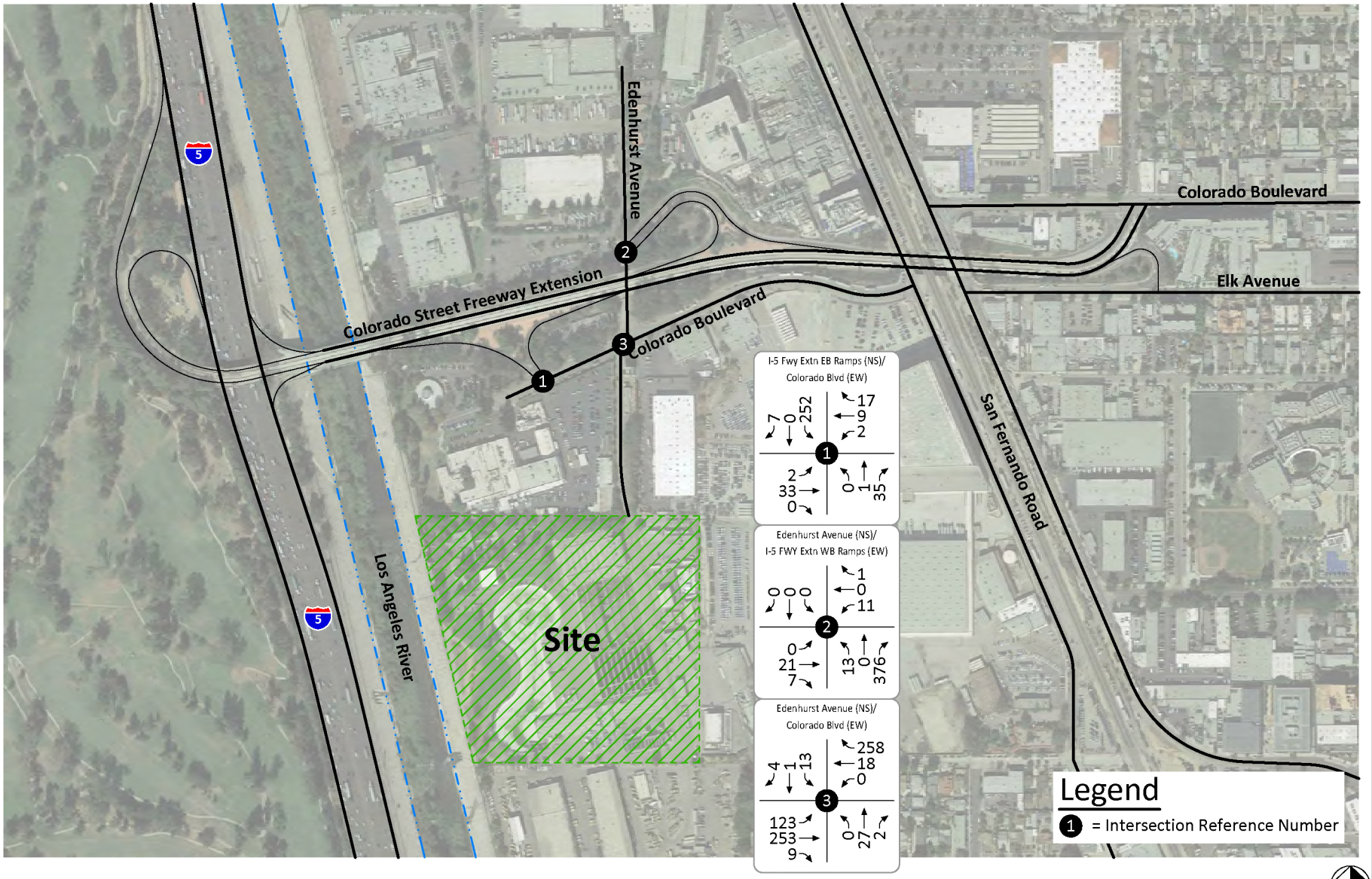


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JN 6966

Figure 6
Existing Evening Peak Hour Intersection Turning Movement Volumes

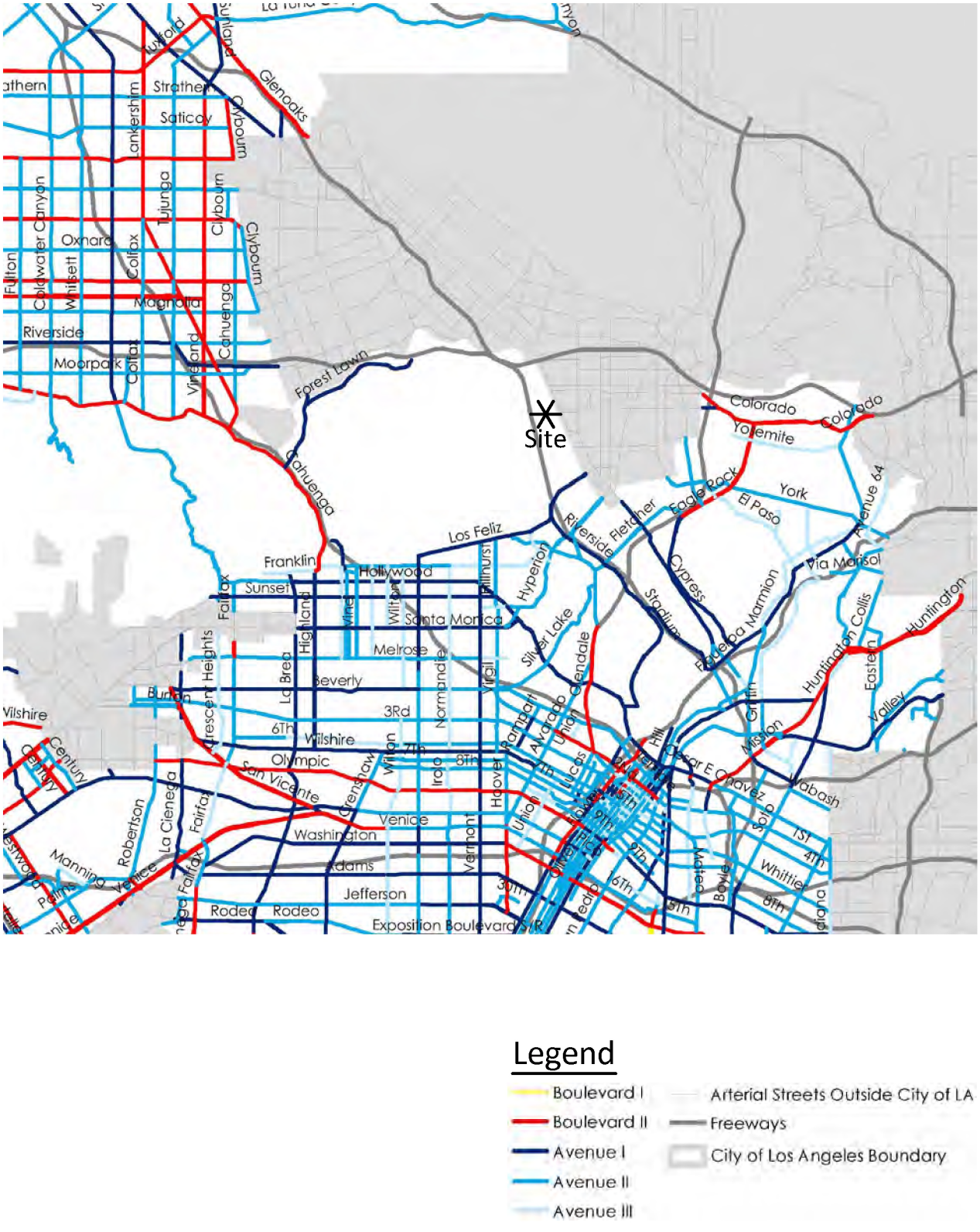


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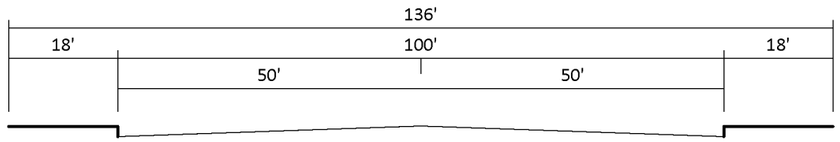
Figure 7
City of Los Angeles Transportation Element



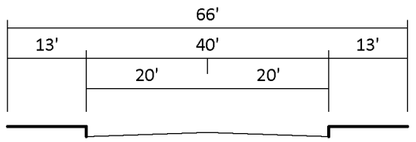
Source: City of Los Angeles

Figure 8
City of Los Angeles General Plan Roadway Cross-Sections

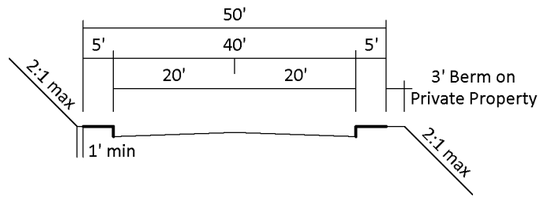
Boulevard I (Major Highway Class I) 6-8 Lanes



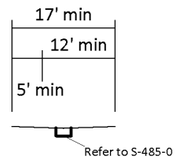
Collector 2 Lanes



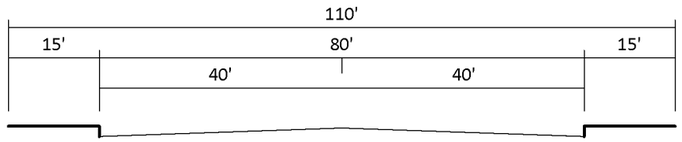
Hillside Collector



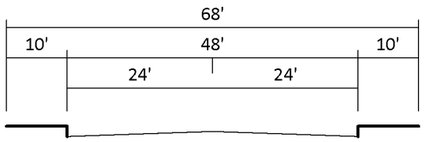
Shared Street



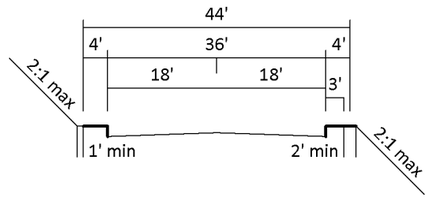
Boulevard II (Major Highway Class II) 4-6 Lanes



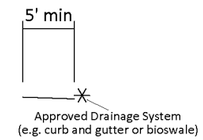
Industrial Collector 2 Lanes



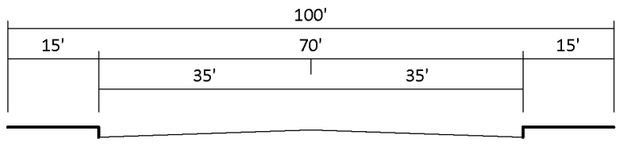
Hillside Local



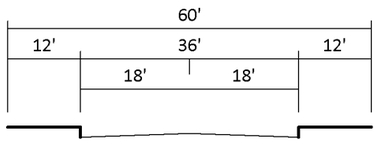
Pedestrian Walkway
Side Draining



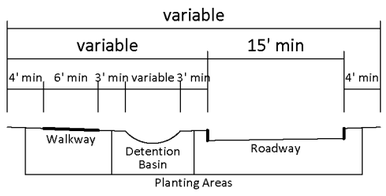
Avenue I (Secondary Highway) 2-4 Lanes



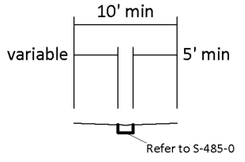
Local Street - Continuous 2 Lanes



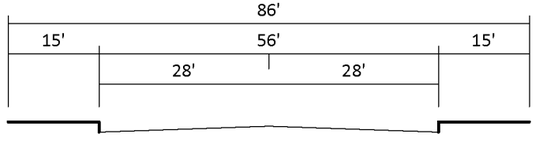
Stormwater Greenway



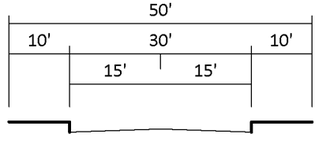
Pedestrian Walkway
Center Draining



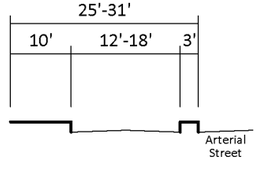
Avenue II (Secondary Highway) 2-4 Lanes



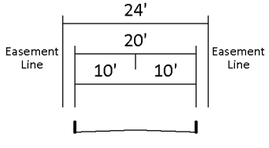
Local Street - Non-Continuous 2 Lanes



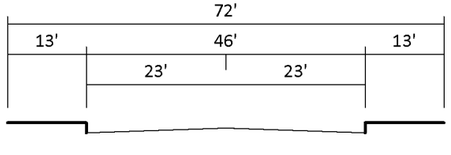
One-Way Service Road



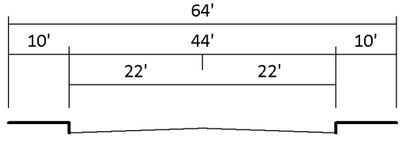
Access Roadway



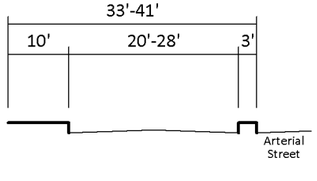
Avenue III (Secondary Highway) 2-4 Lanes



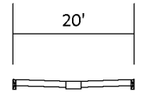
Industrial Local 2 Lanes



Bi-Directional Service Road



Alley



Source: City of Los Angeles

Figure 9
City of Los Angeles Bus and Rail

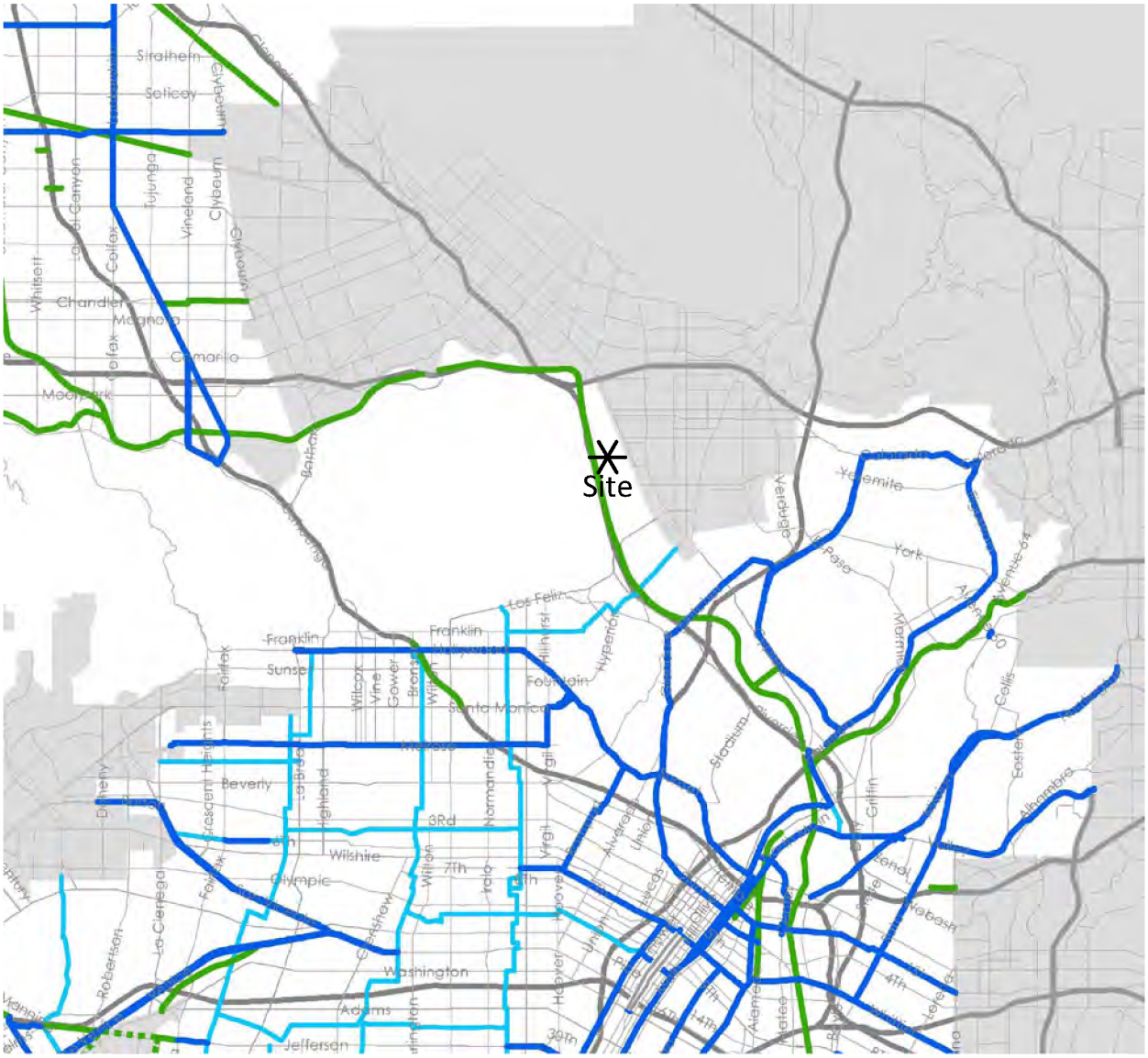


Legend

Metro Local or Limited Line	81	Metro Express Line	442
Metro Late-Night or Owl Service	301	Metro Rapid Line & Stop	740
Metro Shuttle Line	603	Municipal Bus Line	MTO
Metro Rail Line & Station		Metro Rail Station & Entrance (Downtown LA)	
Transfers			
Metro Busway & Station			
		Metro Silver Line Street Stop	
Metrolink Station	ML	Metro Customer Center	
Amtrak Station	AM	Tourist Attraction/ Sports Venue	
Greyhound	GR	Shopping Area	
FlyAway	FA	School/College/University	
Megabus	MB	Point of Interest	
Interstate Freeway		Airport/Civic/Government	
US Freeway		Park	
State Highway or Freeway			

Source: Los Angeles Metro

Figure 10
City of Los Angeles Bicycle Plan Map



Legend

- Bicycle Paths
- Tier 1 Protected Bicycle Lanes
- BEN Segments from the Neighborhood Enhanced Network
- Arterials
- Freeways
- City of Los Angeles Boundary

Source: City of Los Angeles

VI. PROJECT TRAFFIC

The existing Los Angeles-Glendale Water Reclamation Plant site proposes construction of a combination of Capital Improvement Program 4176 Los Angeles-Glendale Water Reclamation Plant Primary Effluent Equalization Storage Project, Capital Improvement Program 4187 Blower Air Cleanup System and the Capital Improvement Program 4170 Los Angeles-Glendale Water Reclamation Plant Personnel Building Project. The project site is proposed to obtain access to Colorado Boulevard. The project is adjacent to the I-5/Colorado Street freeway extension which directly accesses the freeway system and provides access to the I-5 Freeway and SR-134 Freeway.

A. Construction Trip Generation

The traffic volumes are based on employee and truck data provided by the City staff. Detailed construction data from the City of Los Angeles Bureau of Sanitation regarding monthly construction phasing, staffing per proposed improvement component, and earthwork quantities are provided in Appendix B. The project schedule is designed to not add project related evening peak hour trips onto the public roadways. For most operations, the on-site construction activity schedules are from 6:30 AM to 3:30 PM, which will allow construction workers to arrive at and depart from the site before the morning peak period (7:00 AM to 9:00 AM) and evening peak period (4:00 PM to 6:00 PM).

Construction Staff Trips

Project trips are calculated for the additional employee trips that will be performing the construction. The number of construction worker vehicles is estimated using the average ridership of 1.135 persons per vehicle per the CEQA Air Quality Handbook, South Coast Air Quality Management District, 1993. It is anticipated that the majority of the construction workers would remain on-site throughout the day and approximately half of the workers would leave and return to the site via their vehicles for lunch. Daily trip generation is based on the number of employees multiplied by the inbound trip and outbound trip of two (2), and an additional amount of trips generated by the off-peak lunch time round-trips. The peak hour trip generation is projected to be negligible as the majority of the construction workers are expected to arrive and depart at the project site during off-peak hours (i.e., arrive prior to 7:00 AM and depart prior to 4:00 PM).

Project Truck Trips

Project trips are calculated by the projected increase in truck trips that will haul off excess soil and deliver material to the site. Daily trip generation is based on the number of truck deliveries, multiplied by the inbound trip and outbound trip of two (2), and all trucks are multiplied by a passenger car equivalent factor of two (2.0). The passenger car equivalent factor has been obtained from the Highway Capacity Manual for 3 axle trucks. When possible, off-peak (9:15 AM to 3:45 PM) truck delivery is preferred.

For this project, the off-site trucking of export excavation or debris to local landfills will occur during the morning peak period and during non-peak hours. Based on the predesign

construction estimate for earthwork excavation and concrete materials, truck trips have been calculated based on a total of 20,000 cubic yard of excavation and approximately 10,800 cubic yards of material for each of the major components (Equalization Storage and Personnel Building Projects). The duration of the Personnel Building Project is 22 months with 20 construction staff. The duration of the Equalization Storage Project is 14 months with 35 construction staff and additional construction time for the piping excavation and installation as well as the existing pond modification increases the total period of active earthwork work to 16 months. The detailed construction sequencing schedule provided by City of Los Angeles Bureau of Sanitation has earthwork (excavation or grading) scheduled from the fifth month to the eighteenth month of the 24 month project. The new Personnel Building is estimated to also generate approximately 20,000 cubic yards of excavated soil which will not be exported but will be used as on-site fill and re-grading of the existing de-chlorination pond and new circulation roadway for maintenance and delivery access to the rear of the property.

During the construction period, the number of truck trips is estimated based on the export of excavated soil and concrete material (see Table 2). The Capital Improvement Program projects (4170, 4176 and 4187) are projected to generate approximately 33.4 one-way truck trips daily or 67 daily Passenger Car Equivalents trips and 8 Passenger Car Equivalents trips during the morning peak hour. No truck trips are anticipated during the evening peak period. Table 2 includes the project construction trip generation.

B. Trip Distribution

To determine the trip distributions for the proposed project, truck trips are distributed 100% from the site(s) to the local landfill and staff trips are distributed along the freeway corridors nearest the site(s). Figure 11 contains the directional distributions of the project trips.

C. Trip Assignment

Based on the identified trip generation and distributions, project average daily traffic volumes have been calculated and shown on Figure 12. Morning and evening peak hour intersection turning movement volumes expected from the project are shown on Figures 13 and 14, respectively. No constructions trips are anticipated during the evening peak period.

D. Modal Split

The trip reducing potential of public transit has not been considered in this report. Essentially the traffic projections are conservative in that public transit might be able to reduce the traffic volumes.

Table 2

Project Trip Generation

Description	Quantity	Units[3]	PCE[4]	Weekday						
				Morning Peak Hour[1]			Evening Peak Hour[2]			
				Inbound	Outbound	Total	Inbound	Outbound	Total	Daily
Trip Generation Rates										
Construction Staff (6:30 AM-3:30 PM)[5,6]		EMP	1.0	-	-	-	-	-	-	2.50
3-Axle 10 Cubic Yard Haul/Concrete Truck (Inbound Material & Outbound Debris 6:30 AM-3:30 PM)[7]		TRK	2.0	2.09	2.09	4.17	-	-	-	33.38
Trip Generation										
Capital Improvement Programs 4176 & 4187 Sta	35	EMP	1.0	-	-	-	-	-	-	88
Capital Improvement Program 4170 Staff	20	EMP	1.0	-	-	-	-	-	-	50
Construction Trucks[8]		PCE		4	4	8	0	0	0	67
Total				4	4	8	0	0	0	205

City of Los Angeles Bureau of Sanitation Construction and Duration Quantities[5]	Excavation[5]	Concrete
Capital Improvement Program 4176 & 4187 (Cubic Yards)	20,000	7,600
Capital Improvement Program 4170 (Cubic Yards)[9]		3,200
Total (Cubic Yards)	20,000	10,800
Total Two-Way Roundtrip Truck Trips (~10 Cubic Yards per truck load)	2,000	1,080
Total One-Way Truck Trips	4,000	2,160
Construction Component Duration (Months)[5]	16	13
One-Way Truck Trips per Month	250	167
One-Way Truck Trips per Day (20 earthwork and 8 concrete work days/month)	12.50	20.88

[1] Morning Peak Period is from 7:00 AM to 9:00 AM.

[2] Evening Peak Period is from 4:00 PM to 6:00 PM.

[3] EMP = Employees; TRK = 10 Cubic Yard 3 axle haul trucks; PCE = Passenger Car Equivalents.

[4] Passenger Car Equivalent (PCE) factors have been obtained from the County of San Bernardino Congestion Management Program. Cars (such as employee vehicles) use a PCE of 1.0, Light duty trucks use a PCE of 1.5. Medium duty trucks with 3 axles use a PCE of 2.0 and Heavy duty trucks with 4 or more axles use a PCE of 3.0.

[5] Source: Los Angeles Sanitation/Bureau of Engineering Predesign Report construction timeline, staffing quantities and equipment hour details (June 14, 2017).

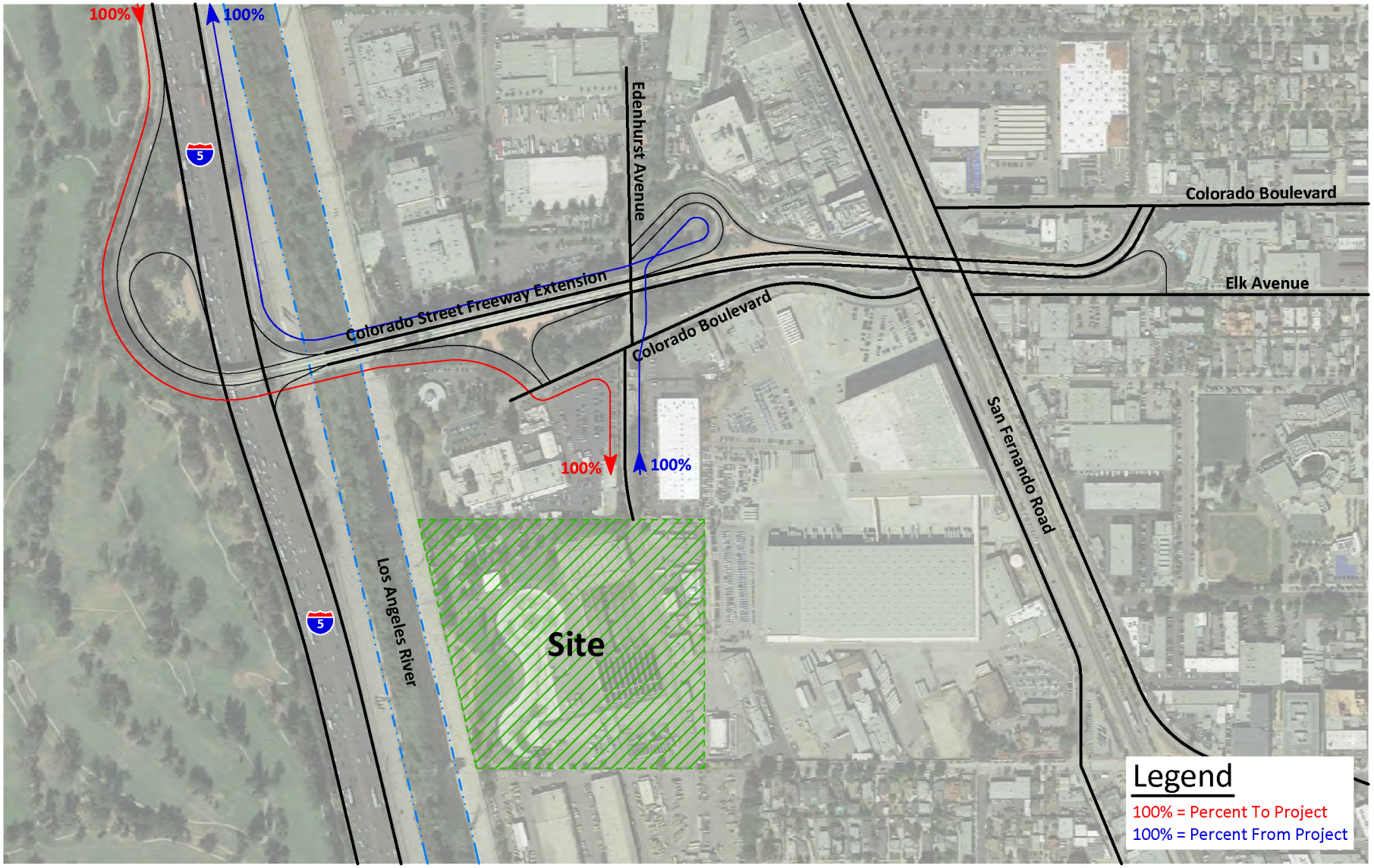
[6] Assumption for typical staff lunch is that the site has NO food truck delivery and 50% of day-time shift vehicles leave and return to the site during lunch hour. The day-time shift will contribute to the mid-day peak hour and lunch trips are included in daily trip values. Construction workers arrive before the morning peak period and left prior to the beginning of the evening peak period.

[7] Ten cubic yard, 3-axle haul trucks which operate off-site from 9:15 AM to 3:45 PM and do not contribute peak hour trips. Morning peak hour trips are based on the hourly truck trip rate given the daily two-way truck round trips are 33.38 one-way truck trips per day.

[8] Construction truck trips are converted to passenger car equivalents for a conservative analysis of truck trips.

[9] Concrete estimate for building is a preliminary conservative value based on square footage, height of building with assumed slab and wall thickness using a concrete estimator application.

Figure 11
Project Trip Distribution



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Figure 12
Project Average Daily Traffic Volumes

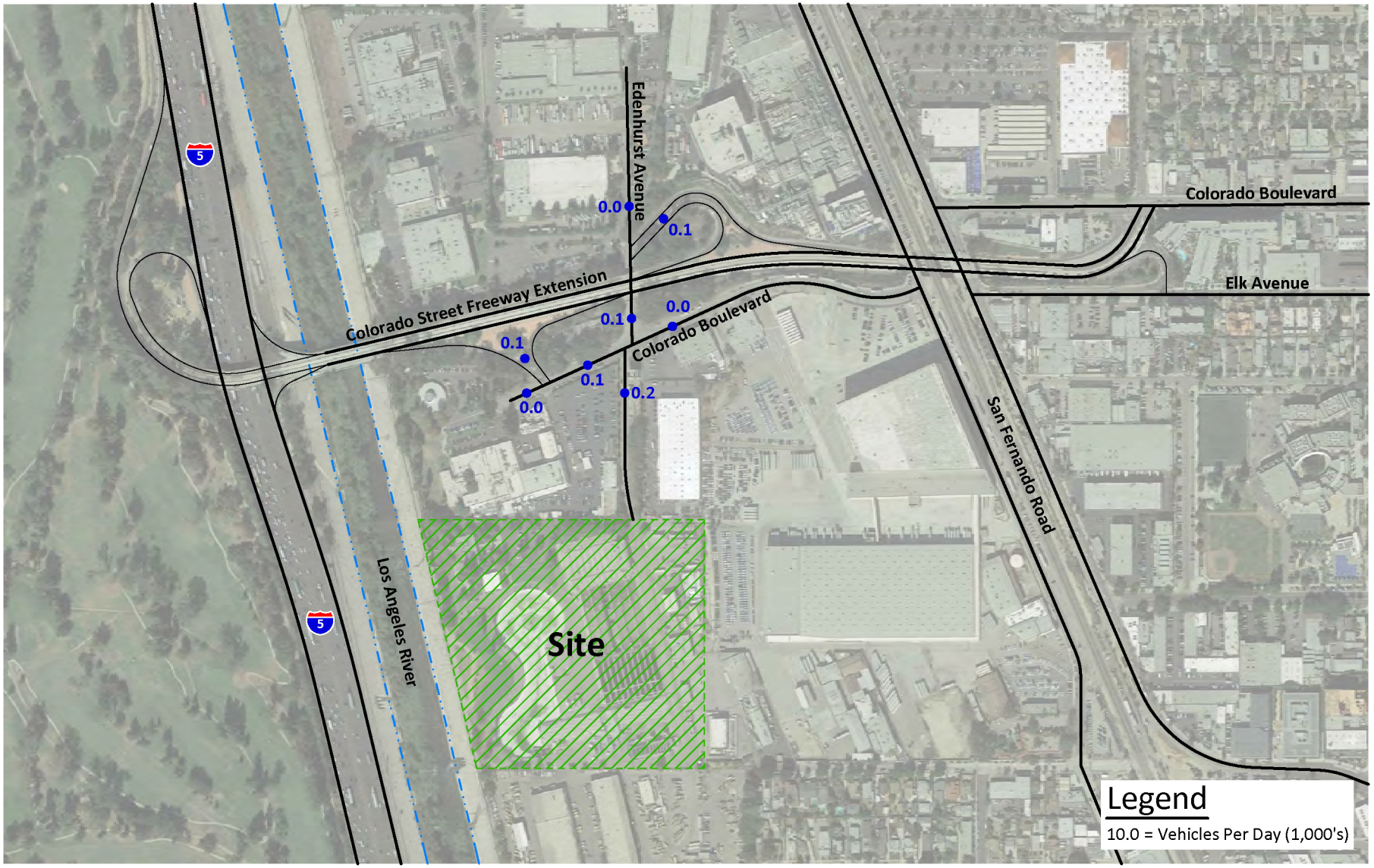
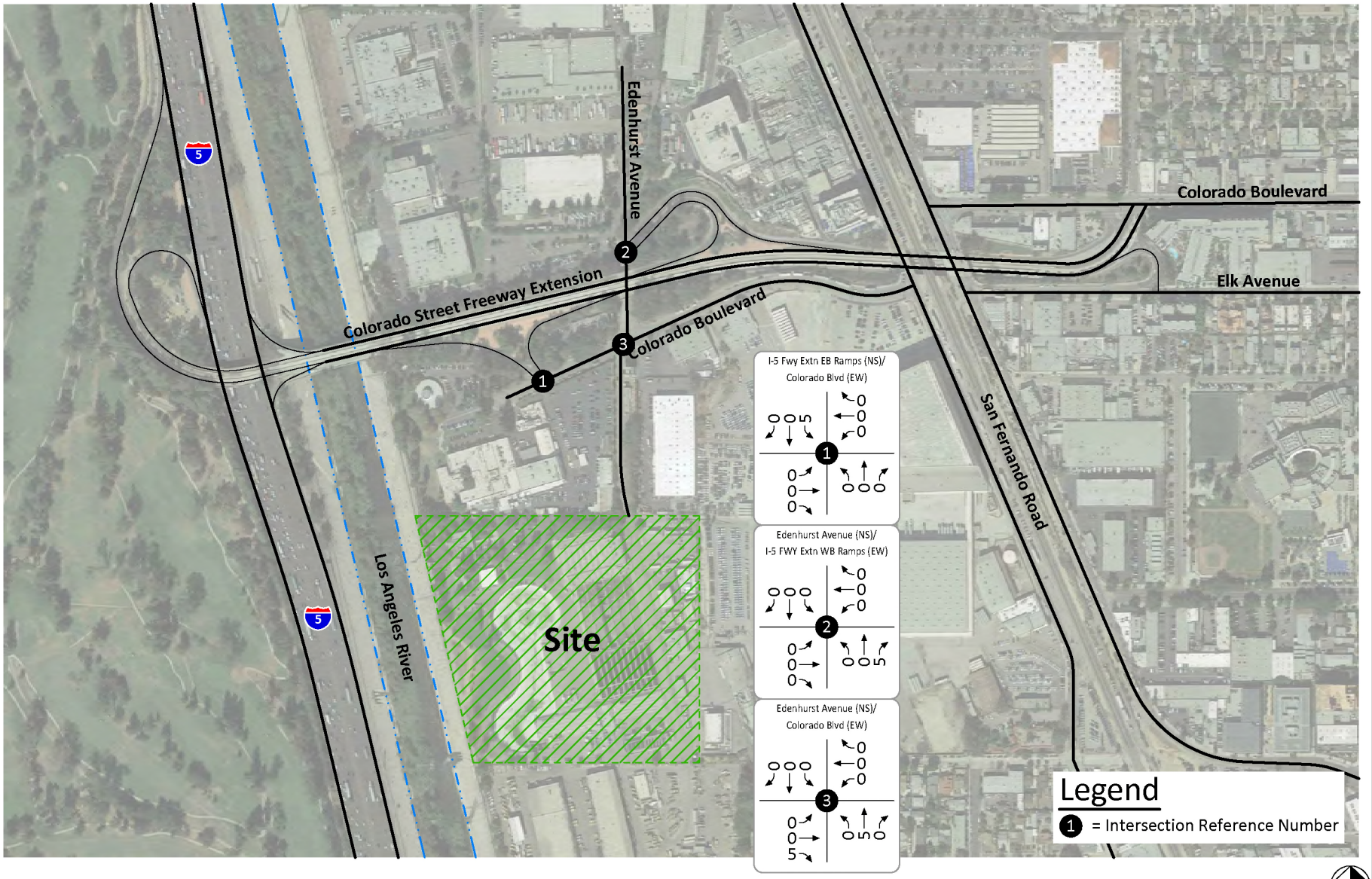


Figure 13
Project Morning Peak Hour Intersection Turning Movement Volumes

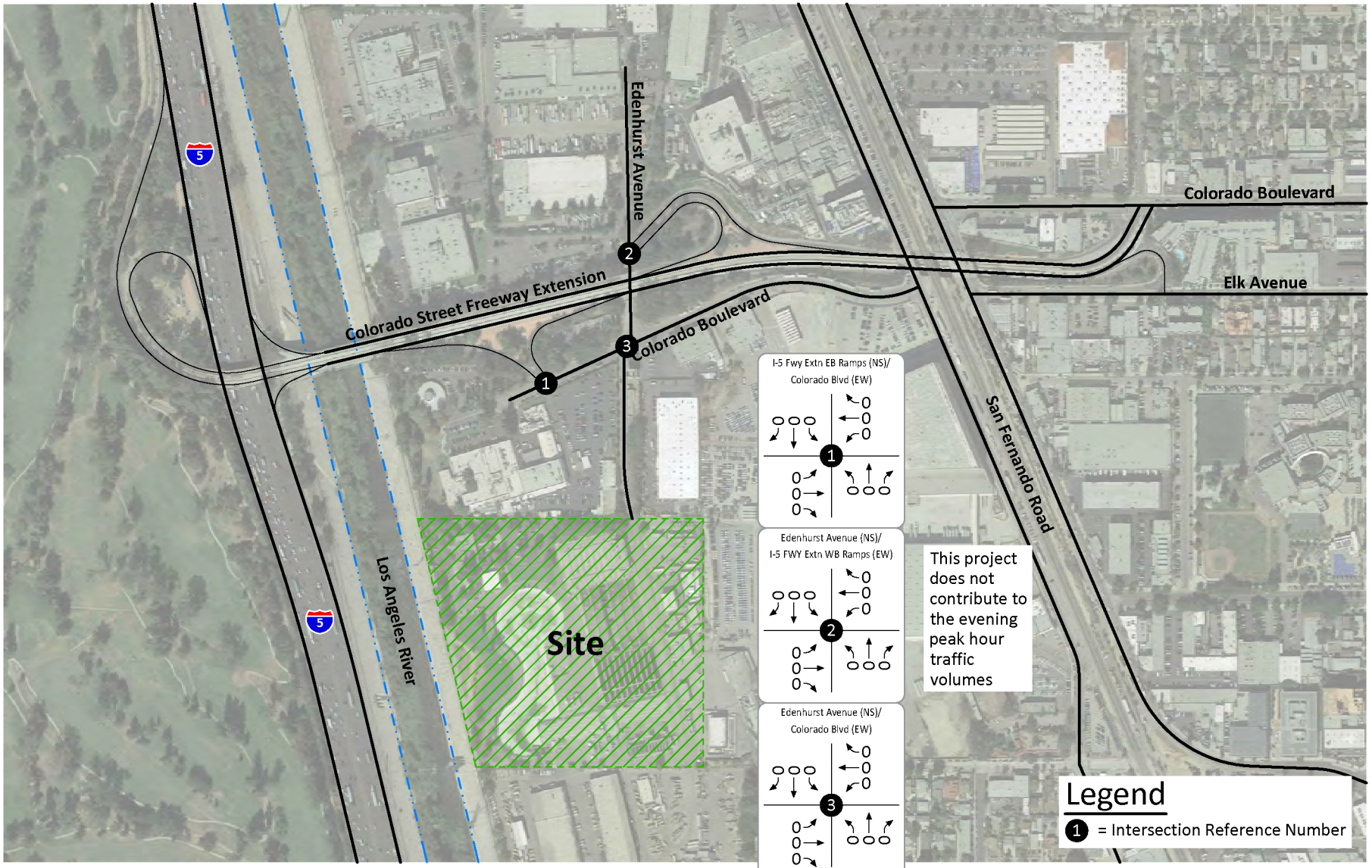


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Figure 14
Project Evening Peak Hour Intersection Turning Movement Volumes



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VII. TRAFFIC ANALYSIS

For Existing Plus Project traffic conditions, existing traffic volumes are combined with construction staff and truck trips. To assess future traffic conditions, existing traffic volumes are combined with ambient growth, other development, and project traffic volumes.

A. Method of Projection

1. Ambient Growth

To account for ambient growth on roadways, Construction Year (2021) traffic volumes have been calculated based on an annual growth rate of existing traffic volumes over a four year period. The 0.27 percent annual areawide growth rate has been obtained from the Los Angeles County 2010 Congestion Management Program (see Appendix E).

2. Background Traffic

To assess background traffic conditions, existing traffic is combined with ambient growth, and other development in traffic analysis zones. The opening year for analysis purposes in this report is 2021.

3. Other Development – Traffic Analysis Zones

Potential developments within the study area are included in the analysis if they are not currently built, they are approved, their approval has not expired, and they would contribute trips to the study area intersections. Other development lists received from City staff or websites are included in Appendix F.

Table 3 list the proposed land uses for the other developments within the traffic analysis zones (see Figure 15), and shows the weekday daily, morning peak hour, and evening peak hour vehicle trips generated by the other development in the study area.

Based on the identified trip generation and distributions, the other development average daily traffic volumes have been calculated and shown on Figure 16. Figures 17 and 18 show the other development morning and evening peak hours turning movement volumes, respectively.

B. Average Daily Traffic Volumes

For Existing Plus Project traffic conditions, the existing average daily traffic is combined with the anticipated project daily traffic. For Existing Plus Ambient Growth traffic conditions, existing traffic volumes are combined with ambient growth traffic volumes. The ambient growth has been calculated for Construction Year (2021).

1. Existing With Project

Figure 19 shows the average daily traffic volumes that can be expected for Existing Plus Project traffic conditions.

2. Construction Year (2021) Without Project

Figure 20 shows the average daily traffic volumes that can be expected for Construction Year (2021) Without Project traffic condition.

3. Construction Year (2021) With Project

Figure 21 shows the average daily traffic volumes that can be expected for Construction Year (2021) With Project traffic condition.

C. Intersection Levels of Service Volumes

The Intersection Capacity Utilization technique is used to assess the operation of a signalized intersection. An overall average level of service for the intersection legs is shown per the Highway Capacity Manual which represents that portion of intersection capacity utilized if all approaches operate at capacity.

The Intersection Delay Method technique is used to assess the capacity needs of an unsignalized intersection. For a cross street stop intersection, the worst individual movement (or movements sharing a single lane) delay and level of service is shown per the Highway Capacity Manual.

The Transportation Research Board Critical Movement Analysis, Circular 212 Planning Methodology, shall be used to analyze traffic operating conditions at the study intersections. Critical Movement Analysis is a method which determines the volume to capacity ratio on a critical lane basis and Level of Service associated with each volume to capacity ratio at an intersection. Level of Service worksheets are provided in Appendix D.

1. Existing With Project

The Levels of Service for the Existing Plus Project traffic conditions have been calculated and are shown in Table 4. Existing Plus Project morning and evening peak hour intersection turning movement volumes are shown on Figures 22 and 23, respectively.

The study area intersections are projected to operate at acceptable Levels of Service during the morning and evening peak hours for Existing Plus Project traffic conditions (see Table 4).

2. Construction Year (2021) Without Project

The Levels of Service for the Construction Year (2021) Without Project traffic conditions have been calculated and are shown in Table 5. Construction Year (2021) Without Project morning and evening peak hour intersection turning movement volumes are shown on Figures 24 and 25, respectively.

The study area intersections are projected to operate at acceptable Levels of Service during the morning and evening peak hours for Construction Year (2021) Without Project traffic conditions (see Table 5).

3. Construction Year (2021) With Project

The Levels of Service for the Construction Year (2021) With Project traffic conditions have been calculated and are shown in Table 6. Construction Year (2021) With Project morning and evening peak hour intersection turning movement volumes are shown on Figures 26 and 27, respectively.

The study area intersections are projected to operate at acceptable Levels of Service during the morning and evening peak hours for Construction Year (2021) With Project traffic conditions (see Table 6).

D. Project Significant Impact Evaluation

Based on the City of Los Angeles Traffic Study Policies and Procedures (2016), the impact is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

Significant Impact Threshold for Intersections		
Level of Service	Volume/Capacity	Incremental Increase
C	0.701-0.800	0.04 or more
D	0.801-0.900	0.02 or more
E/F	0.901 - more	0.01 or more

Table 7 depicts the significant impact evaluation for the "With Project" traffic contribution at the current study area intersections. As shown in Table 7 for Existing Plus Project traffic conditions and Construction Year (2021) With Project, project generated trips did not result in a significant impact at the study area intersections.

Table 3

Other Development Trip Generation

Traffic Analysis Zone	Project Name	Address	Land Use	Quantity	Units[1]	Weekday						
						Morning Peak Hour			Evening Peak Hour			
						Inbound	Outbound	Total	Inbound	Outbound	Total	Daily
1	Autry National Center Expansion	4700 Western Heritage Way	Museum	129.000	TSF	0	0	0	0	0	0	0
	Griffith Park New Ball Fields	4730 N Crystal Springs Drive	City Park			0	0	0	35	5	40	320
	Subtotal[2]					0	0	0	35	5	40	320
2	Los Feliz Charter School	2861 W Los Feliz Boulevard	Elementary School	82	STU	41	41	82	0	0	0	135
	New Life Vision Church	2862 W Los Feliz Bouelvard	Church	85.631	TSF	23	14	37	18	18	36	602
	Creative Office	4000 E Chevy Chase Drive	Office	79.156	TSF	84	9	93	13	74	87	563
	Subtotal[2]					148	64	212	31	92	123	1,300
3	Pacific Edison Area - Glendale, CA	532 W Elk Avenue	Condominium	6	DU	0	3	3	2	1	3	35
		124 W Colorado Street	Condominium	50	DU	4	18	22	18	8	26	291
			Condominium	10	DU	1	3	4	4	1	5	58
		712 S Louise Street	Single-Family Housing	-2	DU	0	-2	-2	-1	-1	-2	-19
	Subtotal[3]					5	22	27	23	9	32	365
4	Downtown Area - Glendale, CA	600 W Wilson Avenue	Condominium	3	DU	0	1	1	1	1	2	17
		350 Salem Stree	Condominium	12	DU	1	4	5	4	2	6	70
	Subtotal[3]					1	5	6	5	3	8	87

[1] TSF = Thousand Square Feet; STU = Students DU =Dwelling Units

[2] Source: City of Los Angeles Case Logging and Tracking System (CLATS), June 2, 2017 search.

[3] Source: City of Glendale Planning website, June 12, 2017 search.

Table 4

Existing Plus Project Intersection Volume to Capacity Ratios and Levels of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour V/C or Delay[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
I-5 Colorado EXT EB Ramps (NS) at:																
Colorado Boulevard (EW) -#1	Los Angeles / Caltrans	CSS	0	<1>	0	1	0.5	0.5	0	<1>	0	0.5	0.5	d	11.4-B	10.7-B
Edenhurst Avenue (NS) at:																
I-5 Colorado EXT WB Ramps (EW) -#2	Los Angeles / Caltrans	CSS	0	<1>	1	0	<1>	0	0	<1>	0	1	<1>	0	23.2-C	12.1-B
Colorado Boulevard (EW) -#3	Los Angeles	CSS	0	<1>	0	0.5	0.5	d	0	<1>	0	0.5	0.5	d	14.9-B	18.6-C

[1] When a right turn lane is designated, the lane can either be striped or unstriped. For a de facto right turn lane (d) to function as a right turn lane, there must be sufficient width for right turning vehicles to pass on the right of the through travel lanes. L = Left; T = Through; R = Right; d = De Facto Right Turn Lane, <1> = Shared Left, Through & Right Lane.

[2] For signalized intersections in the City of Los Angeles, the Intersection Capacity Utilization (ICU), Volume to Capacity Ratio (V/C) or Level of Service (LOS) is typically calculated using the following analysis software: Los Angeles Department of Transportation Circular 212 Method Worksheet, Version LADOT CMA Copy of CalcaDBLite_Beta1i (08/04/2011). For the unsignalized intersections, Delay Methodology (Level of Service) has been calculated using the following analysis software: Vistro, Version 5.00-00. Per the 2010 Highway Capacity Manual, intersections with cross street stop control, the delay and Level of Service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS= Cross Street Stop.

Table 5

Opening Year (2021) Without Project Intersection Volume to Capacity Ratios and Levels of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour V/C - LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
I-5 Colorado EXT EB Ramps (NS) at:																
Colorado Boulevard (EW) -#1	Los Angeles / Caltrans	CSS	0	<1>	0	1	0.5	0.5	0	<1>	0	0.5	0.5	d	12.1-B	10.9-B
Edenhurst Avenue (NS) at:																
I-5 Colorado EXT WB Ramps (EW) -#2	Los Angeles / Caltrans	CSS	0	<1>	1	0	<1>	0	0	<1>	0	1	<1>	0	23.5-C	12.4-B
Colorado Boulevard (EW) -#3	Los Angeles	CSS	0	<1>	0	0.5	0.5	d	0	<1>	0	0.5	0.5	d	15.9-C	19.7-C

[1] When a right turn lane is designated, the lane can either be striped or unstriped. For a de facto right turn lane (d) to function as a right turn lane, there must be sufficient width for right turning vehicles to pass on the right of the through travel lanes. L = Left; T = Through; R = Right; d = De Facto Right Turn Lane, <1> = Shared Left, Through & Right Lane.

[2] For signalized intersections in the City of Los Angeles, the Intersection Capacity Utilization (ICU), Volume to Capacity Ratio (V/C) or Level of Service (LOS) is typically calculated using the following analysis software: Los Angeles Department of Transportation Circular 212 Method Worksheet, Version LADOT CMA Copy of CalcaDBLite_Beta1i (08/04/2011). For the unsignalized intersections, Delay Methodology (Level of Service) has been calculated using the following analysis software: Vistro, Version 5.00-00. Per the 2010 Highway Capacity Manual, intersections with cross street stop control, the delay and Level of Service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS= Cross Street Stop.

Table 6

Opening Year (2021) With Project Intersection Volume to Capacity Ratios and Levels of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour V/C - LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
I-5 Colorado EXT EB Ramps (NS) at:																
Colorado Boulevard (EW) -#1	Los Angeles / Caltrans	CSS	0	<1>	0	1	0.5	0.5	0	<1>	0	0.5	0.5	d	12.1-B	10.9-B
Edenhurst Avenue (NS) at:																
I-5 Colorado EXT WB Ramps (EW) -#2	Los Angeles / Caltrans	CSS	0	<1>	1	0	<1>	0	0	<1>	0	1	<1>	0	23.6-C	12.4-B
Colorado Boulevard (EW) -#3	Los Angeles	CSS	0	<1>	0	0.5	0.5	d	0	<1>	0	0.5	0.5	d	16.1-C	19.7-C

[1] When a right turn lane is designated, the lane can either be striped or unstriped. For a de facto right turn lane (d) to function as a right turn lane, there must be sufficient width for right turning vehicles to pass on the right of the through travel lanes. L = Left; T = Through; R = Right; d = De Facto Right Turn Lane, <1> = Shared Left, Through & Right Lane.

[2] For signalized intersections in the City of Los Angeles, the Intersection Capacity Utilization (ICU), Volume to Capacity Ratio (V/C) or Level of Service (LOS) is typically calculated using the following analysis software: Los Angeles Department of Transportation Circular 212 Method Worksheet, Version LADOT CMA Copy of CalcaDBLite_Beta1i (08/04/2011). For the unsignalized intersections, Delay Methodology (Level of Service) has been calculated using the following analysis software: Vistro, Version 5.00-00. Per the 2010 Highway Capacity Manual, intersections with cross street stop control, the delay and Level of Service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS= Cross Street Stop.

Table 7

Significant Impact Evaluation Without Project and With Project

Intersection	Jurisdiction	Peak Hour	Existing		Existing Plus Project				Opening Year (2021) Without Project		Opening Year (2021) With Project			
			ICU Volume to Capacity[1]	Level of Service[2]	ICU Volume to Capacity	Level of Service	Project Impact	Significant Impact[3]	ICU Volume to Capacity[1]	Level of Service[2]	ICU Volume to Capacity	Level of Service	Project Impact	Significant Impact[3]
I-5 Colorado EXT EB Ramps (NS) at:	Los Angeles / Caltrans	Morning	0.236	A	0.239	A	+0.003	No	0.284	A	0.288	A	+0.004	No
Colorado Boulevard (EW) -#1		Evening	0.128	A	0.128	A	0.000	No	0.144	A	0.144	A	0.000	No
Edenhurst Avenue (NS) at:	Los Angeles / Caltrans	Morning	0.056	A	0.057	A	+0.001	No	0.063	A	0.065	A	+0.002	No
I-5 Colorado EXT WB Ramps (EW) -#2		Evening	0.079	A	0.079	A	+0.000	No	0.088	A	0.088	A	+0.000	No
Edeahurst Avenue (NS) at:	Los Angeles	Morning	0.238	A	0.245	A	+0.007	No	0.292	A	0.299	A	+0.007	No
Colorado Boulevard (EW) -#3		Evening	0.245	A	0.292	A	+0.047	No	0.233	A	0.233	A	+0.000	No

[1] Intersection Capacity Utilization = Volume over Capacity Ratio (V/C).

[2] Volume over Capacity Ratio (V/C) or Level of Service (LOS) has been calculated using the following analysis software: Los Angeles Department of Transportation Circular 212 Method Worksheet, Version LADOT CMA Copy of CalcaDBLite_Beta1i (08/04/2011). Per the LADOT Worksheet, the Volume/Capacity Ratio (less ATSAC/ATCS adjustment) and Level of Service are shown for intersections with traffic signal or stop control are shown.

[3] In the City of Los Angeles, a significant impact occurs at a study intersection when the addition of project generated trips adds more than: 0.04 V/C at intersection operating at Level of Service C, 0.02 V/C at intersection operating at Level of Service D, and 0.01 V/C at intersection operating at Level of Service E or F.

Significant Impact Threshold for Intersections		
Level of Service	Volume/Capacity	Incremental Increase
C	0.701 - 0.800	equal to or greater than 0.04 or more
D	0.801 - 0.900	equal to or greater than 0.02 or more
E/F	0.901 - more	equal to or greater than 0.01 or more

Figure 15
Other Development Traffic Analysis Zone Map

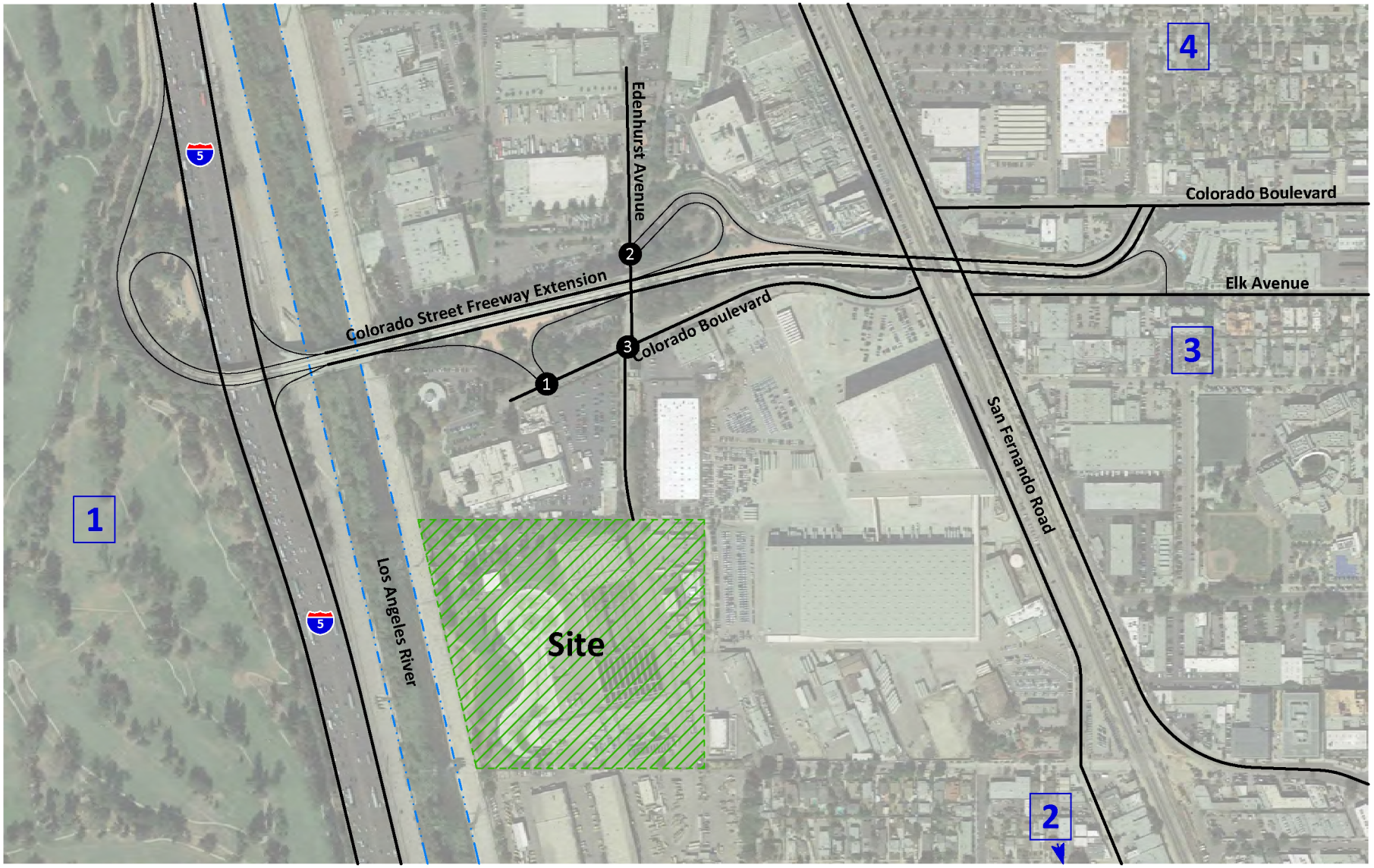
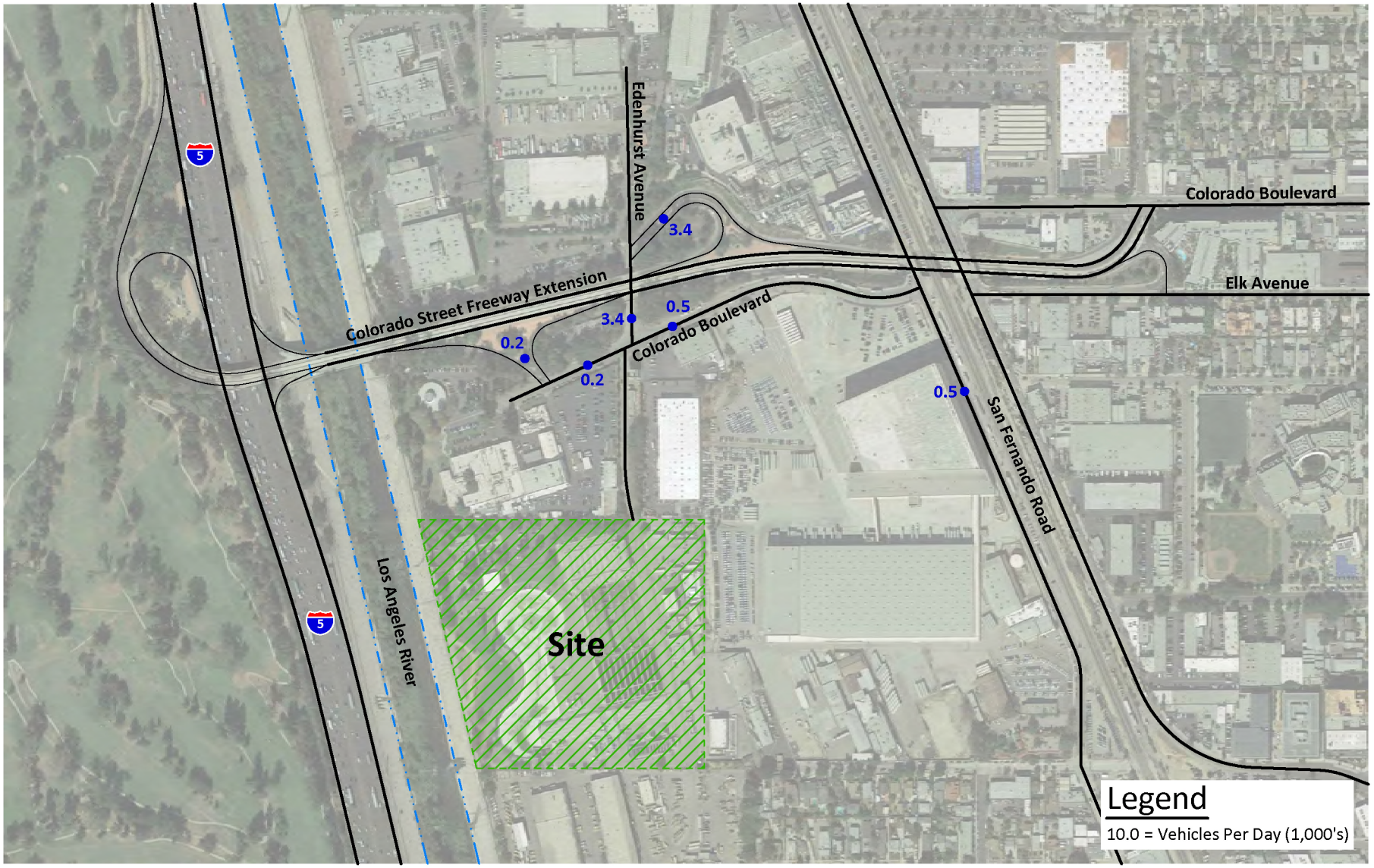


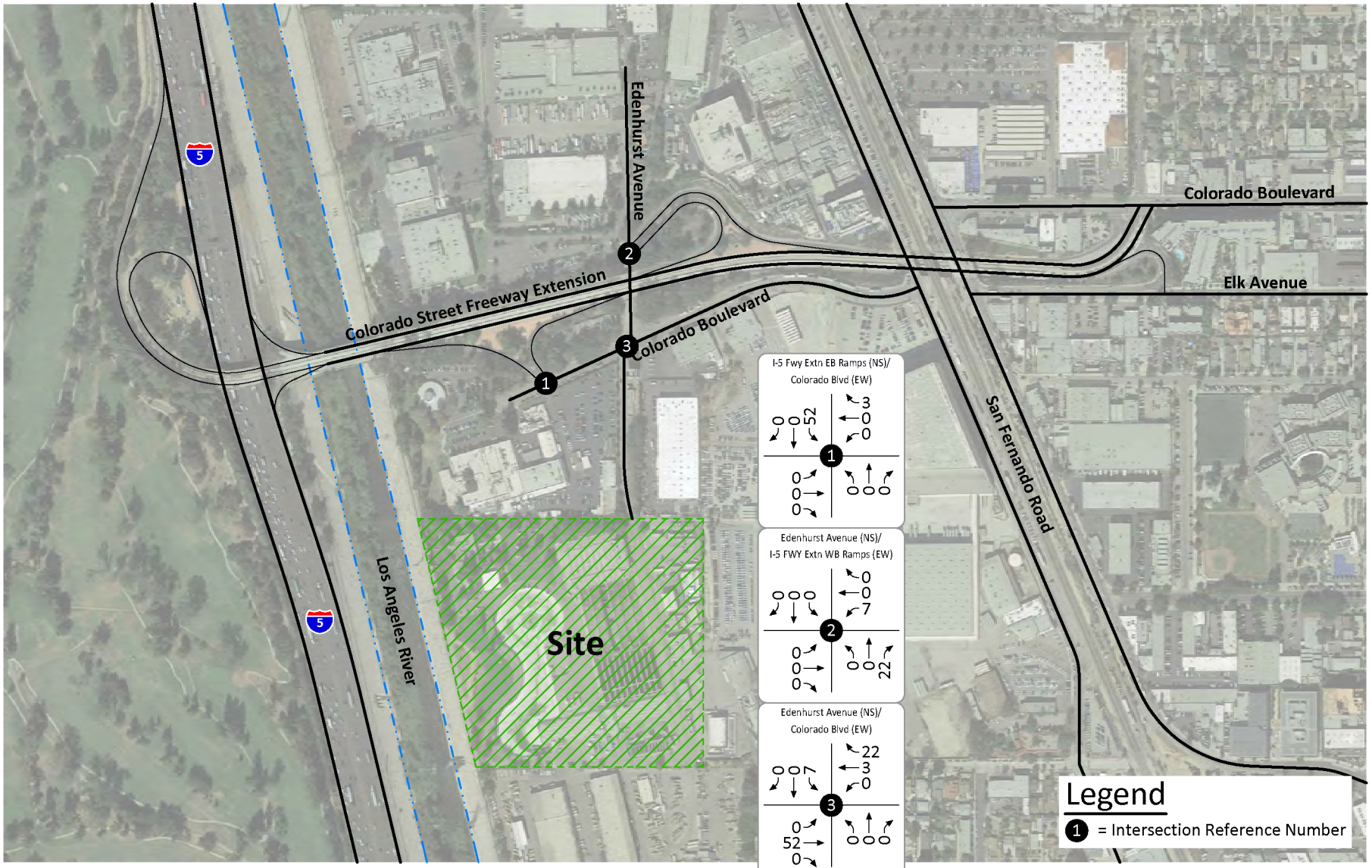
Figure 16
Other Development Average Daily Traffic Volumes



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Figure 17
Other Development
Morning Peak Hour Intersection Turning Movement Volumes

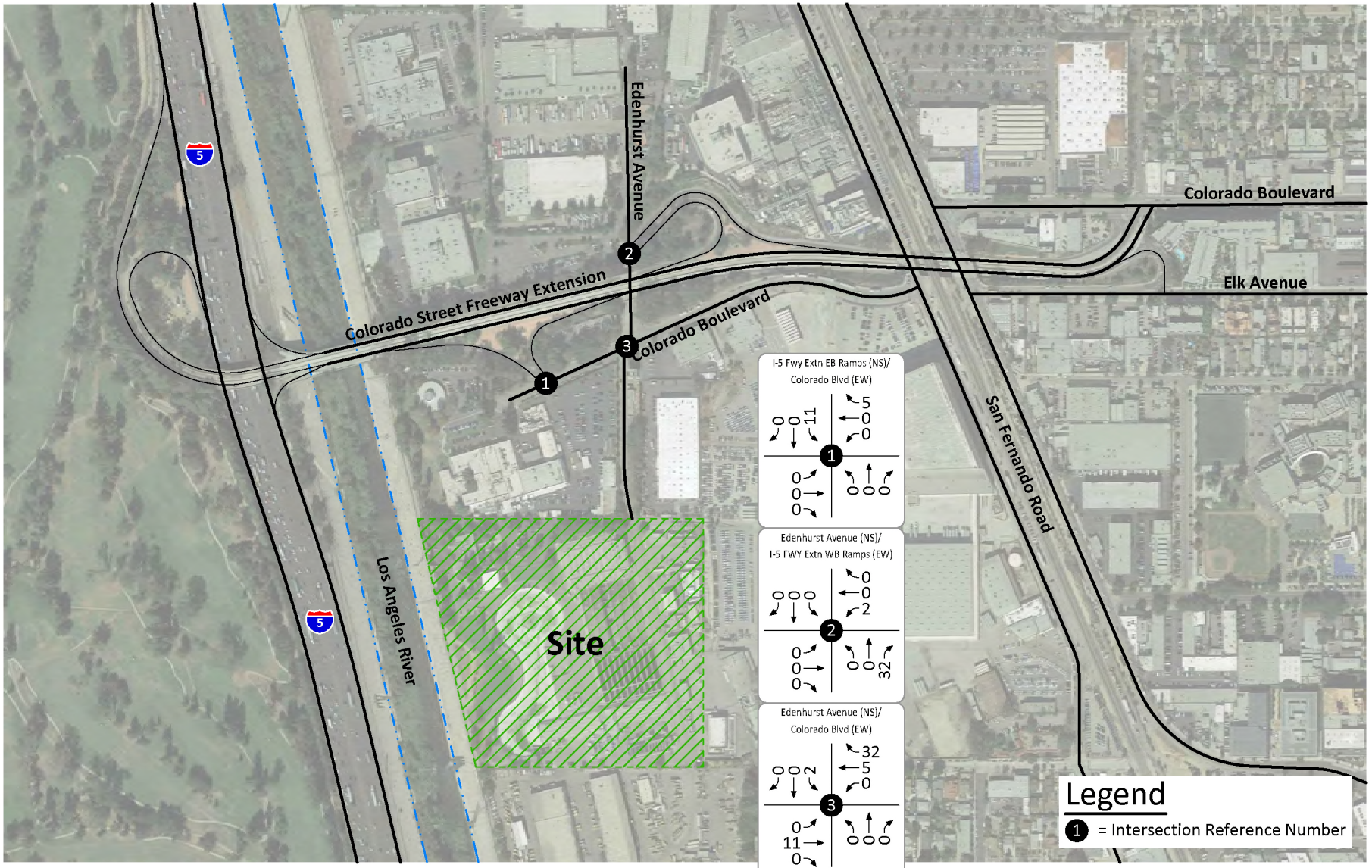


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Figure 18
Other Development
Evening Peak Hour Intersection Turning Movement Volumes

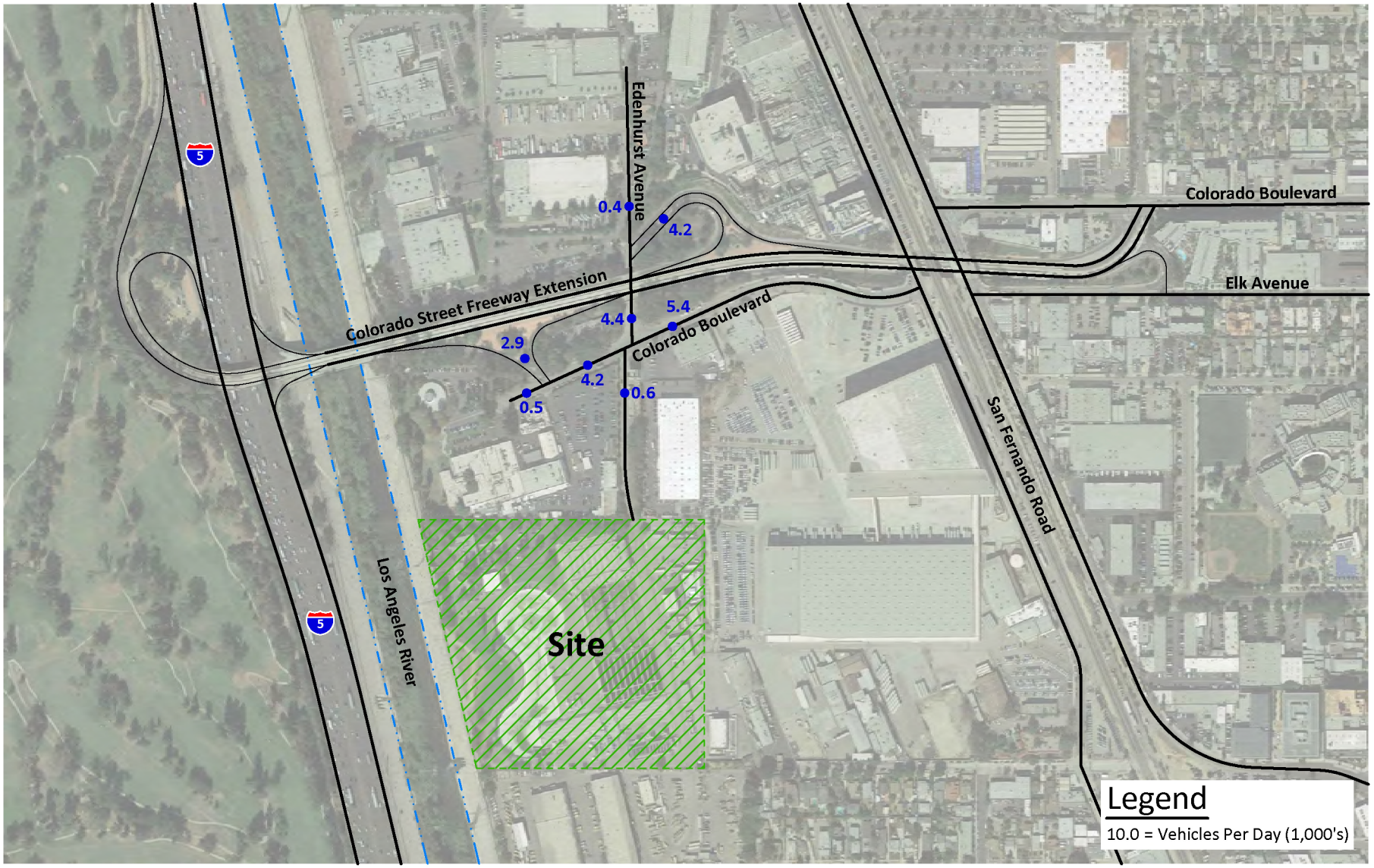


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Figure 19
Existing Plus Project Average Daily Traffic Volumes

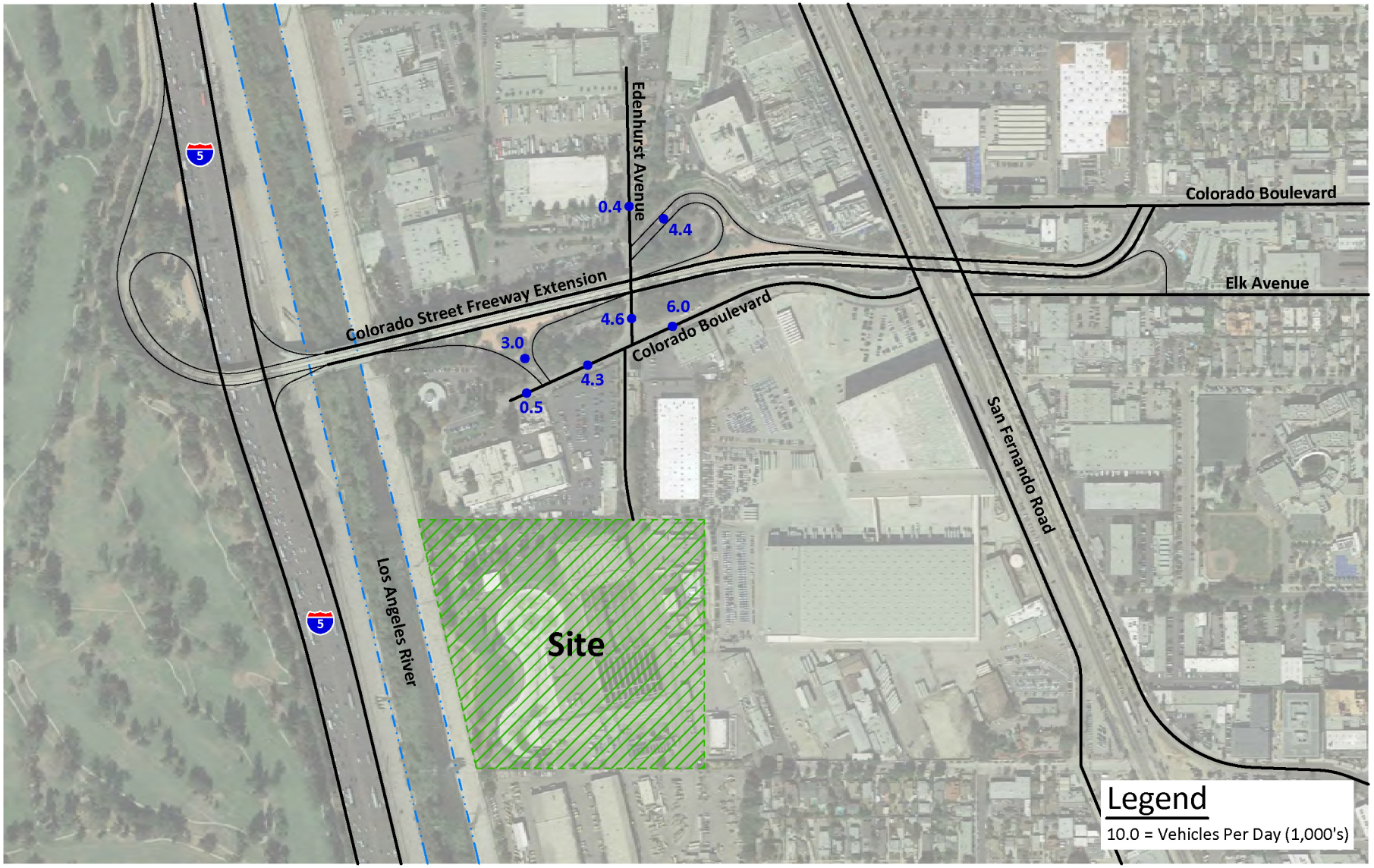


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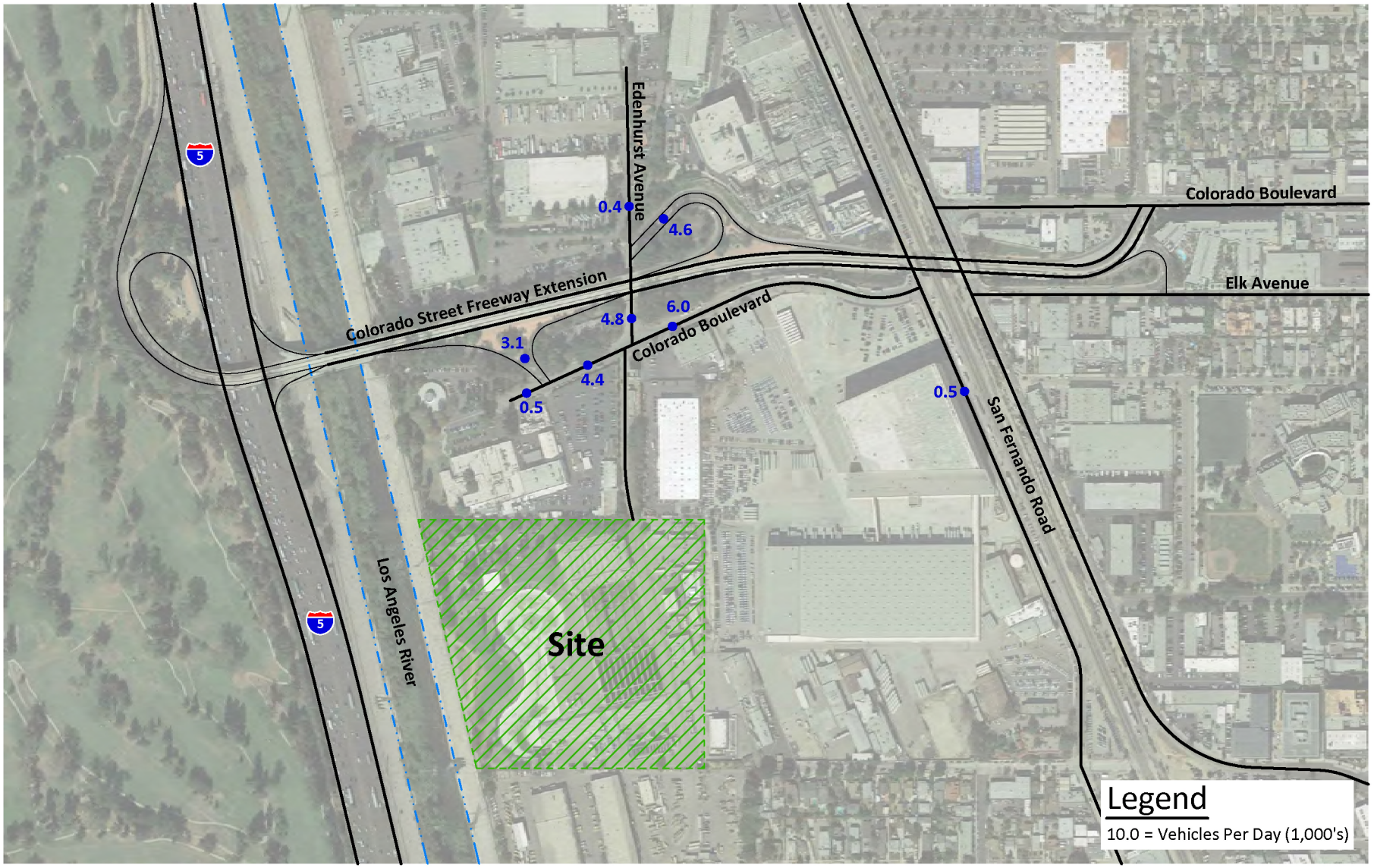
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Figure 20
Construction Year (2021) Without Project Average Daily Traffic Volumes



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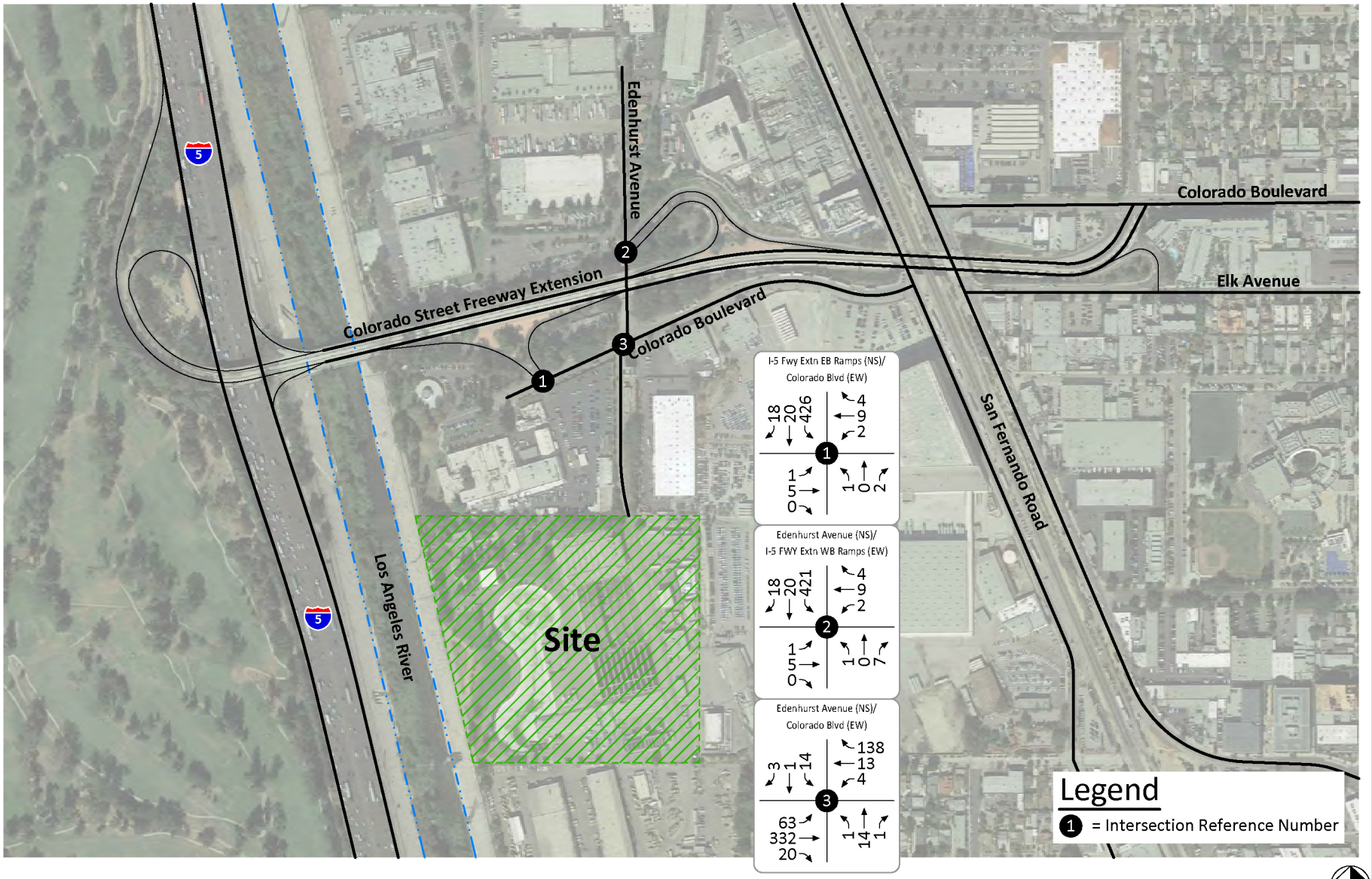
Figure 21
Construction Year (2021) With Project Average Daily Traffic Volumes



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Figure 22
Existing Plus Project
Morning Peak Hour Intersection Turning Movement Volumes

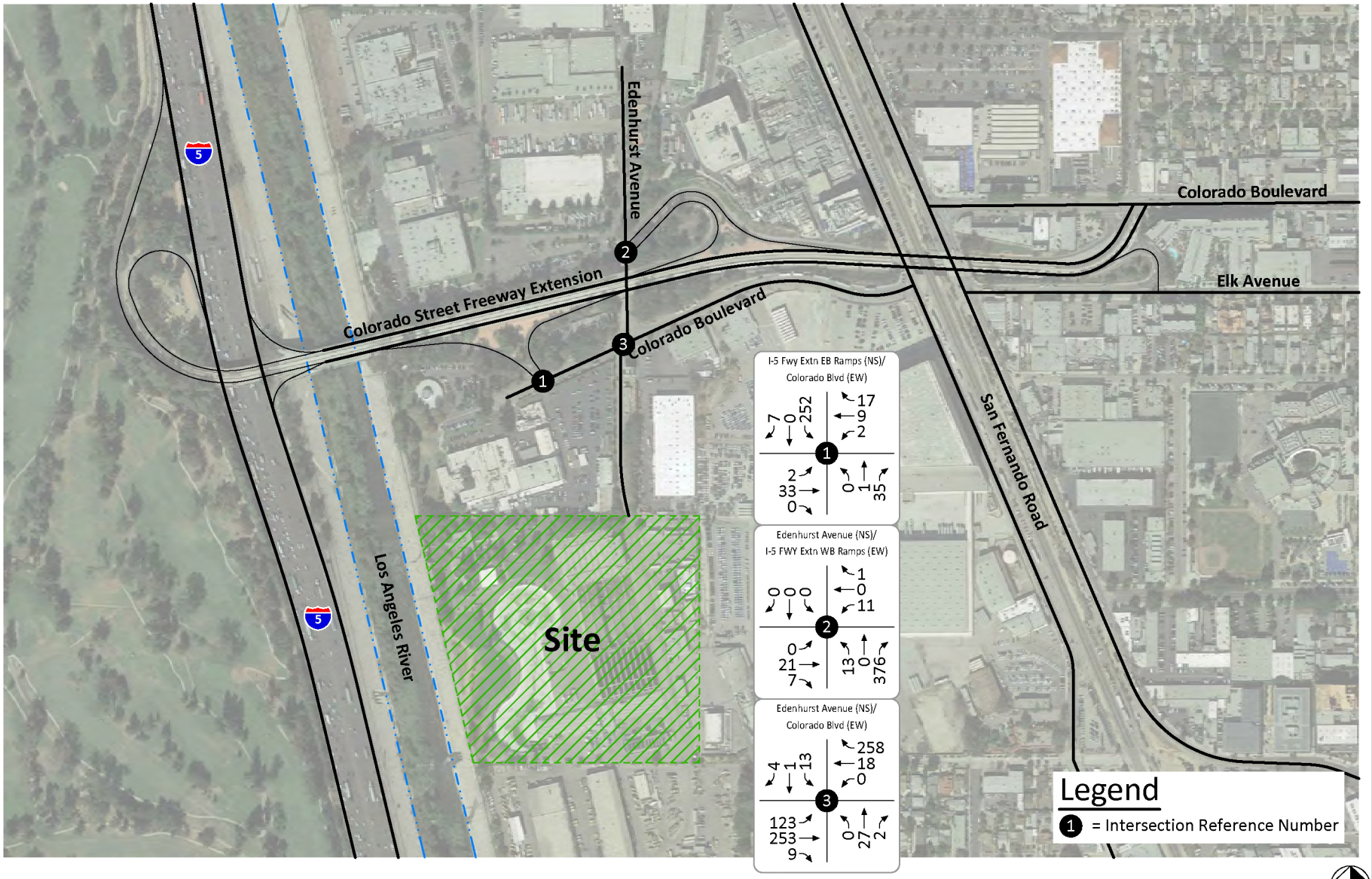


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Figure 23
Existing Plus Project
Evening Peak Hour Intersection Turning Movement Volumes

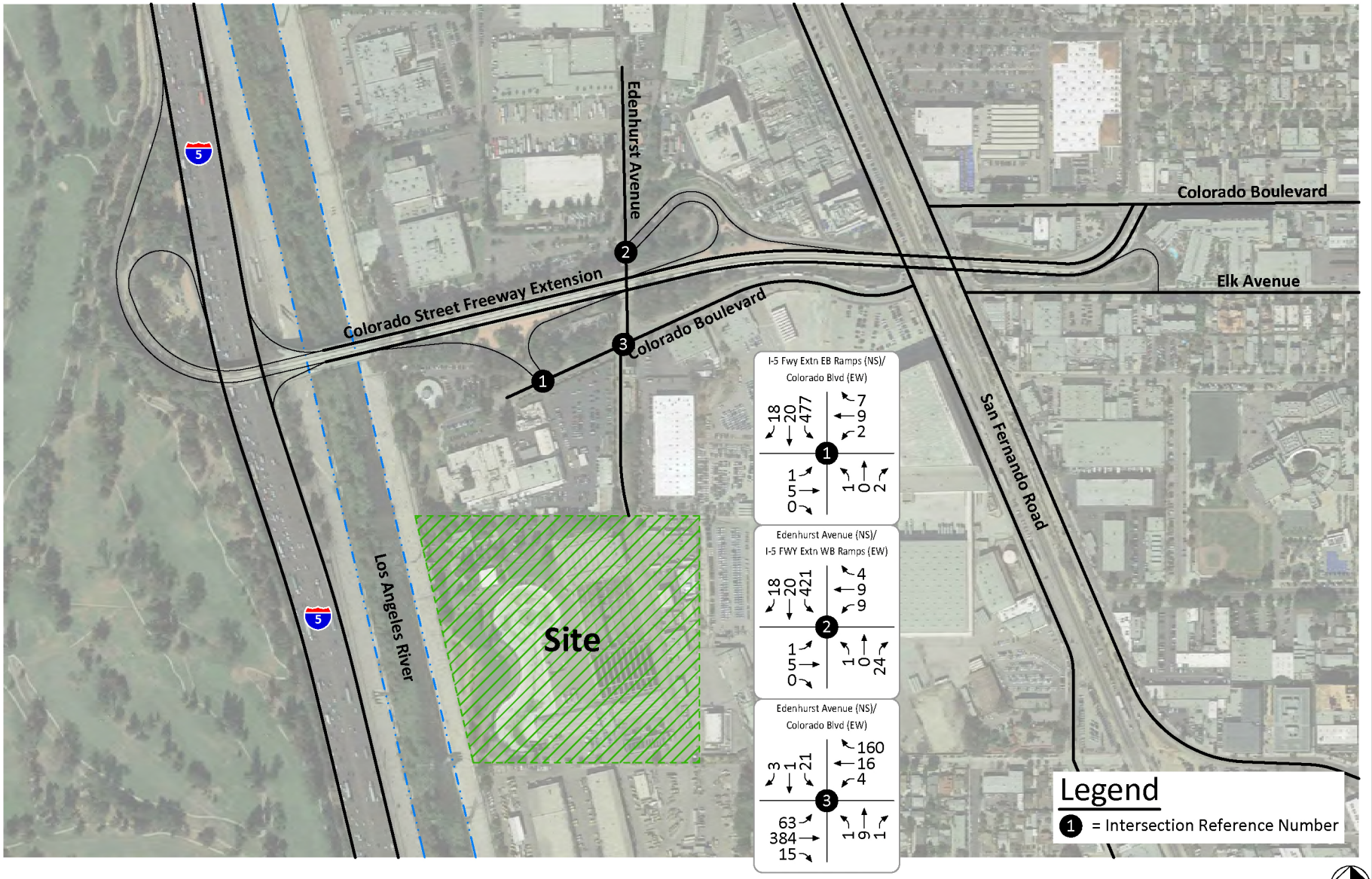


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Figure 24
Construction Year (2021) Without Project
Morning Peak Hour Intersection Turning Movement Volumes

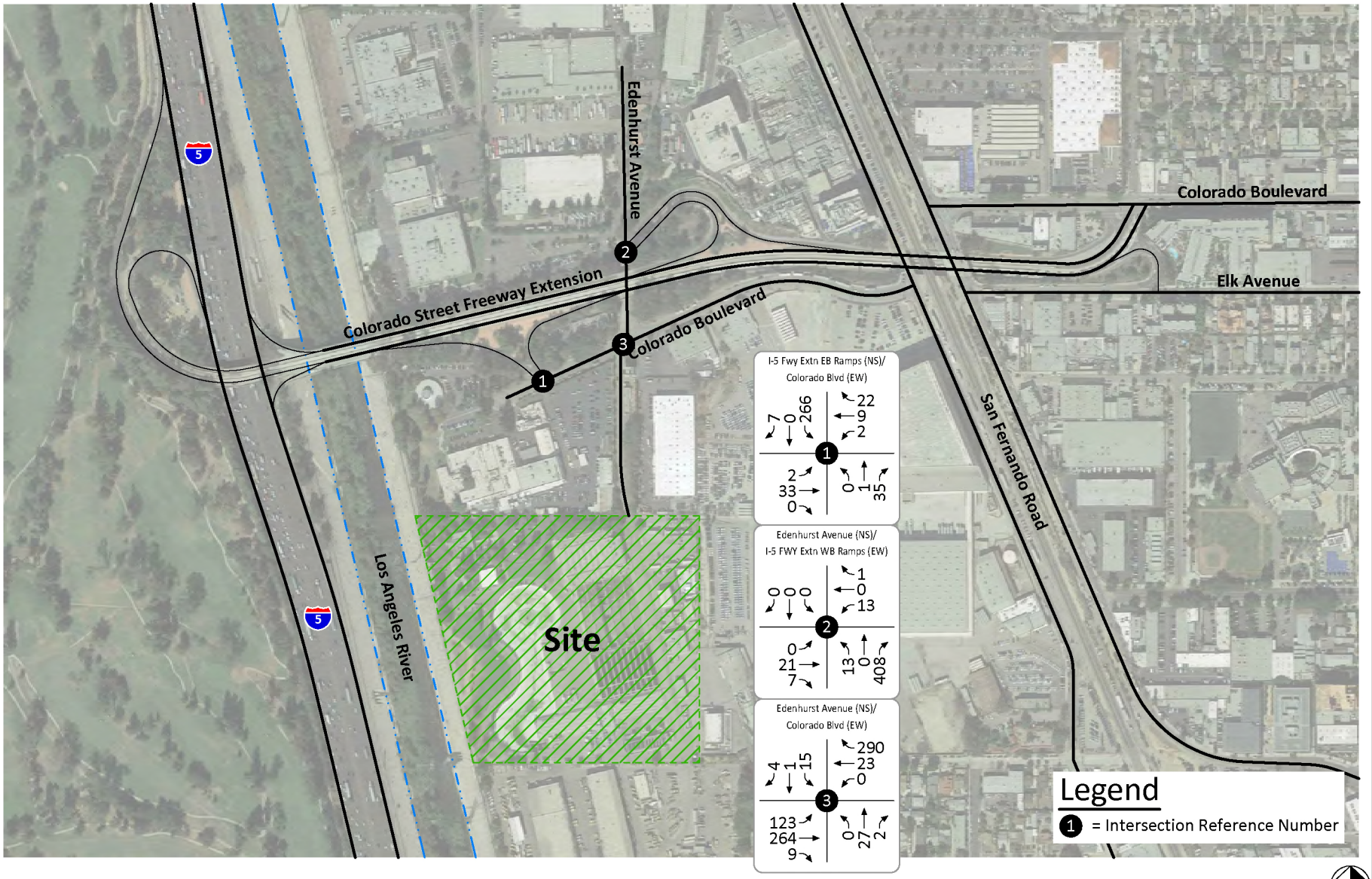


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Figure 25
Construction Year (2021) Without Project
Evening Peak Hour Intersection Turning Movement Volumes

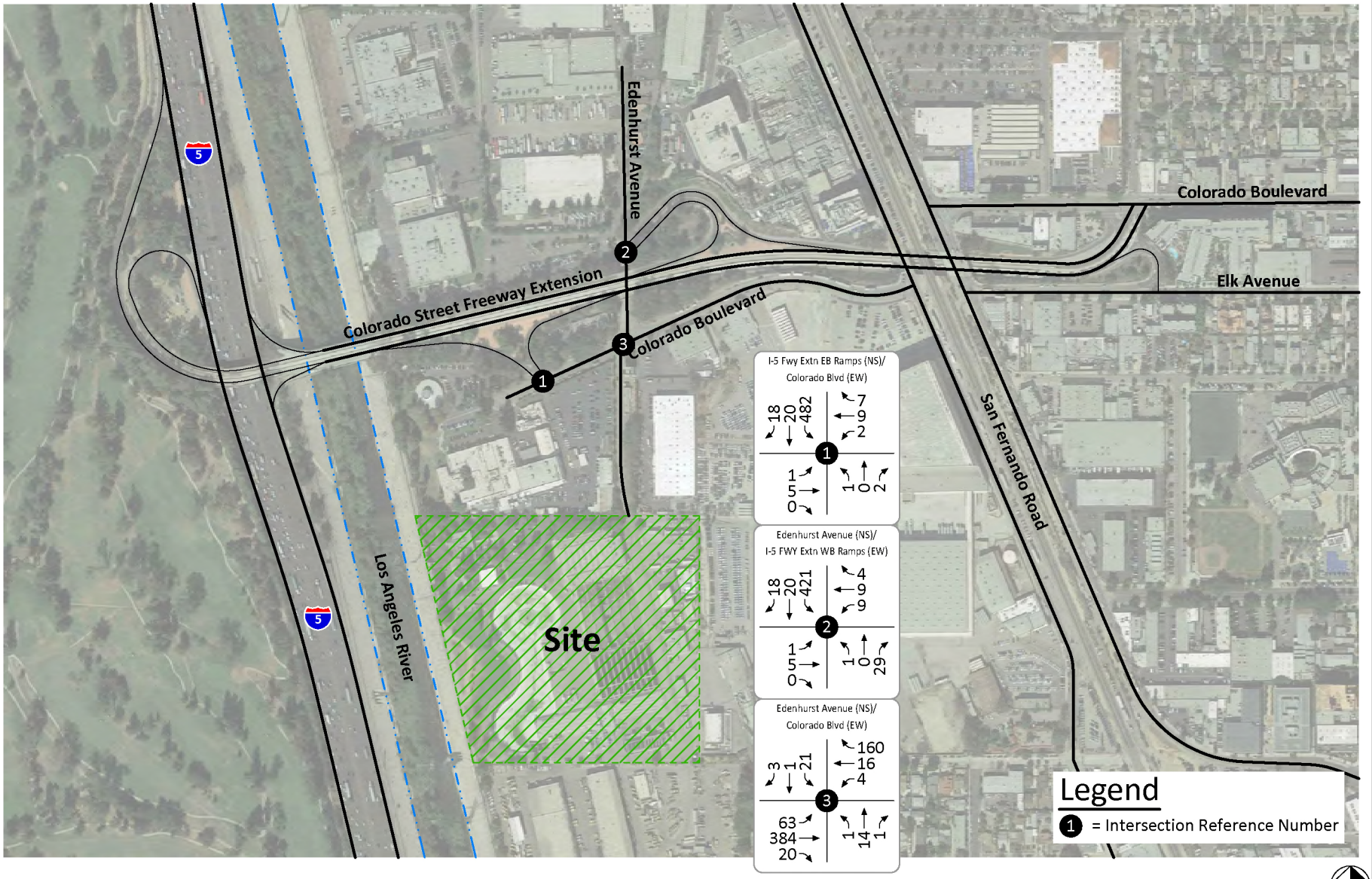


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Figure 26
Construction Year (2021) With Project
Morning Peak Hour Intersection Turning Movement Volumes

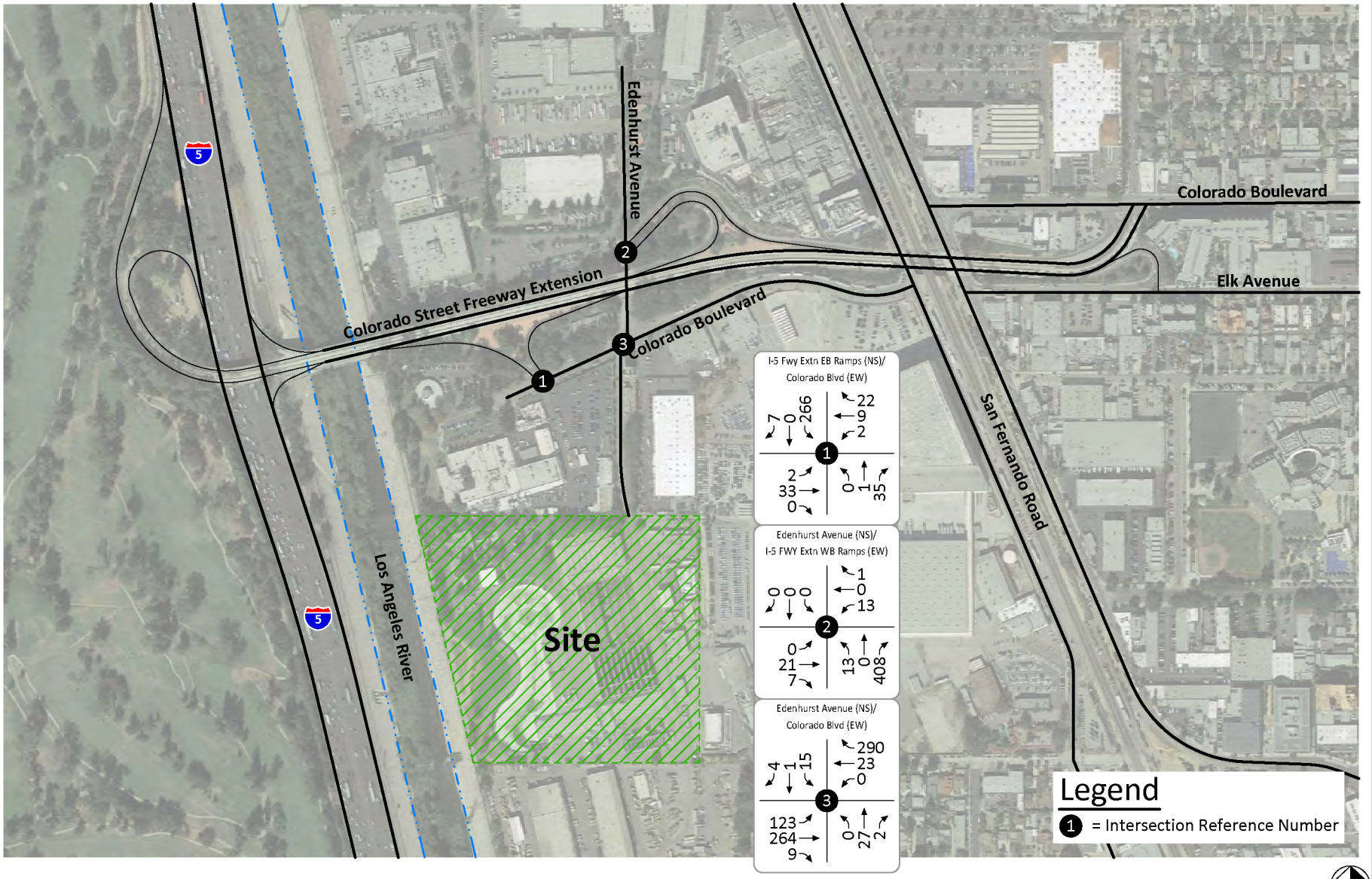


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Figure 27
Construction Year (2021) With Project
Evening Peak Hour Intersection Turning Movement Volumes



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VIII. OTHER TRAFFIC CONSIDERATIONS

A. Truck Turning Movements and Site Access

The primary access entry to the site is proposed to be located on the north side of the existing site. Temporary access to the backside of the site will be required for some material and chemical deliveries, so the truck turning movements should be reviewed to ensure adequate clearance exists on the temporary access driveway to/from the rear of the construction site, such that truck-trailer combination vehicles can adequately enter and leave the site without any access restrictions.

B. Emergency Vehicle Site Access

Fire apparatus accessible roadways shall be designed and constructed to maintain and support emergency vehicle loads and dimensions on an all-weather drivable surface. In general, the minimum width and vertical clearance of emergency roadways is 13 feet in width for one-way access and 20 feet in width for two-way access with 13.5 feet vertical clearance.

C. Freeway Traffic Contribution Review

The traffic impact analysis must include all freeway mainline segments and ramp terminals for which the project contributes above threshold percentage specified based on the existing level of service. Pursuant to the Freeway agreement executed in October 2013 between LADOT and the California Department of Transportation - District 7, traffic studies may be required to conduct a freeway impact analysis if the proposed project meets any of the following criteria[4]:

- The project's peak hour trips would result in a 1% or more increase to the freeway mainline capacity of a freeway segment operating at Level of Service E or F; or
- The project's peak hour trips would result in a 2% or more increase to the freeway mainline capacity of a freeway segment operating at Level of Service D; or
- The project's peak hour trips would result in a 1% or more increase to the capacity of a freeway off-ramp operating at Level of Service E or F; or
- The project's peak hour trips would result in a 2% or more increase to the capacity of a freeway off-ramp operating at Level of Service D.

Project Trip Threshold for Freeway Analysis										
Level of Service	Volume Increase	Mainline Lane Capacity[5]	Ramp Lane Capacity	Mainline Lanes 6	5	4	3	2	Ramp Lanes 2	1
D	2%	2,000	850	240	200	160	120	80	34	17
E/F	1%	2,000	850	120	100	80	60	40	17	9

[4] Source: Traffic Study Policies & Procedures, City of Los Angeles Department of Transportation (August 2014).
[5] Source: Traffic Study Policies & Procedures, City of Los Angeles Department of Transportation (December 2016).

1. Definition of Deficiency and Significant Impact

The California Department of Transportation Guide for the Preparation of Traffic Impact Studies states that an endeavor is made to maintain a target Level of Service of between "D" or better on State Highway facilities; however, the California Department of Transportation acknowledges that this may not always is feasible. If an existing State Highway facility is operating at less than the appropriate Level of Service, the existing Measures of Effectiveness for Level of Service should be maintained.

Based on the location of the project haul route, the County of Los Angeles 2010 Congestion Management Program has been reviewed for the definition of feasible level of service for this study.

The County of Los Angeles 2010 Congestion Management Program definition of deficiency is based on Level of Service E or better as generally acceptable on the Congestion Management Network, unless the existing level of service is E or worst in which case an impact is considered significant if the project related increase in the volume to capacity ratio equals 0.02.

2. Project Contribution Evaluation

Based on the freeway mainline average daily traffic volumes (276,000 to 277,000 vehicles per day) and the roadway capacity that is based on seven lanes in each direction, type of lanes, and capacity of lane types.

The project trip contribution to the freeway system is below the threshold for further analysis. The proposed development is not projected to contribute 1% or more of the mainline capacity trips to the study area freeway mainline or ramps during morning and evening peak hours.

IX. RECOMMENDATIONS

Truck hauling of materials for the Los Angeles-Glendale Water Reclamation Plant will begin after the initial phases of construction and proceed for the entire duration of the project. The project schedule and haul restrictions are designed to not add project related trips during the evening peak hour on public roadways. There are no anticipated off-site roadway or lane closures; all activity will be on-site. The recommendations in this section address construction traffic operations.

A. Site Access

The project site is has access to the I-5 Freeway via Colorado Boulevard and Edenhurst Avenue. In general, construction activity is anticipated to begin at 6:30 AM and end at 3:30 PM, unless otherwise specified. Whenever possible, off-peak (9:15 AM to 3:30 PM) truck delivery is preferred.

B. Construction Traffic Control General Comments

The following general comments provide additional information or measures to minimize the impact of the project on traffic circulation and facilitate the project and may or may not be applicable for all situations which arise during construction:

1. The project should schedule receipt of construction materials during non-peak travel periods (9:15 AM to 3:30 PM), to the extent possible.

2. The project should require the construction workers to park on the predetermined off-street parking area specified by the applicant.

3. If a public roadway closure becomes necessary, the project should work with the City Engineer and Public Works Department Traffic Engineering Division to identify closure time limitations on roadways within the Cities of Los Angeles and Glendale.

4. If a public roadway closure becomes necessary, Two months prior to the beginning of construction and periodically throughout the construction duration, the project should notify Emergency Services within the study area of possible travel lane and local access closures and the potential for traffic delays during construction (see listing below).

5. If a public roadway closure becomes necessary, two months prior to the roadway closure notify the City Public Works Department Traffic Engineering Division of construction activities on a regular basis.

6. If a public roadway closure becomes necessary, two months prior to the roadway closure notify the School District of possible travel lane and local access closures and the potential for traffic delays during construction. This is to allow the District to alter bus routing when possible and review the need for crosswalk assistance as necessary

during the construction duration (see listing below).

7. If a public roadway closure becomes necessary, two months prior to the roadway closure notify the community-at-large of the various roadway closure(s). The written notification shall include the construction schedule, the approximate location and duration of activities within each section of roadway, and a toll-free telephone number for receiving questions or complaints. The notification program shall consist of a local newspaper notice and signage posted prior to the limits of construction. Notification prior to the intersections affected by the construction should also be placed on either side of the intersection at intersection crossings. Placement of the signage should be phased to reflect the current construction activity, and precede the construction to allow traffic the opportunity to find alternative routes.

8. If a public roadway closure becomes necessary, all closure(s)/detour(s) should implement suitable measures (per the Southern California Chapter of the American Public Works Association, Work Area Traffic Control Handbook, 12th Edition, 2012, the California Department of Transportation Manual of Uniform Traffic Control Devices 2009 California Supplement, dated January 13, 2012) and be coordinated with the City.

C. Construction Project Traffic Control Mitigation

The general comments provide additional information or measures to minimize the impact of the project on traffic circulation and facilitate the project and may or may not be applicable for all situations, which arise during construction:

The following general comments provide additional information or measures to minimize the impact of the project on traffic circulation and facilitate the project and may or may not be applicable for all situations, which arise during construction:

1. Provide to the following jurisdictions (Los Angeles County, California Department of Transportation, and the Cities of Los Angeles and Glendale) detailed project descriptions that include:

    a. Identified hours of construction and hours for deliveries.
    b. Identified haul routes.
    c. Identify location of staff parking for the construction period.
    d. Identify the location of material storage.
    e. Details for the work at site access locations.

2. The project shall develop procedures to notify the following governmental agencies and public:

    a. Emergency services affected by construction in the study area of possible lane and local access closures and the potential for traffic delays during construction. Los Angeles Police Department NE 3353 N San Fernando Rd, Los Angeles, CA Los Angeles Fire Station #50 at 3036 Fletcher Drive, Los Angeles, CA 90065

Los Angeles Fire Station #56 2759 Rowena Avenue, Los Angeles, CA 90039
Glendale Police Department 131 N Isabel St, Glendale, CA 91206, Glendale, CA
Glendale Fire Station #21 at 421 Oak Street, Glendale, CA 91204
Glendale Fire Station #22 at 1201 S Glendale Avenue, Glendale, CA 91205

b. City of Los Angeles Department of Transportation to assist in moderating congestion on local streets and notification of roadworks.
c. City of Glendale Public Works to assist in moderating congestion on local streets and notification of roadworks.
d. Los Angeles Unified School District of possible temporary traffic congestion.
e. Glendale Unified School District of possible temporary traffic congestion.
f. Transit providers of possible temporary traffic congestion (Glendale Station Metrolink, Glendale Beeline Bus Service Routes 6, 12, and 94).
g. The community-at-large of the construction limits/duration and timing.

3. The project should schedule the receipt of construction materials during non-peak travel periods (9:15 AM to 3:30 PM), to the extent possible.

APPENDICES

Appendix A – Glossary of Transportation Terms

Appendix B – Los Angeles Sanitation Division Construction Data

Appendix C – Traffic Count Worksheets

Appendix D – Level of Service Worksheets

Appendix E – Congestion Management Program Data

Appendix F – Other Development Information

APPENDIX A

Glossary of Transportation Terms

GLOSSARY OF TRANSPORTATION TERMS

COMMON ABBREVIATIONS

AC:	Acres
ADT:	Average Daily Traffic
Caltrans:	California Department of Transportation
DU:	Dwelling Unit
ICU:	Intersection Capacity Utilization
LOS:	Level of Service
TSF:	Thousand Square Feet
V/C:	Volume/Capacity
VMT:	Vehicle Miles Traveled

TERMS

AVERAGE DAILY TRAFFIC: The total volume during a year divided by the number of days in a year. Usually only weekdays are included.

BANDWIDTH: The number of seconds of green time available for through traffic in a signal progression.

BOTTLENECK: A constriction along a travelway that limits the amount of traffic that can proceed downstream from its location.

CAPACITY: The maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

CHANNELIZATION: The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

CLEARANCE INTERVAL: Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

CORDON: An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).

CYCLE LENGTH: The time period in seconds required for one complete signal cycle.

CUL-DE-SAC STREET: A local street open at one end only, and with special provisions for turning around.

DAILY CAPACITY: The daily volume of traffic that will result in a volume during the peak hour equal to the capacity of the roadway.

DELAY: The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

DEMAND RESPONSIVE SIGNAL: Same as traffic-actuated signal.

DENSITY: The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

DETECTOR: A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

DESIGN SPEED: A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

DIRECTIONAL SPLIT: The percent of traffic in the peak direction at any point in time.

DIVERSION: The rerouting of peak hour traffic to avoid congestion.

FORCED FLOW: Opposite of free flow.

FREE FLOW: Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

GAP: Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

HEADWAY: Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.

INTERCONNECTED SIGNAL SYSTEM: A number of intersections that are connected to achieve signal progression.

LEVEL OF SERVICE: A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

LOOP DETECTOR: A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

MINIMUM ACCEPTABLE GAP: Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

MULTI-MODAL: More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

OFFSET: The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

PLATOON: A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

ORIGIN-DESTINATION SURVEY: A survey to determine the point of origin and the point of destination for a given vehicle trip.

PASSENGER CAR EQUIVALENTS (PCE): One car is one Passenger Car Equivalent. A truck is equal to 2 or 3 Passenger Car Equivalents in that a truck requires longer to start, goes slower, and accelerates slower. Loaded trucks have a higher Passenger Car Equivalent than empty trucks.

PEAK HOUR: The 60 consecutive minutes with the highest number of vehicles.

PRETIMED SIGNAL: A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions. Also, fixed time signal.

PROGRESSION: A term used to describe the progressive movement of traffic through several signalized intersections.

SCREEN-LINE: An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.

SIGNAL CYCLE: The time period in seconds required for one complete sequence of signal indications.

SIGNAL PHASE: The part of the signal cycle allocated to one or more traffic movements.

STARTING DELAY: The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through a signalized intersection.

TRAFFIC-ACTUATED SIGNAL: A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

TRIP: The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home are two trips, not one.

TRIP-END: One end of a trip at either the origin or destination (i.e., each trip has two trip-ends). A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

TRIP GENERATION RATE: The quantity of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

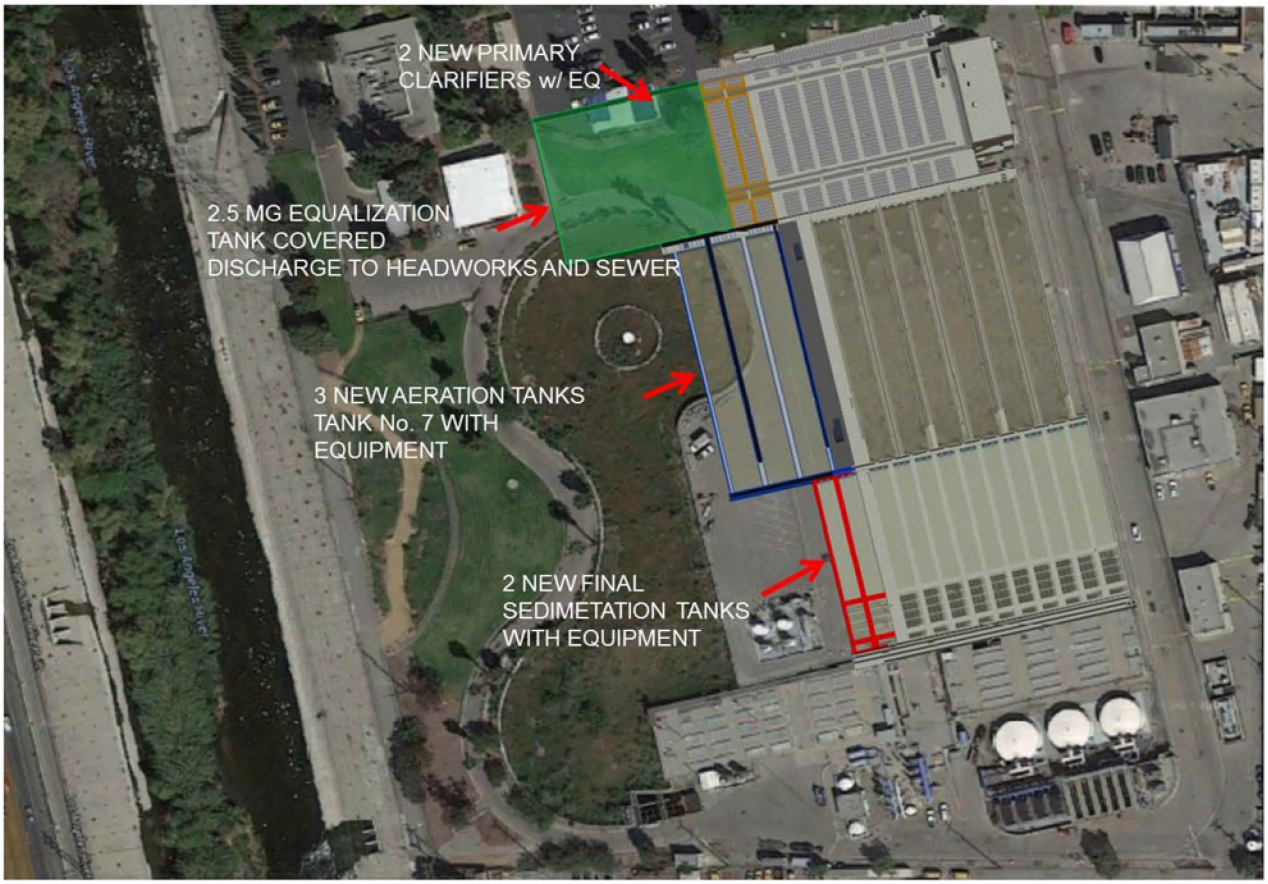
TRUCK: A vehicle having dual tires on one or more axles, or having more than two axles.

UNBALANCED FLOW: Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

VEHICLE MILES OF TRAVEL: A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.

APPENDIX B

Los Angeles Sanitation Division Construction Data



CITY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
LOS ANGELES SANITATION &
BUREAU OF ENGINEERING ENVIRONMENTAL ENGINEERING DIVISION
LOS ANGELES GLENDALE WATER RECLAMATION PLANT

WASTEWATER CAPITAL IMPROVEMENT PROGRAM

LAGWRP PRIMARY EFFLUENT EQUALIZATION STORAGE PROJECT PREDESIGN REPORT

CIP 4176 WO SZL11216

JUNE 14, 2017

CITY OF LOS ANGELES
SANITATION
DEPARTMENT OF
PUBLIC WORKS

ENGINEERING
CITY OF LOS ANGELES

Environmental Engineering Division

LOS ANGELES SANITAION WATER RECLAMATION DIVISION
LAGWRP PRIMARY EFFLUENT EQUALIZATION STORAGE PROJECT
PRE-DESIGN REPORT
W.O. WO SZL11216

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EXECUTIVE SUMMARY

INTRODUCTION

This Predesign Report has been prepared to serve as a basis for the detailed design of the Primary Effluent Equalization Storage Project. This report will provide the reader with an overview of the modifications planned for LAGWRP. These goals of this project are as follows:

- Increase standby storage capacity to provide for hydraulic relief during PWW events.
- Provide flow equalization and optimization.
- Allow for future capacity expansion.

As there are three projects planned for LAGWRP, the Primary Effluent Equalization Storage Project will be performed in conjunction with CIP 4170 LAGWRP Personnel Building and CIP 4187 LAGWRP – Blower Air Cleanup System to minimize costs and construction time and to maximize efficiency.

The report contains a detailed description of the proposed project, addition of structures for existing uses.. These structures have been studied in detail with LASAN Team during the project predesign phase, and specific guidelines have been developed to guide each of the design disciplines during the detailed design of the project. The important aspects and recommendations of this Predesign Report are summarized below.

CHAPTER 1: PROJECT BACKGROUND

Chapter 1 summarizes project timeline.The City of Los Angeles is underway in preparing the “One Water” plan, an integrated approach for water supply, wastewater treatment, and stormwater management. One water considers all water resources, from surface water, ground water, graywater, wastewater, recycled water, to stormwater, as “One Water.” The goal is to reduce imported water by 50 percent by the year 2024 while utilizing local water for the other 50 percent by 2035

This plan will provide a strategic vision and implementation plan to manage its water resources and build sustainable water infrastructure for the entire City. This plan builds upon the great success of the IRP, which had a planning horizon of year 2020. The One Water LA 2040 Plan takes a holistic and collaborative approach, to consider all water resources from surface water, groundwater, potable water, graywater, wastewater, recycled water, and stormwater as "One Water." The plan will identify multi-

departmental and multi-agency integration opportunities to manage water in a more efficient, cost effective, and sustainable manner. The goal is to reduce the purchase of imported water by 50 percent by year 2024, while the Sustainability Plan takes this a step further with a goal of 50 percent local water supply by year 2035. The actions needed to achieve these goals will be categorized as near-term and long-term projects and programs in the One Water LA 2040 Plan.

The Primary Effluent Equalization Storage Project takes one step further toward that destination by improving efficiency, optimizing flow, increasing storage capacity for Peak Wet Weather events, and allowing for further capacity expansion in the future.

CHAPTER 2: DESIGN BASIS/DESIGN CRITERIA

LAWRP operations include preliminary and primary treatment processes, biological nitrogen removal activated sludge process, filtration treatment and disinfection (chloramination), followed by dichlorination and product water discharge into the LA River.

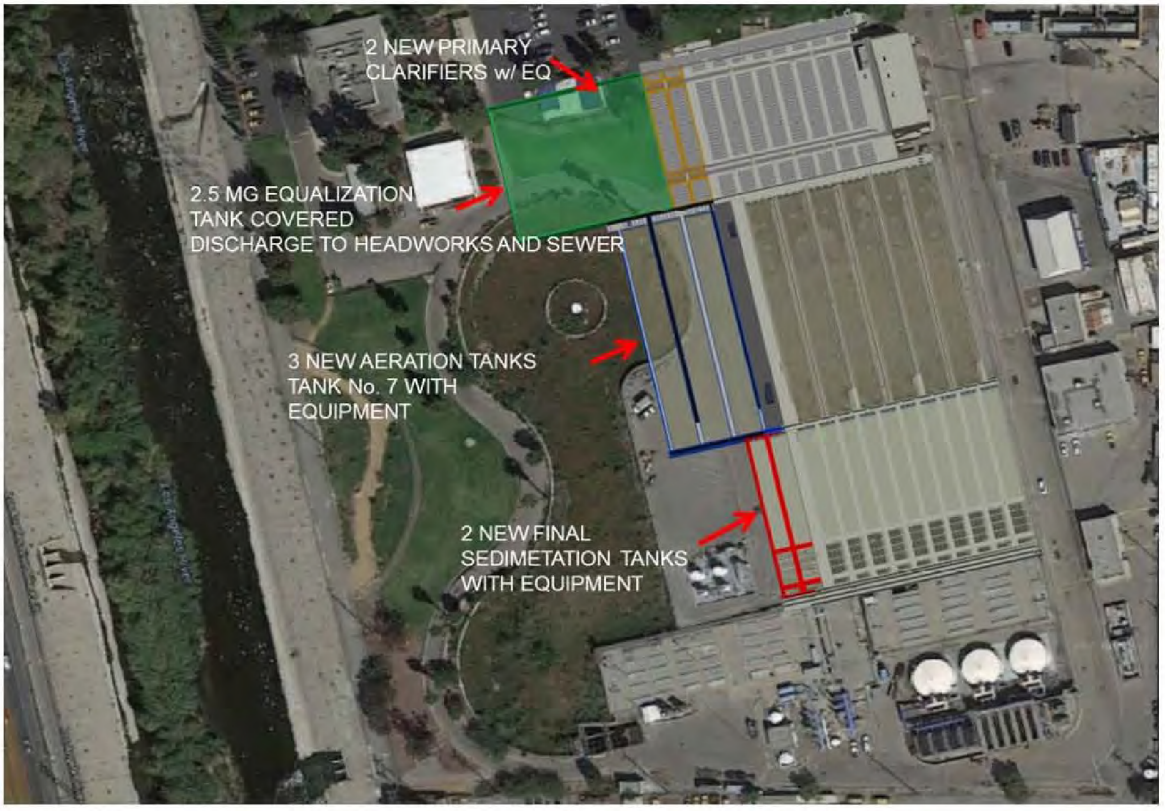
Six different project alternatives were assessed and compared. The screening process was performed jointly by LASAN and BOE team and evaluated based on the following criteria:

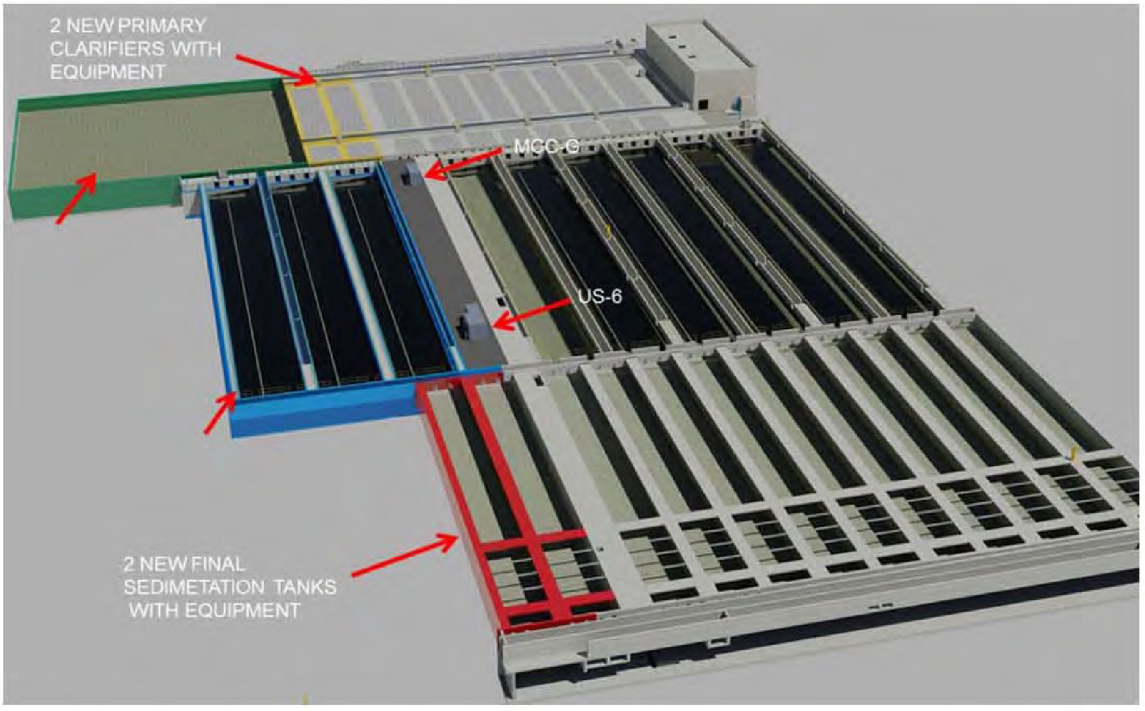
- Hydraulic Relief
- Diurnal Storage for Wastewater
- Additional Primary
- Additional Aeration
- Gravity In
- Gravity Out
- Secondary Clarifiers
- Additional Storage Capacity

The project alternative that met most of the project objectives provided 2 new primary clarifiers and 3 aeration tanks, 2 secondary Clarifiers, and 1 (one) 2.5 mg Primary Effluent EQ Tank (See Figure ES-1).

The 2 new Primary Clarifiers will be equipped to be used for treatment and/or EQ. 1 of the 3 new Aeration tanks will be retrofitted with an aeration system, mixers, and internal recycle pump, baffles to be used for process treatment. This tank will also be used as an addition EQ tank. The other 2 tanks will match existing aeration tank structures but will be used for primary effluent storage only. In the future, they may be retrofitted to expand plant process capacity.

FIGURE ES-1 2 NEW PRIMARY CLARIFIERS, 3 NEW AERATION TANKS, 2 SECONDARY CLARIFIERS, ONE 2.5 MG PRIMARY EFFLUENT EQ TANK GENERAL ARRANGEMENT AND CONCEPTUAL 3-D VIEW, NEW POND





CHAPTER 3: MECHANICAL DESIGN GUIDELINES

New mechanical equipment is itemized in Chapter 2 and listed in Table 3-2. Equipment will be sole sourced to match existing to provide for most economical operations and maintenance (requested by LASAN, Attachment 9). Recommended manufacturer for sluice gates is Waterman based on City's experience and service support by the Manufacturer.

CHAPTER 4: CIVIL DESIGN GUIDELINES

Survey information is readily available to establish the approximate boundaries of the LAGWRP Primary Effluent Equalization Storage Project and the surrounding facilities and structures including new shown on Figure 4-1. Existing information is expected to be adequate for civil design requirements. During detailed design phase, additional detailed survey will be requested if deemed required to ensure that facilities are properly located with respect to adjacent facilities and structures.

3-D and Model Elements, developed at the predesign completion point, have identified the requirements of the project, existing conditions, and essential information that will support the design process. A site analysis and process requirements were utilized (Chapter 2, Attachment 6).

CHAPTER 5: STRUCTURAL DESIGN GUIDELINES

Structural design will be based on geotechnical information developed specific to the site of the facility. A geotechnical report (6-118, March 7, 2017) specific to this project is prepared by the Geotechnical Engineering Division (GED). The reports contain recommendations for all project areas (Attachment 1).

Existing LAGWRP structures are installed with knockout walls. These are provided in wet walls and channels to allow easy expansion of the Plant from 20 mgd to 50 mgd as shown on as built plans. New structures will be designed to match existing and to be integrated with existing structures. Table 5-2 summarizes reference plans used for developing initial 3-D model for this project at the predesign phase.

Level of development for construction documents will be determined during detail design phase. Each 3-D Model Element generally develops independently of the others, so they are never at the same state of development. Levels of expected development will be part of the contract documents as determined by the Civil Design Engineer of Record and selected contract vehicle, DBB (design-bid-build) or DB (design-build).

CHAPTER 6: ELECTRICAL DESIGN GUIDELINES

A listing of loads to be installed under this contract is presented in Table 6-1. Equipment and instrument location is shown on Figure 6-1.

A site walkthrough and evaluation was performed by LASAN Team (Steve Goetze) and EED team (Sam Khurana, Slavica Hammond, Sean Dempsey). Based on site evaluation, MCC-C is capable of taking the load and has availability. However, MCC-C is more than 40 years old and does not meet current UL requirements (Figure 6-2A). Options considered are to refurbish MCC-C to meet UL requirements or to replace. Given cost of refurbishment and age of MCC-C it has been determined preferable to replace old MCC-C with new smart MCC. All existing equipment and devices integrated to existing GE MCC-C will be integrated to new MCC-C.

All new devices and equipment will be integrated into new MCC-C, except for those from new Secondary Clarifiers. MCC-A or MCC-D will accommodate devices and equipment from Secondary Clarifiers (Figure 6-2B). New MCC power feed to be determined during detailed design phase.

CHAPTER 7: INSTRUMENTATION AND CONTROLS DESIGN GUIDELINES

The list of projected I/o's is included for designing-sizing DCS's PCM's and RIO's by Honeywell presently in design.

A fixed cash allowance identified as the "ALLOWANCE FOR HONEYWELL DISTRIBUTED CONTROL SYSTEM (DCS) HARDWARE AND SERVICES PROCUREMENT per General Requirements Sections 01112 and 01212" will been allocated in the schedule of work and prices to procure hardware as deemed required and services based on Honeywell Proposal.

Optimized current control algorithms from ABB DCS will migrate to Honeywell DCS and will be ready for expansion. CIP 4176 project will provide contract documents for Honeywell to implement under allowance order:

(1) New P&ID's for new system components and their tie-ins with existing
EED Instrumentation and Control Engineer to complete partnered with Mechanical Engineer of Record.

(2) Software control narratives
Software control narratives will be provided by Honeywell under allowance order

CHAPTER 8: CONSTRUCTION COST ESTIMATE

The estimated construction cost for the Primary Effluent Equalization Storage Project is $41,830,000 according to the Class "C" Estimate.

CHAPTER 9: IMPLEMENTATION PLAN SCHEDULE

The Primary Effluent Equalization Storage Project will be worked on in conjunction with CIP 4170 LAGWRP Personnel Building and CIP 4187 LAGWRP – Blower Air Cleanup System. The projects may proceed as either Design-Bid-Build (DBB) or Design-Build. Figure ES-2 displays the schedules for completion for each of the projects (CIP 4176, CIP 4187, and CIP 4170) side by side.

To deliver projects CIP 4170 LAGWRP Personnel Building, CIP 4187 LAGWRP - Blower Air Cleanup System and CIP 4176 LAGWRP Primary Influent Equalization Storage Project with the work to be performed for each project in the same workplace with accelerated schedule (2-3 years), the design-build project delivery method is considered as the preferred contracting approach rather than the traditional DBB. In Design-Build, one entity will perform both design engineering and construction under a single contract. Figure ES-3 shows a side by side comparison of DBB and DB schedules.

In summary, total projected duration of the project construction is 24 months (730 calendar days). If detailed design component is added (up to 50% design) the duration of construction may be extended by 4 months (120 calendar days).

FIGURE ES-2 CIP 4170, 4187, 4176 SCHEDULES
DESIGN BID BUILD (DBB) SCHEDULE

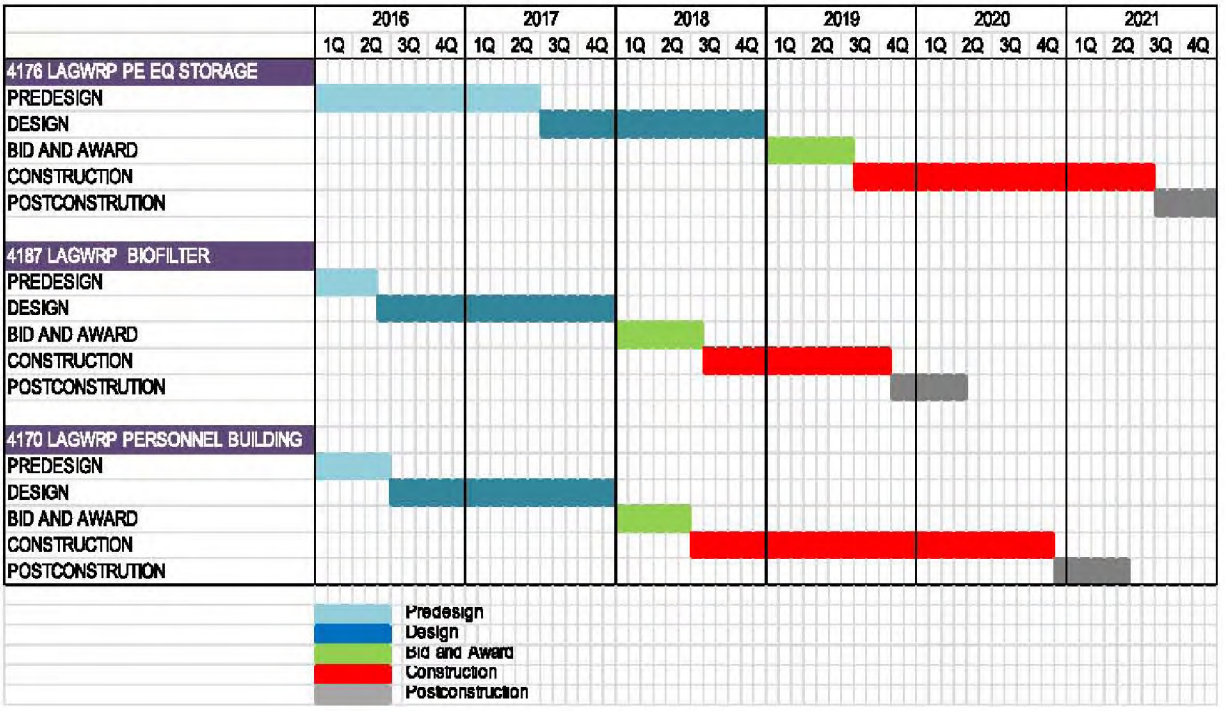
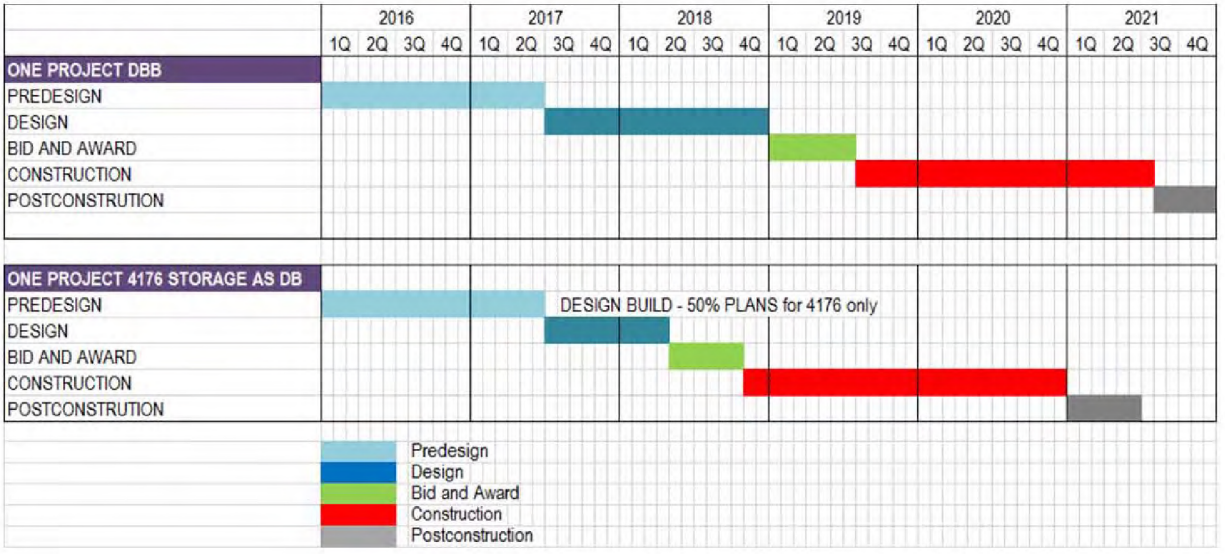


FIGURE ES-3 CIP 4170, 4187, 4176 SCHEDULES
OPTION 1 - DESIGN BID BUILD (DBB) VS DESIGN BID (DB) SCHEDULES



CHAPTER 10: ENVIRONMENTAL CONSIDERATIONS

The Primary areas of environmental concern that have been addressed during predesign are noise, air emissions/odors, and impacts associated with construction activities. Noise levels within the structure, primarily affecting workers and staff will be controlled using methods as specified in the MND to comply with the CEQA. The MND CEQA will also address the anticipated impact of construction upon the surrounding site and adjacent portions of LAGWRP with respect to Emissions. The recommended measures will comply with the City's Policy.

CHAPTER 11: PERMITS

Numerous approvals and/or permits would be required to implement the Proposed Project. The environmental documentation for the Proposed Project would be used to facilitate compliance with federal and state laws, as well as granting permits by various state and local agencies having jurisdiction over one or more aspects of the Project. The list of projected approvals and permits were included but will be determined during detail design.

CHAPTER 4
CIVIL DESIGN GUIDELINES

4.1 INTRODUCTION

This chapter presents the civil design guidelines to be used in the detailed design phase of the LAGWRP Primary Effluent Equalization Storage Project which includes construction of:

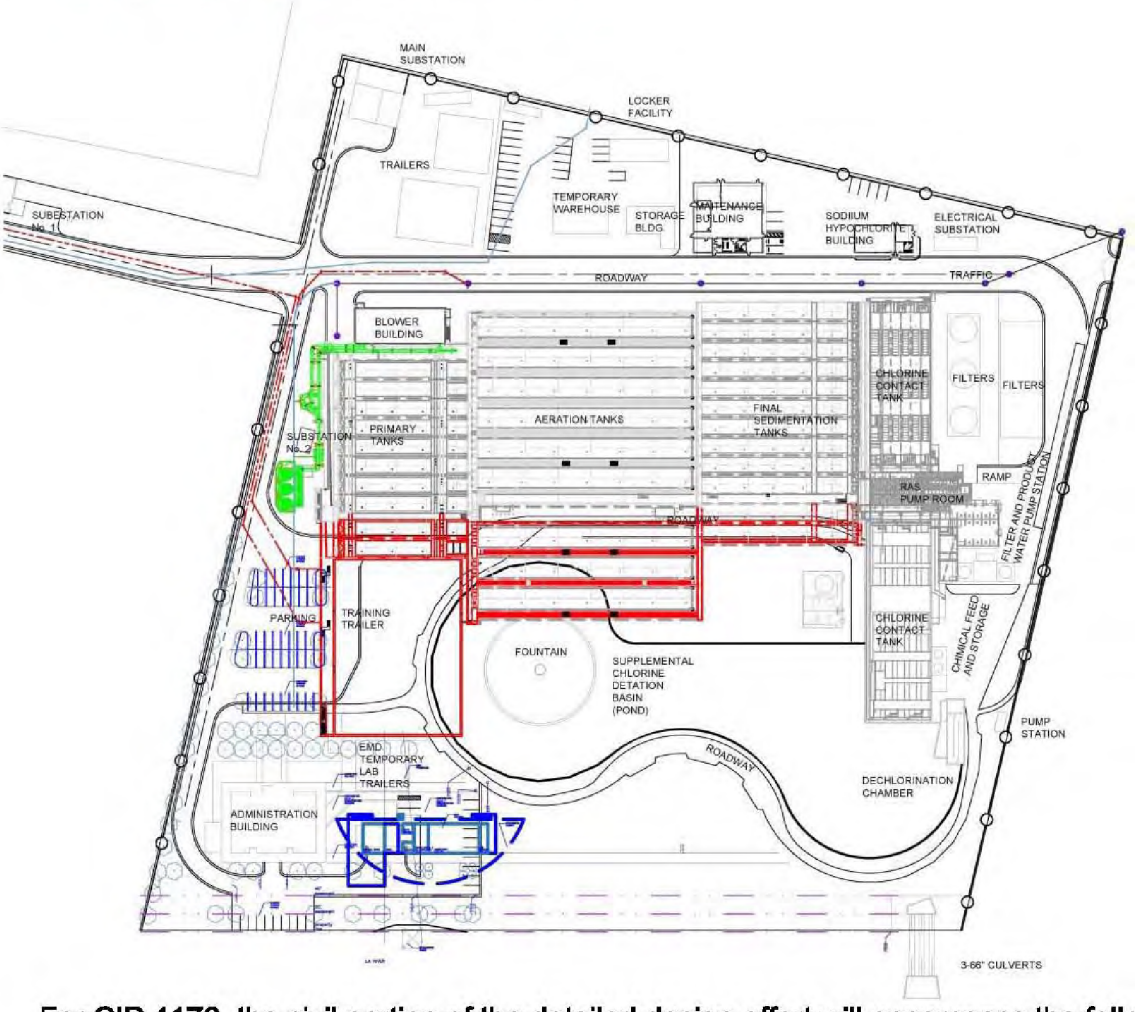
1. One (1) 2.5 mg Equalization Tank (EQ)
   2.5 mg EQ Tank will provide:
   - Constant flow and contaminant loading to the biological treatment
   - Design capacity of 20 mgd vs current 17 mgd
2. Two 24" pipelines for EQ Tank drawdown with vaults for flow control valves and flow meters:
   - Return to Headworks daily to provide constant flow to LAGWRP.
   - Discharge into In-plant sewer for wet-weather events.
3. Two (2) Primary Tanks
   Two (2) Primary clarifiers will provide:
   - Treatment Capacity: 30-38 mgd
   - EQ Capacity for collections: 0.44 mg
4. Three (3) Aeration Tanks
   a. One aeration tank will include equipment to provide treatment.
      - Additional treatment capacity: 4 mgd (total 24 mgd)
   b. Two aeration tanks will be used for storage only and possibly MBR in the future.
      - EQ Capacity for collection system: 2.7 mg EQ
5. Two (2) Secondary clarifiers for treatment only to:
   - Improve on-line availability
   - Increase treatment capacity by 4 mgd (total 24 mgd from current 20 mgd)

Architectural design is being prepared to integrate three projects currently in design consisting of:

1. LAGWRP Master Plan to integrate 3 projects currently in design:
   a. CIP 4176 LAGWRP Primary Effluent Equalization Storage Project
   b. CIP 4170 LAGWRP Personnel Building
   c. CIP 4187 LAGWRP- Blower Air Cleanup System
2. Landscape and Water Feature
3. Parking
4. Solar Panels

Final contract documents for Items 1 through 4 are being prepared as a part of CIP 4170 LAGWRP Personnel Building. Figure 4.1 shows all three projects.

FIGURE 4-1: LAGWRP CIP PROJECTS IN DESIGN (MAY 2017)
CIP 4176 LAGWRP PRIMARY EFFLUENT EQUALIZATION STORAGE PROJECT
CIP 4170 LAGWRP PERSONNEL BUILDING
CIP 4187 LAGWRP- BLOWER AIR CLEANUP SYSTEM



For CIP 4176, the civil portion of the detailed design effort will encompass the following:

1. Survey
   Reference plans, existing LAGWRP
   Location and confirmation of survey data in order to provide an appropriate coordinate system which can be used for detailed design
2. Earthwork
   Estimated earthwork (based on 3-D model of new structures, 2.5 mg EQ Tank draw down 24" lines)
3. Anticipated shoring method for the site excavation ground improvements, demolition and protecting existing utilities.
4. Site Grading/paving/drainage
5. Landscaping

6. Description of the available laydown area

4.2 SURVEY AND 3-D MODEL ELEMENT

Survey information is readily available to establish the approximate boundaries of the LAGWRP Primary Effluent Equalization Storage Project and the surrounding facilities and structures including new shown on Figure 4-1. Existing information is expected to be adequate for civil design requirements. During detailed design phase, additional detailed survey will be requested if deemed required to ensure that facilities are properly located with respect to adjacent facilities and structures.

There is no digital model of existing LAGWRP built in 1972 available. Therefore, 3-D model with Model Elements for existing structures (Primary, Aeration and Final Tanks, channels, galleries and underground piping) and new structures (2.5 MG EQ tank, Primary, Aeration and Final Tanks, extension of channels, galleries and new underground piping), building plans and base maps (basic/conceptual) were developed during predesign by the Civil/Structural designer to facilitate basic/conceptual review and approvals by LASAN (Attachment 6) and environmental review (Figure 4-2).

3-D and Model Elements have identified the requirements of the project, existing conditions, and essential information that will support the design process. A site analysis and process requirements were utilized (Chapter 2, Attachment 6).

Level of development for construction documents will be determined during detail design phase. Each Model Element generally develops independently of the others, so they are never at the same state of development. Levels of expected development will be part of the contract documents as determined by the Civil Design Engineer of Record and selected contract vehicle, DBB (design-bid-build) or DB (design-build).

The following will be required for DBB and DB respectively.

1. DBB: Highly detailed/precise

2. DB: Fully detailed with exact materials and thicknesses
   Modeled elements will have approximate relationships to quantities, size. Some information may still be conveyed with written narratives.
   Design completion: > 50% (TBD)

Reference plans used to develop 3-D Model Elements for all existing and new tanks, channels and galleries are listed in Table 4.1.

TABLE 4-1: REFERENCE PLANS FOR CIP 4176

INDEX NUMBER	CIP	FACILITY/PROJECT
D-23749		LAGWRP FIRST STAGE CONSTRUCTION GENERAL AND CIVIL
D-23750		LAGWRP FIRST STAGE CONSTRUCTION MECHANICAL
D-23751		LAGWRP FIRST STAGE CONSTRUCTION STRUCTURAL
D-23752		LAGWRP FIRST STAGE CONSTRUCTION ELECTRICAL
D-29068		LAGWRP ADDITIONAL CHLORINE CONTACT TANK
D-29646		LAGWRP SECONDARY PROCESS IMPROVEMENTS
D-33297	8411	LAGWRP PRIMARY AIR PLENUM COVER REPAIR
D-30595		LAGWRP BAR SCREEN BUILDING RENOVATION
D-32334	4135	LAGWRP NITROGEN REMOVAL CONVERSION
	4170	LAGWRP PERSONNEL BUILDING /1/
	4187	LAGWRP BLOWER AIR CLEAN-UP SYSTEM /2/
D-32395	4145	LAG- NDEN CHEMICAL ADDITIONAL SYSTEM
D-32396	4145	LAG- NDEN CHEMICAL ADDITIONAL SYSTEM
D-34488	4174	LAG- POND MEMBRANE LINER

NOTES: /1/ DESIGN COMPLETION SCHEDULED FOR DECEMBER 2017
/2/ DESIGN COMPLETION SCHEDULED FOR SEPTEMBER 2017

4.3 EARTHWORK

Earthwork was estimated using 3-D modeling with Model Elements for new structures, primary, aeration and final tanks, extension of channels, galleries and new underground piping, building plans and base maps (basic/conceptual). Class C estimate included in Attachment 3 and environmental review is based on estimated excavation summarized in Table 4-2, grading required (pond modification to integrate new structures and new Personnel Building), temporary shoring, back fill (adding earth to raise grade), compaction and disposal of balance of excavated soil. Originally excavated soil was estimated as 30% or in the 30,000 cubic yards. This was revised to a maximum of 20% or 20,000 cubic yards as pond will now be transformed into a very shallow water feature with a depth of 1 to 2 feet.

Figure 4-2 shows one of 3-D model with Model Elements views with dimensions.

TABLE 4-2 ESTIMATED EARTHWORK

TANKS	DIMENSIONS (FT)			VOLUME		1
	L	W	D	CU. FT.	CU.YD.	CU.YD.
EQUALIZATION TANK	160	140	16	358,400	13,274	29,336
2 PRIMARY CLARIFIERS TANKS	140	43	13	78,867	2,921	6,455
3 AERATION TANKS	240	103	21	517,020	19,149	42,319
2 SEDIMENTATION TANKS	170	43	13	93,515	3,464	7,654
SUBTOTAL						**85,765**

NOTES: P.S.T. 140x20x10.6 FT (VOLUME OF WATER 29.680 CU. FT.); A.T 240x32x16 FT (VOLUME OF WATER 122,880 CU. FT.); F.S.T 170x20x9.6 FT (VOLUME OF WATER 32,640 CU. FT.).

PIPE GALLERIES	DIMENSIONS (FT)			VOLUME		1
	L	W	D	CU. FT.	CU.YD.	CU.YD.
PIPE GALLERY NO. 1	43	21	20	17,910	663	1,466
PIPE GALLERY NO. 2	111	12	22	29,304	1,085	2,399
PIPE GALLERY NO. 3	43	14	22	13,118	486	1,074
CHANNEL NO. 3	111	5	8	4,163	154	341
SUBTOTAL						**5,279**

PIPING	TRENCHING DIMENSIONS (FT)			VOLUME		1
	L	W	D	CU. FT.	CU.YD.	CU.YD.
PIPE 30" TO HEADWORKS	900	6	12	59,400	2,200	4,862
PIPE 30" TO IN-PLANT SEWER	250	6	12	16,500	611	1,351
SUBTOTAL						**6,213**

TOTAL	**97,256**
PROJECTED EXPORT - @ 20%	**19,451**

TABLE 4-2 ESTIMATED EARTHWORK (CONTINUED)

AREA	AC.
EQUALIZATION TANK	0.51
2 PRIMARY CLARIFIERS TANKS	0.14
3 AERATION TANKS	0.57
2 SEDIMENTATION TANKS	0.17
TOTAL	1.39

CHAPTER 9
IMPLEMENTAION PLAN SCHEDULE

9.1 INTRODUCTION

This chapter describes issues associated with the scheduling of the design phase of the LAGWRP Primary Equalization Storage Project, projected start and end dates and the different stages of design sequence.

This chapter also describes issues associated with the scheduling the LAGWRP Primary Equalization Storage Project construction. The chapter describes the project construction start and end dates and the different stages of construction sequence. Projects CIP 4170 LAGWRP Personnel Building and CIP 4187 LAGWRP- Blower Air Cleanup System are considered to be constructed in parallel with CIP 4176 LAGWRP Primary Influent Equalization Storage Project, under one construction contract and one prime contractor to eliminate project delays triggered by construction and operations of the work performed for each project in the same workplace. Therefore, preliminary construction schedules are included for all three projects. These schedules are transmitted to environmental team for environmental review; a proposed Mitigated Negative Declaration (MND) to comply with the California Environmental Quality Act (CEQA) being processed by LASAN with completion date December 2017.

9.2 DESIGN SCHEDULE

9.2.1 DESIGN-BID-BUILD (DBB) DELIVERY METHOD

This section focuses on the issues surrounding the project design schedule. Schedule for completion of 100% complete design documents, for Design-Bid-Build delivery method, is included at the end of this Chapter (Figure 9-1). Figure 9-2 displays the schedules for completion for each of the projects (CIP 4176, CIP 4187, and CIP 4170) side by side.

9.2.2 DESIGN-BUILD (DB) DELIVERY METHOD

To deliver projects CIP 4170 LAGWRP Personnel Building, CIP 4187 LAGWRP - Blower Air Cleanup System and CIP 4176 LAGWRP Primary Influent Equalization Storage Project with the work to be performed for each project in the same workplace with accelerated schedule (2-3 years), the design-build project delivery method is considered as the preferred contracting approach rather than the traditional DBB. One entity will perform both design engineering and construction under a single contract. BOE will develop limited design documents and complete the selection process to hire a pre-qualified design-build entity using a competitive process based solely on the lowest responsive bid. Benefits include a single source of responsibility, and the designer and contractor working together as one team thereby allowing the design-build entity to collaborate together to complete the project. For this option, portions of the design work may be

extracted from the schedule to be performed by the DB entity. The General Contractor will be responsible for this delivery method.

For a comparison of DBB and DB schedules, see Figures 9-3 and 9-4 at the end of this chapter. Figure 9-3 shows a comparison of the schedules for completion of DBB and DB, with all three projects (CIP 4176, CIP 4187, and CIP 4170) being worked on together. Figure 9-4 compares DBB and DB schedules for completion with CIP 4176 and CIP 4187 being worked on together, then CIP 4170 following completion.

DB ENTITY PREQUALIFICATION

This would be a large project, with 3 segments (CIP 4176, CIP 4187, CIP 4170), and estimated design and construction costs at $60 - $65 million. In order for the City to have the best qualified firms working on this project, it is necessary to pre-qualify design-build firms through a pre-qualification process. An RFQ will be distributed, Statements of Qualifications (SOQs) evaluated, and the three highest ranked, qualified DB Entities will be pre-qualified to bid on the project. The firm that is ultimately awarded this project will be determined through the competitive bidding process.

9.3 CONSTRUCTION SCHEDULES

This section focuses on the issues surrounding the project construction schedule. The section will identify those events and adjacent projects which will dictate the start and finish of the construction effort.

The scope of this project will include adjacent projects:

1. CIP 4187 LAGWRP - Blower Air Cleanup System

2. CIP 4170 LAGWRP- Personnel Building

Construction schedule for projects CIP 4176 LAGWRP Primary Influent Equalization Storage Project and CIP 4187 LAGWRP Blower Air Cleanup System is combined due to construction and operations of the work performed for each project being located in the same workplace. Combined schedule is presented in Figure 9-5 attached at the end of this chapter.

Construction schedule for CIP 4170 LAGWRP- Personnel Building is presented in Figure 9-6 attached at the end of this chapter. Sequencing/integration with CIP 4176-CIP 4187 construction schedule will be completed jointly with LASAN LAGWRP Team, at the 30% design when the project construction schedules should be re-evaluated.

9.4 PROJECTED DURATION OF CONSTRUCTION

The projected schedule for the construction of CIP 4176, CIP 4187 and CIP 4170, as depicted in Figure 9-5 & 9-6 (24 months, 730 calendar days), was based on the following:

- The predesign information (3-D model of new structures and equipment).
- No time has been included in this schedule for portions of the design work extracted from the detail design schedule to be performed by the DB entity.
- No time has been included in this schedule for differing site conditions or changes in the scope of work.

If the design work extracted from the detail design schedule is to be performed by the DB entity, the contract duration will be extended up to 4 months (120 calendar days), to total 30 months (850 calendar days) respectively. It is anticipated that 4 months will be required to complete design of structures that will be constructed first; 2 Primary Clarifier Tanks and 2.5 EQ Tank and associated galleries, channels and piping. Remaining 24 months of the projects will be comprised of construction of these structures, design of remaining structures and construction of these remaining structures; 3 Aeration Tanks, 2 Secondary Clarifiers and extension of associated galleries, channels and piping. Installation of the electrical, mechanical, instrumentation in one Aeration Tank and integration with existing utilities will be scheduled once construction of structures is complete and new tanks are integrated with existing structures via galleries and channels and piping as shown on 3-D model and flow sheets presented in Chapter 2.

Integration with Honeywell DCS will be completed at the tail end; Point Config, Graphics & Faceplates Completed, installed and checked. It is anticipated that up to 2 months may be required to integrate 2.5 MG EQ which consist of feel and draw process control, a couple of new graphic displays (reference project CIP 5233 - 2.0 MG EQ Tank), and 2 new Primary Clarifiers, 3 new Aeration Tanks with only one equipped for BNR and 2 Secondary Clarifiers which consist of replication of process controls for existing tanks, modification of existing graphic displays to add new tanks).

The construction of the LAGWRP Primary Influent Equalization Storage Project is to be accomplished maintaining the operation of the processes (primaries, BNR process and secondary clarification).

In summary, the total projected duration of the project construction is 24 months (730 calendar days) from notice-to-proceed to finish. The limited availability of contractor laydown area and discovery of unidentified subsystem utilities, if found during demolition and site clearance, may also impact the duration of construction. If detail design component is added (up to 50% design) the duration of construction may be extended by 4 months (120 calendar days).

9.5 DETAILED DESIGN FOLLOW-UP ITEMS

- Identify all permits and application dates which apply to the construction and operations.
- At the 50% design, the project construction schedule should be re-evaluated.
- All milestone events should be identified and have any accompanying liquidated damages calculated for inclusion in the contract documents.
- Determine all tie-in schedules, shutdown required and duration. These will need to be approved and signed by LASAN LAGWRP Team.
- Determine whether or not any additional provisions need to be included in the construction contract documents, such as forms or specifications, to allow sustainable infrastructure to be evaluated thoroughly, using a transparent system of metrics for the Contractor.
- Determine the required timing for detailed design completion including completion of plan checks for DB delivery method.

FIGURE 9-1 DESIGN BID BUILD SCHEDULE

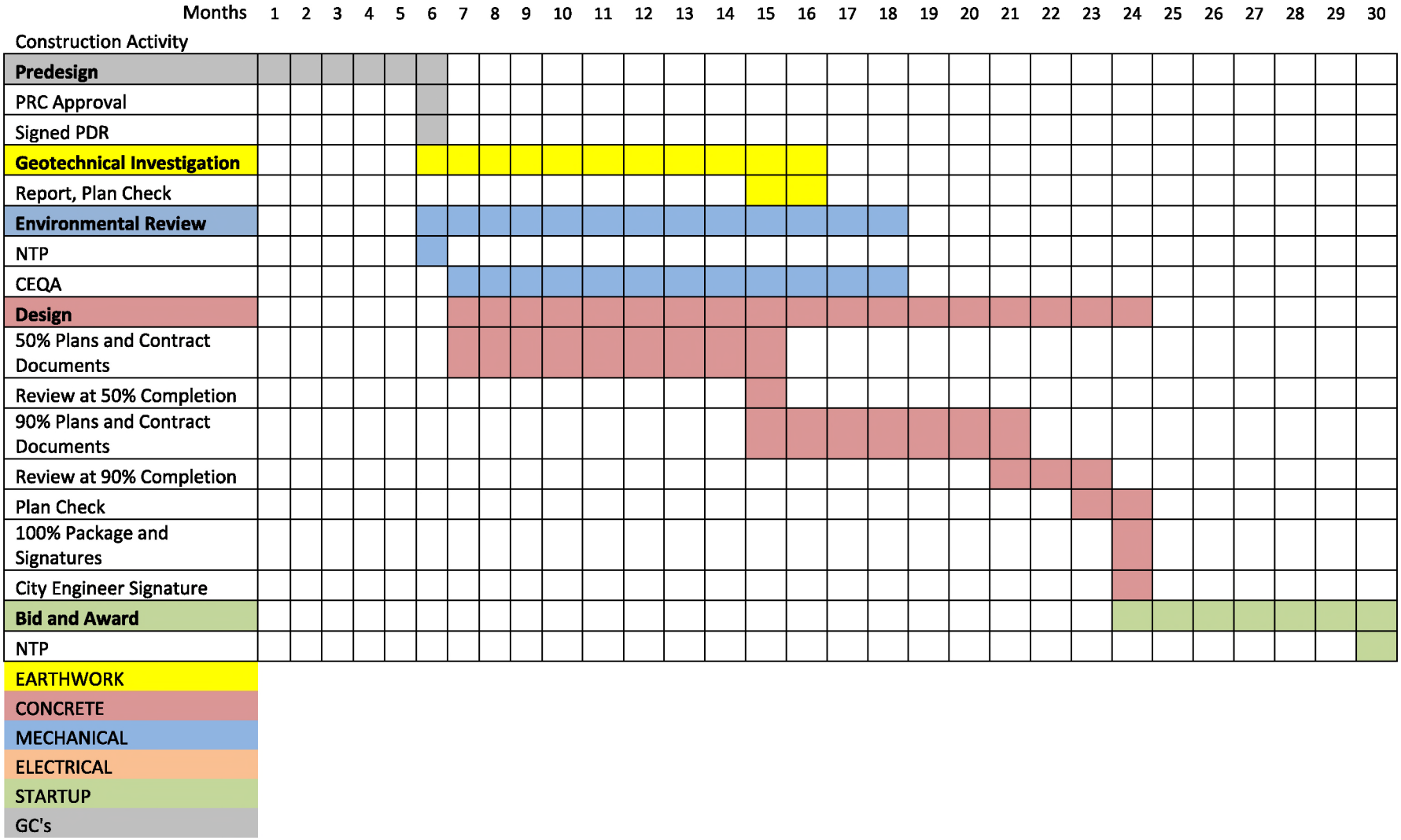


FIGURE 9-2 CIP 4170, 4187, 4176 SCHEDULES
CURRENT DESIGN BID BUILD (DBB) SCHEDULE

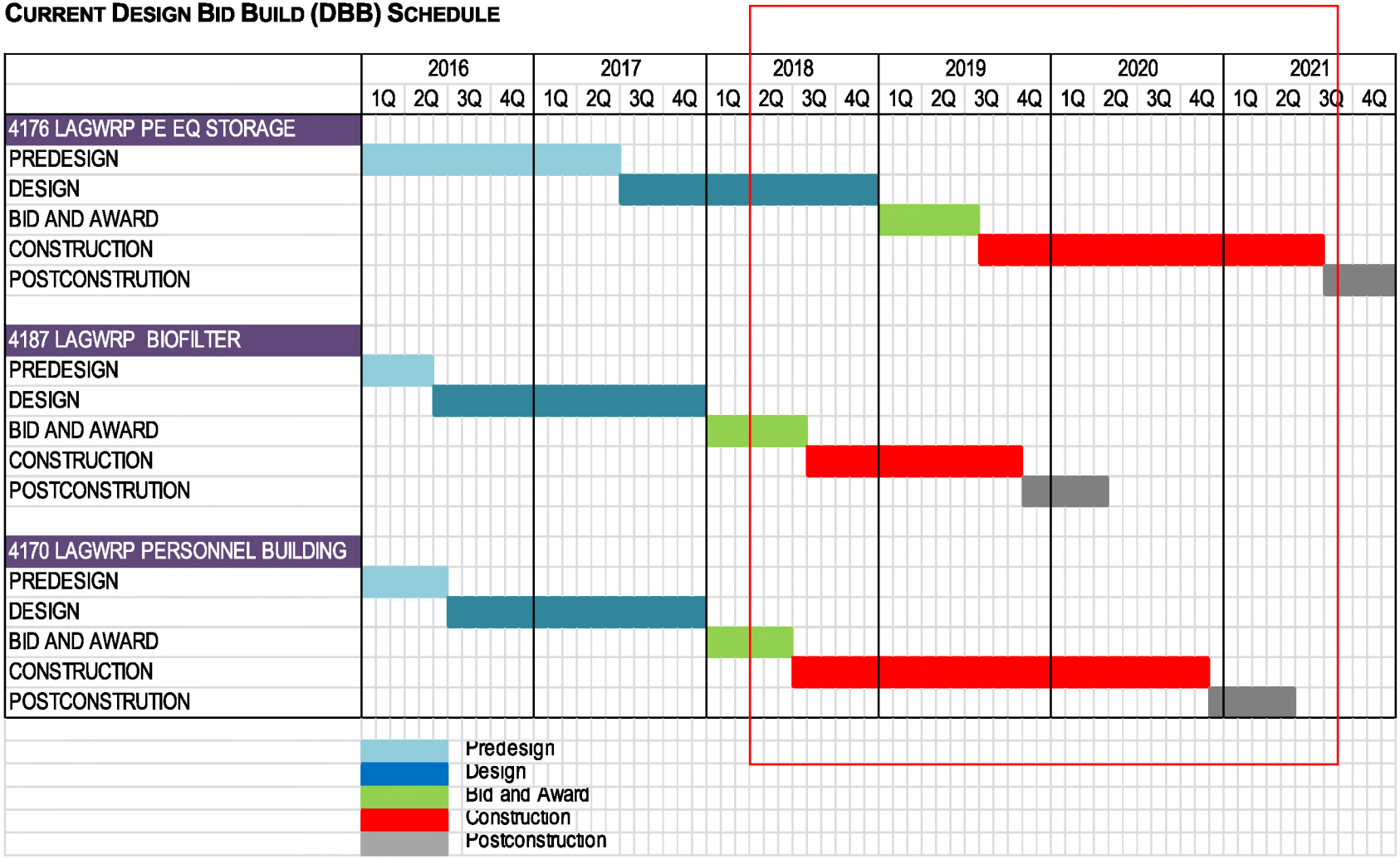


FIGURE 9-3 CIP 4170, 4187, 4176 SCHEDULES
OPTION 1 - DESIGN BID BUILD (DBB) VS DESIGN BID (DB) SCHEDULES

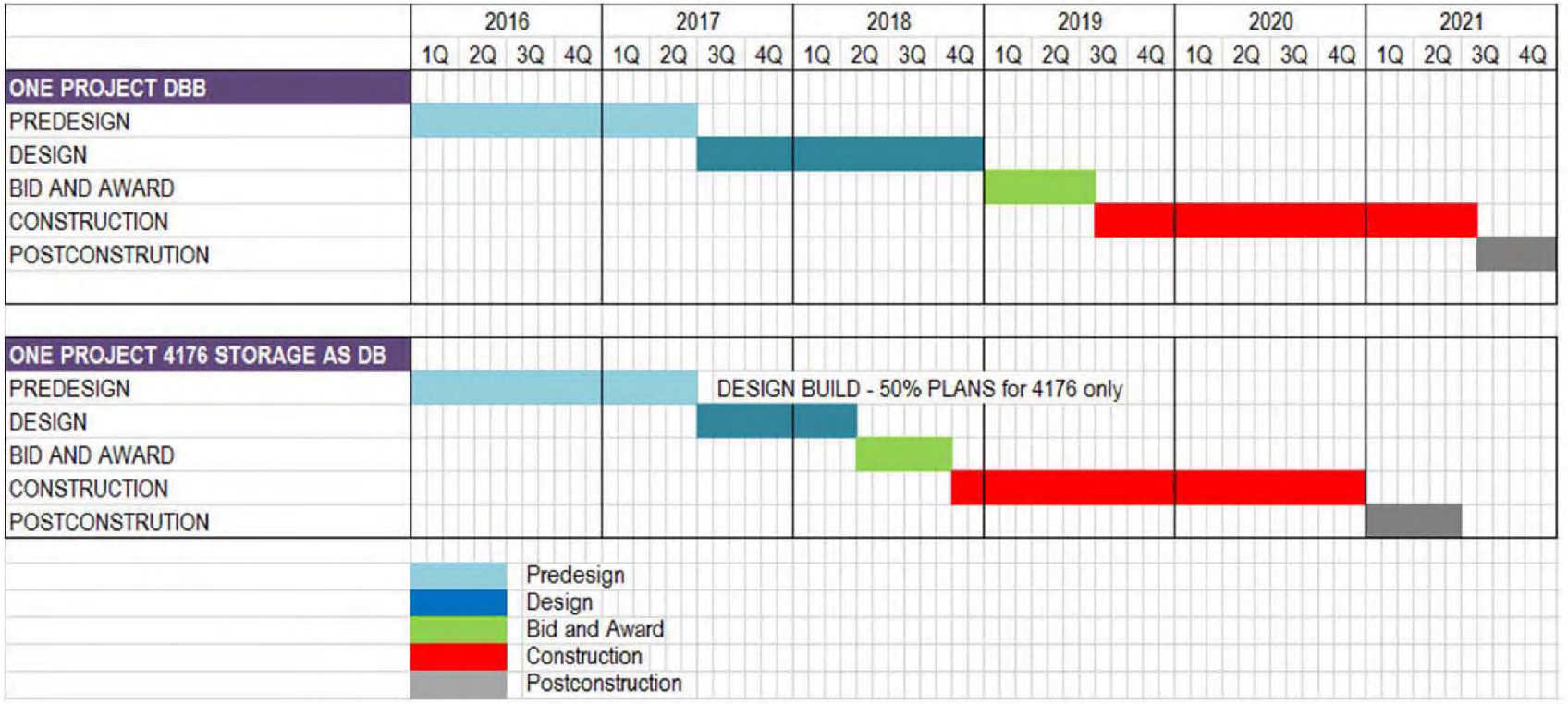


FIGURE 9-4 CIP 4170, 4187, 4176 SCHEDULES
OPTION 2 - 4176 + 4187; 4170 AFTER COMPLETION OF 4176 + 4187
DESIGN BID BUILD (DBB) VS DESIGN BID (DB) SCHEDULES

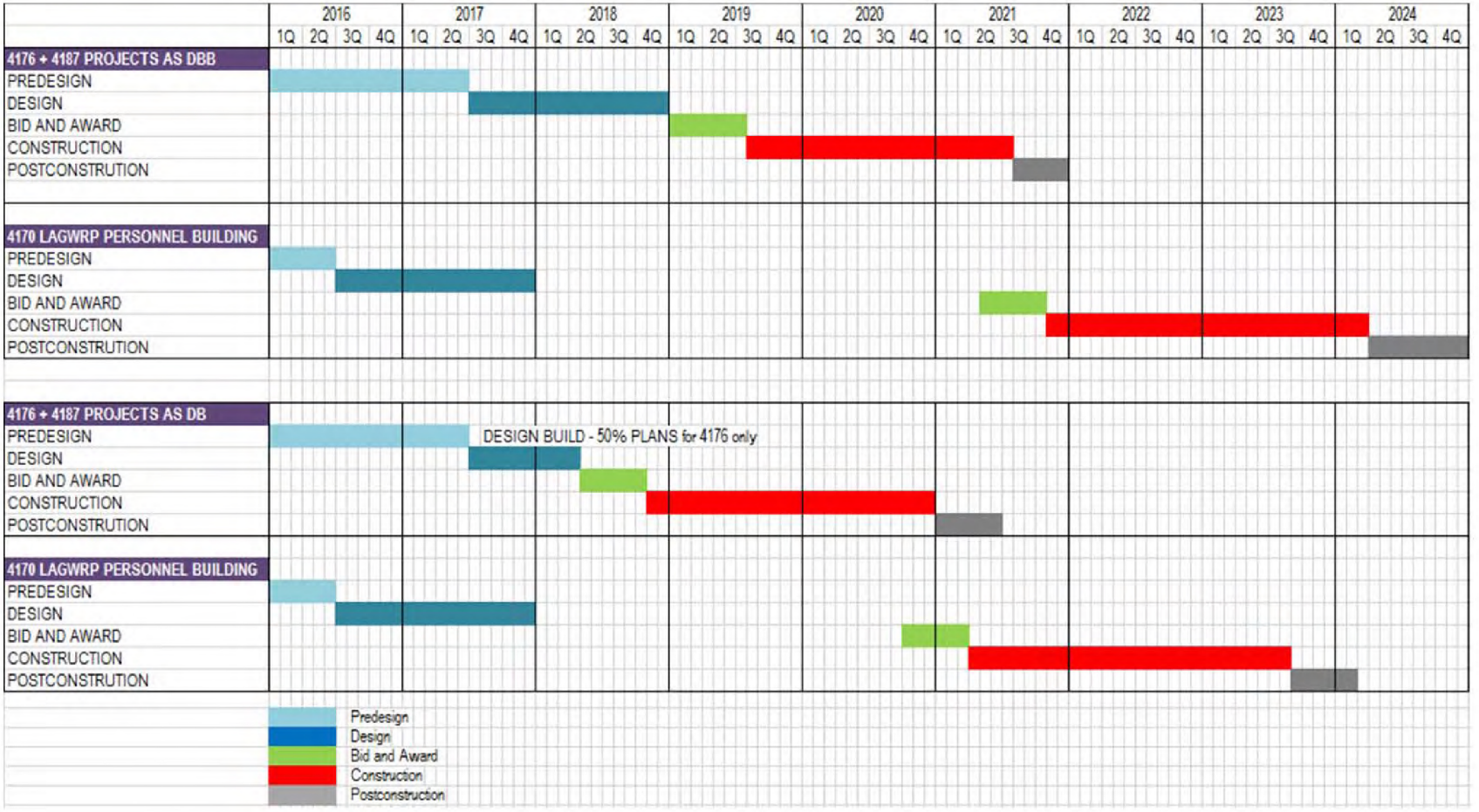
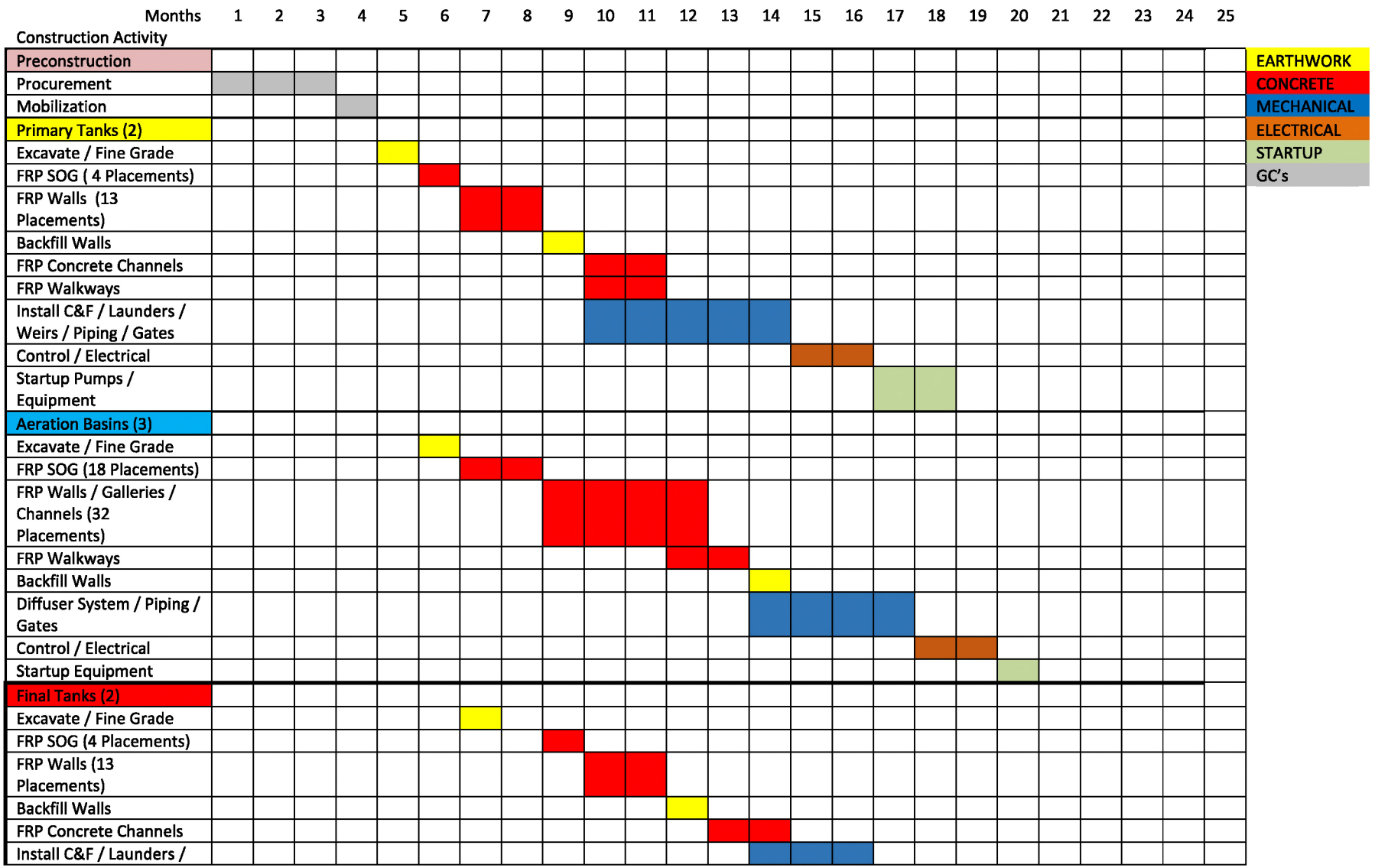
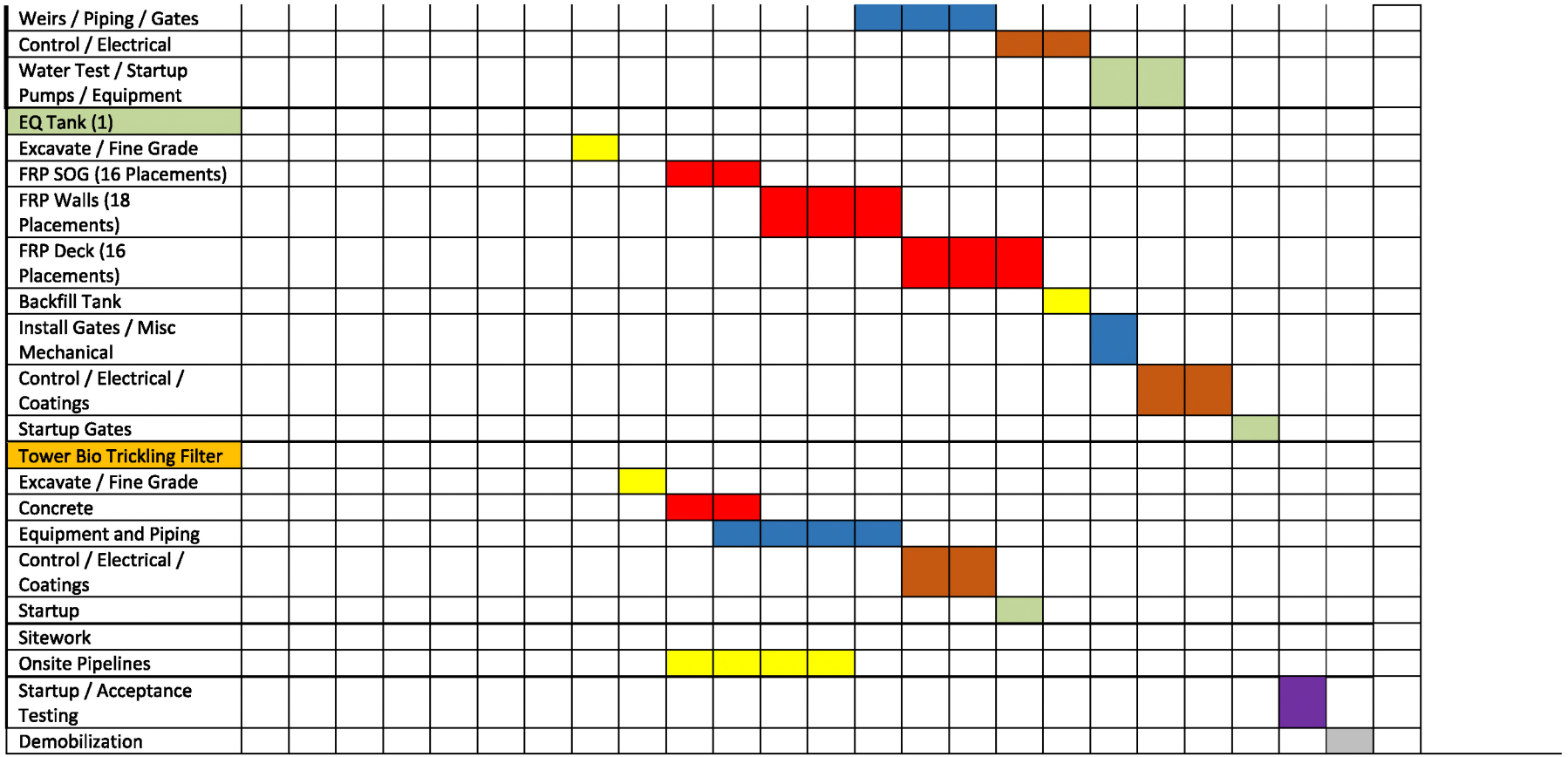


FIGURE 9-5 CIP 4176 & CIP 4187 COMBINED CONSTRUCTION SCHEDULES

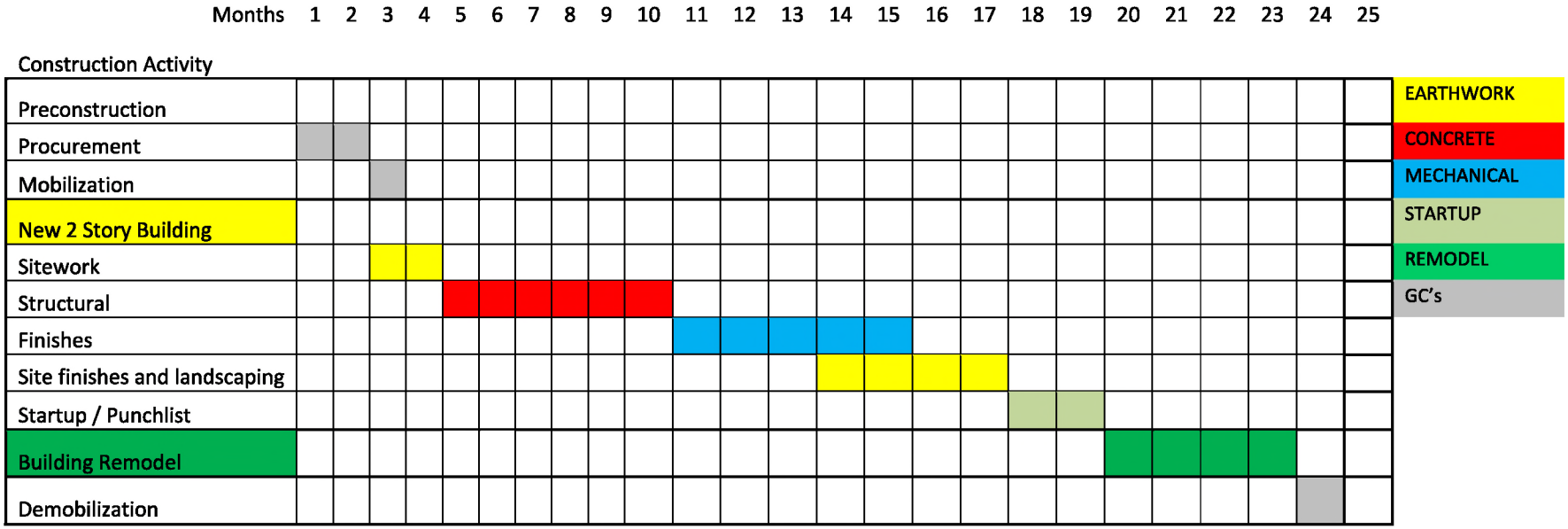




Tie In's: If the existing Channels have any type of isolation stop log to isolate the area before the removable channel partitions that would be preferred. If not, a full plant bypass pumping operation would be required from process to process for each channel brought online. I would bring each channel online as the startup and testing is completed by area. Bypass operations could be performed at low flow in a single shift for each channel connection. Without Piping Details, Pipeline tie in's have not been discussed.

FIGURE 9-6 CIP 4170 CONSTRUCTION SCHEDULE

LAGWRP Building Schedule



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CHAPTER 10
ENVIRONMENTAL CONSIDERATIONS

10.1 INTRODUCTION

The LAGWRP Primary Influent Equalization Storage Project will be designed to avert any adverse impacts. The environmental impacts associated with the construction and operation are expected to be mitigated as indicated in a proposed Mitigated Negative Declaration (MND) to comply with the California Environmental Quality Act (CEQA) being processed by LASAN with completion date December 2017. These impacts include noise, air emissions/odors and impacts associated with construction activities.

The will LAGWRP Primary Influent Equalization Storage Project include construction of:

1. One 2.5 MG equalization tank
2. Two primary clarifiers tanks
3. Three aeration tanks, one equipped for BNR
4. Two secondary clarifiers
5. Extension of existing channels, galleries and piping, integration with existing electrical and control systems.

Detailed design guidelines addressing the environmental related issues and constraints, regulatory compliance and permitting requirements are summarized below.

10.2 IMPACTS AND MITIGATION

This section discusses the various environmental concerns associated with the construction and operation of the LAGWRP Primary Influent Equalization Storage Project provided for MND to comply with the CEQA.

Projected manpower and equipment to assess a peak air pollutant emissions inventory for the project; construction heavy equipment, motor vehicles, fugitive dust and operational emissions are summarized in Table 10-1. Projects CIP 4170 LAGWRP Personnel Building and CIP 4187 LAGWRP- Blower Air Cleanup System are considered to be constructed in parallel with CIP 4176 LAGWRP Primary Influent Equalization Storage Project, under one construction contract and one prime contractor to eliminate project delays triggered by construction and operations of the work performed for each project in the same workplace. Therefore, projected manpower and equipment to assess a peak air pollutant emissions inventory for these projects; construction heavy equipment, motor vehicles, fugitive dust and operational emissions are summarized in Tables 10-2 and 10-3.

TABLE 10-2 CIP 4176 & 4187 CONSTRUCTION WORK FORCE

Const. Work Force	Work Days Weekly	Monday thru Friday
	Hours of Work Daily	6:30 am to 3:30 pm
	Ave. # of Crew Daily	35
	# Shifts Daily	1

Work & Phasing	Tasks	Planned Start Date	Duration, months
	1. Earthwork, excavation, utilities	1-Mar-19	7
	2. Structural (foundations, building-shear walls, utilities)	31-Oct-19	10
	3. Mechanical, Electrical (piping, finishes, equipment)	31-Aug-20	4
	4. Start-up, Commissioning	1-Jan-21	2

Const. Equipment	Machine Type / Fuel Type	Gal. Per Hour	Days Used	Hours Per Day	TASK
Sheep Foot Compactor	Diesel	4.2	5	3	1
Vib Wheel Compactor	Diesel	4.2	5	3	1
Track Excavator	Diesel	5.4	5	8	1
Skid Steer	Diesel	2.65	5	3	1,2
Back Hoe	Diesel	2.8	5	5	1,2
Fork lift	Diesel	2.5	5	8	2,3
Crane Crawler	Diesel		5	8	2,3
RT Crane	Diesel		5	8	2,3
Scissor Lift 28'	Electric				
Loader 3CY	Diesel		5	6	1
10 CY Dump Truck	Diesel		5	8	1
Motor Grader 14'	Diesel		5	4	1

Utilities for Construction	Utility	Amount Per Hour	Hours Per Day	Duration
	Electricity	40	9	ALL TIME
	Natural Gas	NA		
	Telephone	NA		
	Water	/3/		
	Sewer/Sep Tanks	/2/		
	Storm Water	/2/		
	Solid Waste	/2/		
	Other			

Notes:

/1/ Via Interstate 5 (I-5), Colorado Boulevard
01562 Environmental Mitigation

/2/ 01563 Pollution Control -Sewage Spill Prevention and Response Requirements
01571 Stormwater Pollution Control Measures for Construction Activities All
01572 Construction and Demolition Waste Management
in-plant sewer

/3/ High pressure effluent (HPE) may be used

TABLE 10-3 CIP 4170 BUILDING CONSTRUCTION WORK FORCE

Const. Work Force	Work Days Weekly	Monday thru Friday
	Hours of Work Daily	6:30 am to 3:30 pm
	Ave. # of Crew Daily	20
	# Shifts Daily	1

Work & Phasing	Tasks	Planned Start Date	Duration, months
	1. Earthwork, excavation, utilities, landscaping	1-Mar-19	6
	2. Structural (foundations, building-shear walls, utilities)	31-Oct-19	6
	3. Architectural (building shell, finishes, equipment)	30-Apr-20	8
	4. Start-up, Commissioning	31-Dec-20	2

Const. Equipment	Machine Type / Fuel Type	Gal. Per Hour	Days Used	Hours Per Day	TASK
Vib Wheel Compactor	Diesel	4.2	5	3	1
Track Excavator	Diesel	5.4	5	8	1
Skid Steer	Diesel	2.65	5	3	1,2,3
Back Hoe	Diesel	2.8	5	5	1,2
Fork lift	Diesel	2.5	5	8	2,3
Crane (Truck mounted)	Diesel	3	5	4	2,3
Motor Grader	Diesel		5	4	1
Boom Lift 65'	Diesel		5	4	2,3

Utilities for Construction	Utility	Amount Per Hour	Hours Per Day	Duration
	Electricity	40	9	ALL TIME
	Natural Gas	NA		
	Telephone	NA		
	Water	/3/		
	Sewer/Sep Tanks	/2/		
	Storm Water	/2/		
	Solid Waste	/2/		
	Other			

Notes:
/1/ Via Interstate 5 (I-5), Colorado Boulevard
01562 Environmental Mitigation
/2/ 01563 Pollution Control -Sewage Spill Prevention and Response Requirements
01571 Stormwater Pollution Control Measures for Construction Activities All
01572 Construction and Demolition Waste Management
in-plant sewer
/3/ High pressure effluent (HPE) may be used

Mitigation measures will be provided, and focus on measures provided in the SCAQMD's Air Quality Assessment Guidelines.

A brief explanation of the accompanying goals and targets are included hereafter. The General Requirements will cover mitigation of construction related impacts in more detail as the City policy.

NOISE MITIGATION METHODOLOGY

Numerous noise mitigation techniques will be required by the LAGWRP Primary Influent Equalization Storage Project and CIP 4170 and 4187. Noise levels within the structure, primarily affecting workers and staff, will be controlled using the following methods as specified in the MND to comply with the CEQA.

- Quieter equipment, best available technology (BAT)
- Isolated foundations for vibrating equipment
- Acoustic panels on walls and ceilings
- Isolation connectors for machinery and equipment which has a propensity to vibrate

The sound transmission control level (STC xx) will be defined during detailed design.

CONSTRUCTION EMISSIONS

The MND CEQA for the project including CIP 4170 and CIP 4187 will address the anticipated impact of construction upon the surrounding site and the adjacent portions of LAGWRP. The report will determine the expected impact of dust, noise and traffic associated with construction activities and recommended measures which should be used for mitigation. The recommended measures will comply with the City's policy.

10.3 REGULATORY COMPLIANCE AND PERMITTING REQUIREMENTS

The following regulatory agencies have jurisdiction over the Project:

1. California Regional Water Quality Control Board (CRWQCB) Los Angeles Section for permitting matters.
2. Public via California Environmental Quality Act (CEQA)

On behalf of the City of Los Angeles (CLA), the LASAN-LAGWRP, partnered with BOE-Environmental Engineering Division, will submit an application for a permit to construct to RWQCB LA Section.

The public must be provided with opportunities to offer justified comments which should be addressed in the decision making process (i.e., environmental clearance process). The

California Environmental Quality Act (CEQA), passed in 1970, guarantees this opportunity. An MND CEQA has been separately prepared.

10.4 OTHER ISSUES AND CONSTRAINTS

All three projects, CIP 4176, CIP 4187 and CIP 4170 are located both in the LA River zone and in an industrial environment, and must comply with stringent urban requirements. Therefore, other project issues and constraints which must be addressed are primarily related to architectural concepts, landscape and water feature that integrates existing and newly constructed projects.

EXTERIOR, PUBLIC VISTAS, LANDSCAPING, AND WATER FEATURE

To maintain architectural conformity between the existing administration building, new CIP 4170 LAGWRP Personnel Building, and CIP 4176 LAGWRP Primary Effluent Equalization Storage, the new master plan is being developed to include landscape and water features to replace the existing pond, whose process is no longer needed. The new building architecture will be integrated with the LA River and public vistas.

Figure 10-1 shows three projects and pond scheduled to be replaced with landscape and water feature.

Figure 10-2 shows new landscape and water feature with floating wetlands.

EARTHWORK

Transformation of pond into new shallow water feature reduces amount of estimated excavated soil from 30% (30,000 cubic yards) to 20% (20,000 cubic yards), limiting the traffic and environmental impacts of the project. Further information can be found in the Civil Design Section (Chapter 5).

FIGURE 10-1 NEW PROJECT LAYOUT

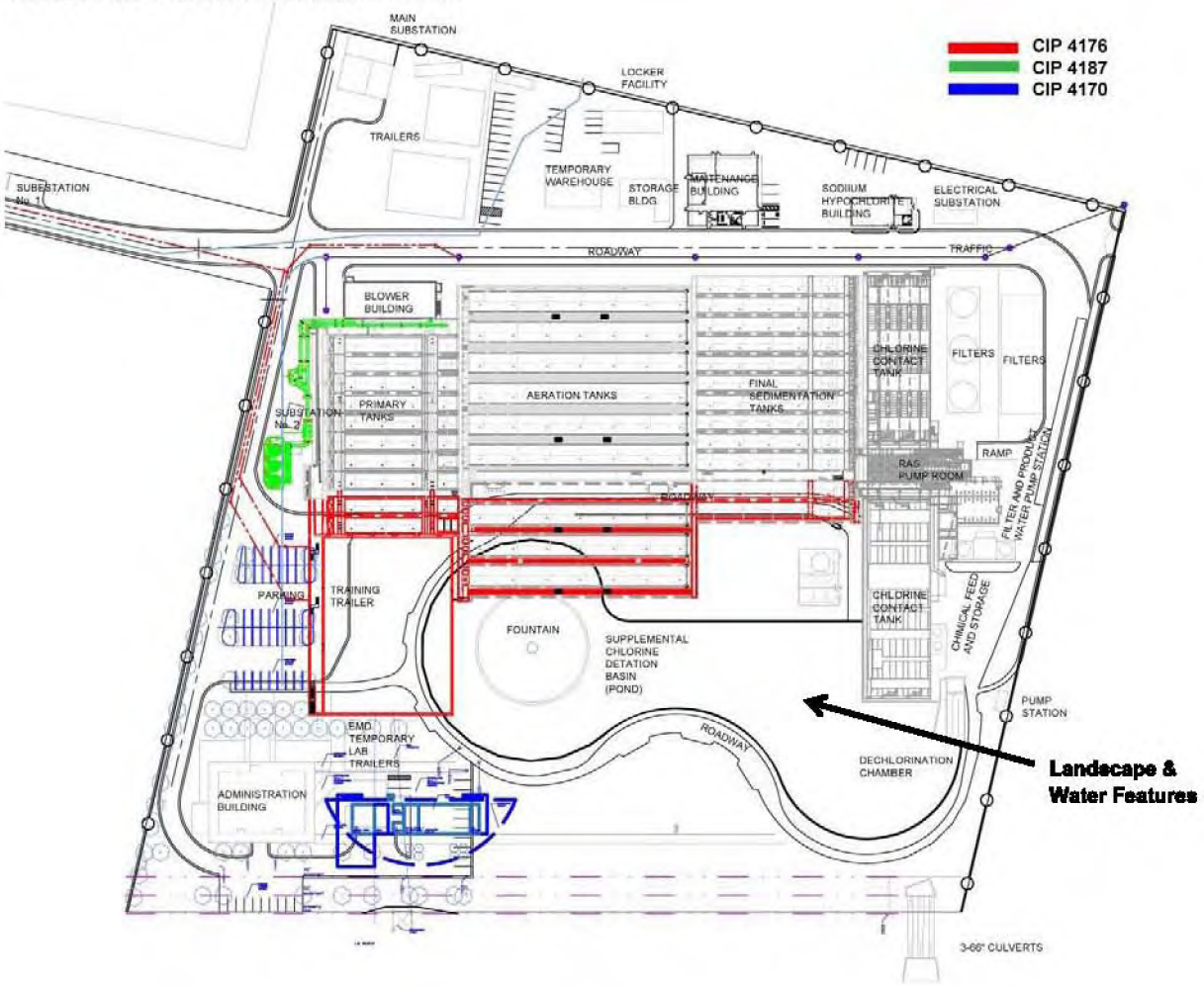
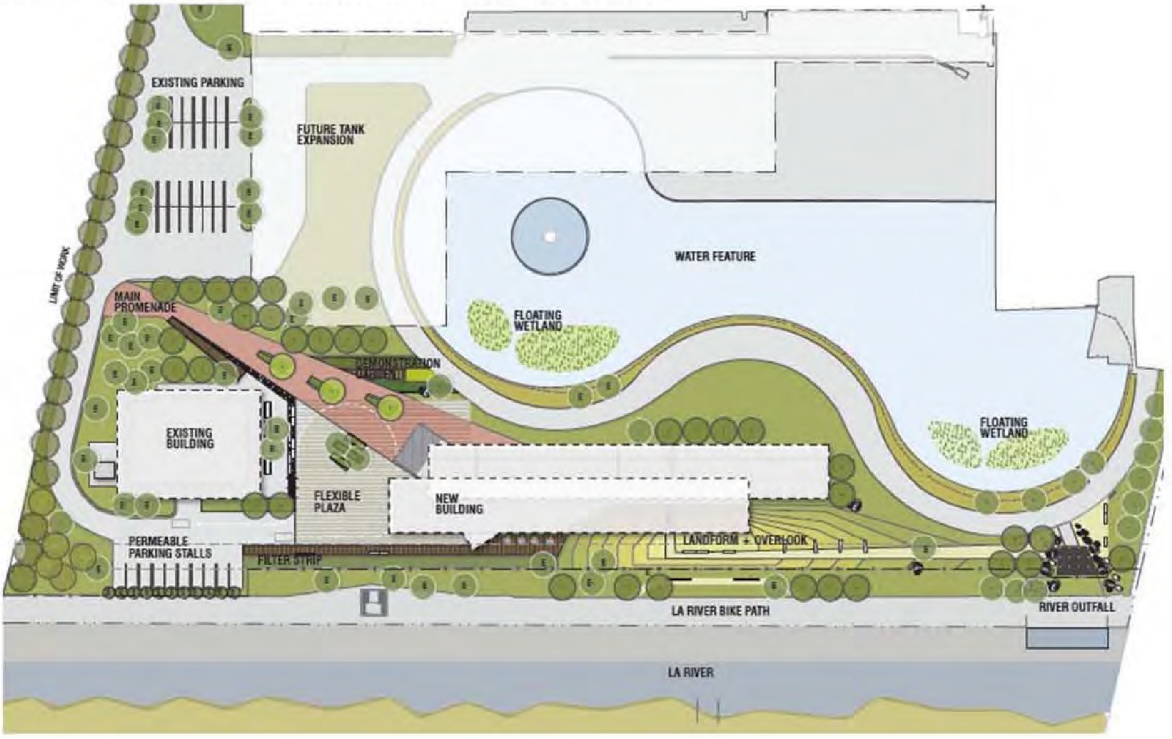


FIGURE 10-2 NEW LANDSCAPE AND WATER FEATURE



10.5 BUILDING SAFETY

The safety of workers in LAGWRP with new structures shall be assured through strict compliance with the following:

- City of Los Angeles Building Code
- Cal OSHA Industrial Safety requirements

American Disability Act (ADA)

If required, the pathways for the disabled individuals in the LAGWRP with new structures structure shall be assured through strict compliance with the requirements stipulated in the ADA.

LIGHTING

Exterior lighting will provide illumination of paved areas surrounding the equipment and access. The lighting will be directed downward to minimize illumination of the night-time sky and shall be designed in compliance with California Title 24 Lighting Control Systems and Title 20 Appliance Efficiency Regulations.

10.6 IMPLEMENTATION OF ENVIRONMENTAL DOCUMENTATION

The following tasks will be performed in the detailed design phase of the LAGWRP Primary Influent Equalization Storage Project in order to implement the appropriate environmental mitigation steps:

1. The project has been evaluated in accordance with requirements of the CEQA. Proposed MND to comply with the CEQA is being processed by LASAN with completion date December 2017. The CEQA documentation is used to estimate the impact of plant construction and operations on the environment.

2. Begin seeking all necessary permits which pertain to environmental issues.

    - Permits to construct and operate for the LAGWRP Primary Influent Equalization Storage Project (amend existing permit). This permit will be issued by the CRWQCB.

3. Create a plan for minimizing the impact of construction upon the plant and adjacent communities. The plan will include a section describing the recommended measures which should be included in the contract documents in order to assist in this area.

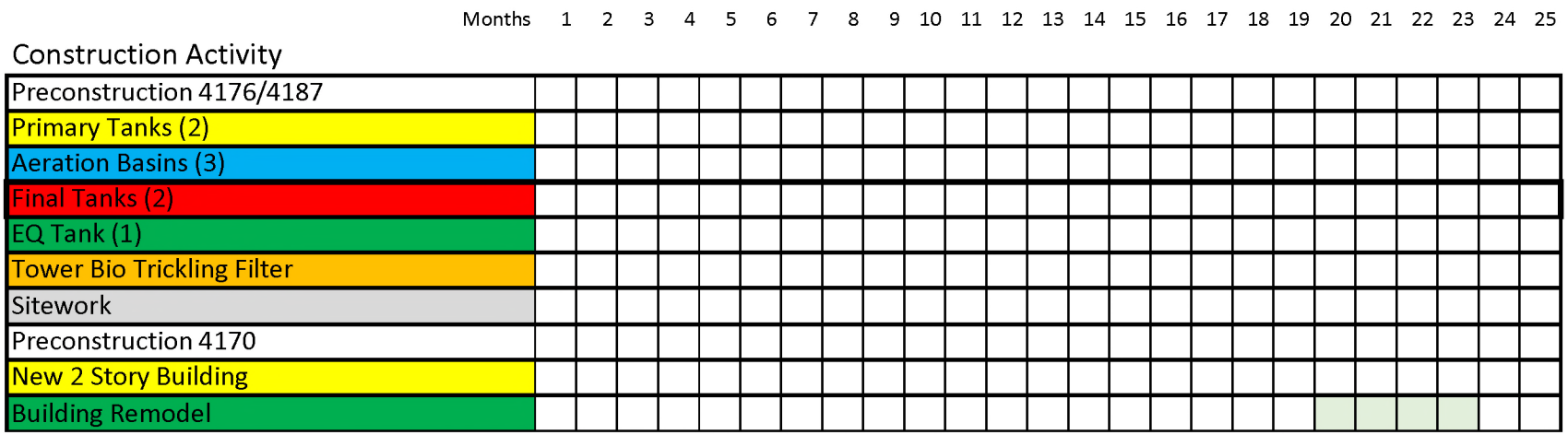
10.7 DESIGN TOOL: ENVISION

The Envision system is a set of guidelines that aid in optimizing a project's sustainability of infrastructure during the design phase in addition to providing a means to quantify the sustainability of the project. Envision is made up of five categories; Quality of life, Leadership, Resource Allocation, Natural World, and Climate and Risk. It was created with aim to educate citizens, increase public awareness, provide a means to quantify sustainability in infrastructure, and facilitate the adoption of sustainable design for infrastructure. BOE and EED are committed to constructing sustainable infrastructure projects.

Envision shall be utilized as a design tool and guide on sustainable best practice. At each step of the design phase, engineers shall consult Envision design criteria and technical considerations to ensure the best design. Envision guidelines shall be used to evaluate and optimize sustainable infrastructure using a transparent system of metrics while its comprehensive scope will ensure that all appropriate aspects of the project are considered as well as to facilitate discussions with the owner, LASAN, and City of Glendale.

Construction Activity Filtered by Activity

LAGWRP Schedule



Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
General Contractor - Procurement of Materials	1		3																						2	GC
General Contractor - Mobilize/Demobile			3	4																				24	3	Mobilize/Dem
Earthwork - Excavate / Backfill / Fine Grading			3															18							15	Earthwork
Concrete - Walls / Galleries / Channels / Building					5												17								12	Concrete
Mechanical - Launders / Weirs / Piping / Gates / Misc										10									19						9	Mechanical
Electrical - Common Wiring / Controls															15						21				6	Electrical
Operations - Startup / Testing																	17						23		6	Operations
Tenant Improvements - New / Remodel											11												23		12	TI

APPENDIX C

Traffic Count Worksheets

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET:

North/South I-5 Ramps/Commercial Driveway

East/West Colorodo Boulevard

Day: Wednesday **Date:** November 9, 2016 **Weather:** CLEAR

Hours: 7-10AM 3-6PM **Staff:** CUI

School Day: YES **District:** Hollywood I/S CODE 57849

	N/B	S/B	E/B	W/B
DUAL-WHEELED	4	135	6	14
BIKES	0	0	0	0
BUSES	0	0	0	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	2	8.00	132	7.45	5	9.45	7	8.00
PM PK 15 MIN	15	4.00	74	3.15	19	4.00	9	3.00
AM PK HOUR	3	7.45	459	7.45	11	9.00	19	7.15
PM PK HOUR	45	3.30	259	3.00	43	4.00	28	3.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	0	0	0
8-9	1	0	2	3
9-10	1	0	2	3
3-4	0	1	35	36
4-5	0	1	39	40
5-6	0	3	20	23
TOTAL	2	5	98	105

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	348	22	22	392
8-9	388	18	17	423
9-10	393	7	7	407
3-4	252	0	7	259
4-5	222	0	5	227
5-6	209	2	4	215
TOTAL	1812	49	62	1923

TOTAL	XING S/L		XING N/L	
N-S	Ped	Sch	Ped	Sch
392	3	0	0	0
426	2	0	0	0
410	2	0	0	0
295	1	0	0	0
267	1	0	0	0
238	4	0	0	0
2028	13	0	0	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	6	0	6
8-9	1	6	1	8
9-10	0	11	0	11
3-4	2	33	0	35
4-5	2	41	0	43
5-6	1	15	0	16
TOTAL	6	112	1	119

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	3	8	6	17
8-9	0	6	7	13
9-10	3	6	8	17
3-4	2	9	17	28
4-5	2	2	18	22
5-6	0	3	16	19
TOTAL	10	34	72	116

TOTAL	XING W/L		XING E/L	
E-W	Ped	Sch	Ped	Sch
23	2	0	2	0
21	0	0	0	0
28	1	0	0	0
63	2	0	0	0
65	1	0	1	0
35	0	0	1	0
235	6	0	4	0

(Rev Oct 06)

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET:

North/South Edenhurst Avenue

East/West I-5 Colorado Extn WB Ramps

Day: Wednesday **Date:** May 31, 2017 **Weather:** CLEAR

Hours: 7-10AM 3-6PM **Staff:** CUI

School Day: YES **District:** 0 I/S CODE 0

	N/B	S/B	E/B	W/B
DUAL-WHEELED	119	2	15	0
BIKES	0	0	0	0
BUSES	0	0	0	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	57	7.15	7	8.30	5	7.45	0	7.00
PM PK 15 MIN	132	4.00	5	4.15	17	4.00	0	3.00
AM PK HOUR	211	8.00	23	8.15	16	7.00	0	7.00
PM PK HOUR	406	3.15	16	4.45	45	5.00	0	3.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	44	165	0	209
8-9	42	169	0	211
9-10	31	158	0	189
3-4	13	339	0	352
4-5	12	365	0	377
5-6	10	314	0	324
TOTAL	152	1510	0	1662

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	14	3	17
8-9	0	17	4	21
9-10	0	12	3	15
3-4	0	10	1	11
4-5	0	15	0	15
5-6	0	12	4	16
TOTAL	0	80	15	95

TOTAL	**XING S/L**		**XING N/L**	
N-S	Ped	Sch	Ped	Sch
226	0	0	0	0
232	0	0	0	0
204	0	0	0	0
363	0	0	0	0
392	0	0	0	0
340	0	0	0	0
1757	0	0	0	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	12	0	4	16
8-9	7	0	4	11
9-10	5	0	6	11
3-4	19	0	6	25
4-5	30	0	8	38
5-6	38	0	7	45
TOTAL	111	0	35	146

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	0	0	0
8-9	0	0	0	0
9-10	0	0	0	0
3-4	0	0	0	0
4-5	0	0	0	0
5-6	0	0	0	0
TOTAL	0	0	0	0

TOTAL	**XING W/L**		**XING E/L**	
E-W	Ped	Sch	Ped	Sch
16	0	0	0	0
11	0	0	0	0
11	0	0	0	0
25	1	0	0	0
38	0	0	0	0
45	0	0	0	0
146	1	0	0	0

(Rev Oct 06)

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET:

North/South Edenhurst Avenue

East/West Colorado Boulevard

Day: Wednesday **Date:** May 31, 2017 **Weather:** CLEAR

Hours: 7-10AM 3-6PM **Staff:** CUI

School Day: YES **District:** 0 I/S CODE 0

	N/B	S/B	E/B	W/B
DUAL-WHEELED	24	4	131	94
BIKES	0	0	0	0
BUSES	0	0	0	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	7	7.00	10	8.30	119	7.45	48	7.30
PM PK 15 MIN	10	3.15	8	4.15	105	4.00	97	4.00
AM PK HOUR	18	7.00	25	7.45	410	7.30	159	7.15
PM PK HOUR	31	3.00	22	3.45	385	3.15	287	4.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	1	15	2	18
8-9	0	13	0	13
9-10	2	14	1	17
3-4	0	28	3	31
4-5	1	11	2	14
5-6	0	20	2	22
TOTAL	4	101	10	115

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	12	2	4	18
8-9	17	1	4	22
9-10	10	1	8	19
3-4	13	1	5	19
4-5	16	0	6	22
5-6	14	0	4	18
TOTAL	82	5	31	118

TOTAL	**XING S/L**		**XING N/L**	
N-S	Ped	Sch	Ped	Sch
36	1	0	0	0
35	1	0	0	1
36	0	0	0	0
50	0	0	0	0
36	2	0	0	0
40	0	0	0	0
233	4	0	0	1

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	55	296	23	374
8-9	77	276	19	372
9-10	69	202	14	285
3-4	107	234	7	348
4-5	109	238	5	352
5-6	81	195	9	285
TOTAL	498	1441	77	2016

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	3	12	138	153
8-9	1	13	123	137
9-10	2	8	107	117
3-4	0	15	216	231
4-5	0	25	262	287
5-6	1	15	221	237
TOTAL	7	88	1067	1162

TOTAL	**XING W/L**		**XING E/L**	
E-W	Ped	Sch	Ped	Sch
527	0	0	0	0
509	0	0	0	0
402	0	0	0	0
579	0	0	0	0
639	0	0	0	0
522	0	0	0	0
3178	0	0	0	0

(Rev Oct 06)

APPENDIX D

Explanation and Calculation of
Intersection Capacity Utilization/Delay

EXPLANATION AND CALCULATION OF
INTERSECTION CAPACITY UTILIZATION

Overview

The ability of a roadway to carry traffic is referred to as capacity. The capacity is usually greater between intersections and less at intersections because traffic flows continuously between them and only during the green phase at them. Capacity at intersections is best defined in terms of vehicles per lane per hour of green. If capacity is 1,600 vehicles per lane per hour of green, and if the green phase is 50 percent of the cycle and there are three lanes, then the capacity is 1,600 times 50 percent times 3 lanes, or 2,400 vehicles per hour for that approach.

The technique used to compare the volume and capacity at a signalized intersection is known as Intersection Capacity Utilization. Intersection Capacity Utilization, usually expressed as a percent, is the proportion of an hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity. If an intersection is operating at 80 percent of capacity (i.e., an Intersection Capacity Utilization of 80 percent), then 20 percent of the signal cycle is not used. The signal could show red on all indications 20 percent of the time and the signal would just accommodate approaching traffic.

Intersection Capacity Utilization analysis consists of (a) determining the proportion of signal time needed to serve each conflicting movement of traffic, (b) summing the times for the movements, and (c) comparing the total time required to the total time available. For example, if for north-south traffic the northbound traffic is 1,600 vehicles per hour, the southbound traffic is 1,200 vehicles per hour, and the capacity of either direction is 3,200 vehicles per hour, then the northbound traffic is critical and requires 1,600/3,200 or 50 percent of the signal time. If for east-west traffic, 30 percent of the signal time is required, then it can be seen that the Intersection Capacity Utilization is 50 plus 30, or 80 percent. When left turn arrows (left turn phasing) exist, they are incorporated into the analysis. The critical movements are usually the heavy left turn movements and the opposing through movements.

The Intersection Capacity Utilization technique is an ideal tool to quantify existing as well as future intersection operation. The impact of adding a lane can be quickly determined by examining the effect the lane has on the Intersection Capacity Utilization.

Intersection Capacity Utilization Worksheets That Follow This Discussion

The Intersection Capacity Utilization worksheet table contains the following information:

1. Peak hour turning movement volumes.
2. Number of lanes that serve each movement.
3. For right turn lanes, whether the lane is a free right turn lane, whether it has a right turn arrow, and the percent of right turns on red that are assumed.
4. Capacity assumed per lane.
5. Capacity available to serve each movement (number of lanes times capacity per lane).
6. Volume to capacity ratio for each movement.
7. Whether the movement's volume to capacity ratio is critical and adds to the Intersection Capacity Utilization value.
8. The yellow time or clearance interval assumed.
9. Adjustments for right turn movements.
10. The Intersection Capacity Utilization and Level of Service.

The Intersection Capacity Utilization Worksheet also has two graphics on the same page. These two graphics show the following:

1. Peak hour turning movement volumes.
2. Number of lanes that serve each movement.
3. The approach and exit leg volumes.
4. The two-way leg volumes.
5. An estimate of daily traffic volumes that is fairly close to actual counts and is based strictly on the peak hour leg volumes multiplied by a factor.
6. Percent of daily traffic in peak hours.

7. Percent of peak hour leg volume that is inbound versus outbound.

A more detailed discussion of Intersection Capacity Utilization and Level of Service follows.

Level of Service

Level of Service is used to describe the quality of traffic flow. Levels of Service A to C operate quite well. Level of Service C is typically the standard to which rural roadways are designed.

Level of Service D is characterized by fairly restricted traffic flow. Level of Service D is the standard to which urban roadways are typically designed. Level of Service E is the maximum volume a facility can accommodate and will result in possible stoppages of momentary duration. Level of Service F occurs when a facility is overloaded and is characterized by stop-and-go traffic with stoppages of long duration.

A description of the various Levels of Service appears at the end of the Intersection Capacity Utilization description, along with the relationship between Intersection Capacity Utilization and Level of Service.

Signalized Intersections

Although calculating an Intersection Capacity Utilization value for an unsignalized intersection is invalid, the presumption is that a signal can be installed and the calculation shows whether the geometrics are capable of accommodating the expected volumes with a signal. A traffic signal becomes warranted before Level of Service D is reached for a signalized intersection.

Signal Timing

The Intersection Capacity Utilization calculation assumes that a signal is properly timed. It is possible to have an Intersection Capacity Utilization well below 100 percent, yet have severe traffic congestion. This would occur if one or more movements is not getting sufficient green time to satisfy its demand, and excess green time exists on other movements. This is an operational problem that should be remedied.

Lane Capacity

Capacity is often defined in terms of roadway width; however, standard lanes have approximately the same capacity whether they are 11 or 14 feet wide. Our data indicates a typical lane, whether a through lane or a left turn lane, has a capacity of

approximately 1,750 vehicles per hour of green time, with nearly all locations showing a capacity greater than 1,600 vehicles per hour of green per lane. Right turn lanes have a slightly lower capacity; however 1,600 vehicles per hour is a valid capacity assumption for right turn lanes.

This finding is published in the August 1978 issue of Institute of Transportation Engineers Journal in the article entitled, "Another Look at Signalized Intersection Capacity" by William Kunzman. A capacity of 1,600 vehicles per hour per lane with no yellow time penalty, or 1,700 vehicles per hour with a 3 or 5 percent yellow time penalty is reasonable.

Yellow Time

The yellow time can either be assumed to be completely used and no penalty applied, or it can be assumed to be only partially usable. Total yellow time accounts for approximately 10 percent of a signal cycle, and a penalty of 3 to 5 percent is reasonable.

During peak hour traffic operation the yellow times are nearly completely used. If there is no left turn phasing, the left turn vehicles completely use the yellow time. Even if there is left turn phasing, the through traffic continues to enter the intersection on the yellow until just a split second before the red.

Shared Lanes

Shared lanes occur in many locations. A shared lane is often found at the end of an off ramp where the ramp forms an intersection with the cross street. Often at a diamond interchange off ramp, there are three lanes. In the case of a diamond interchange, the middle lane is sometimes shared, and the driver can turn left, go through, or turn right from that lane.

If one assumes a three lane off ramp as described above, and if one assumes that each lane has 1,600 capacity, and if one assumes that there are 1,000 left turns per hour, 500 right turns per hour, and 100 through vehicles per hour, then how should one assume that the three lanes operate. There are three ways that it is done.

One way is to just assume that all 1,600 vehicles (1,000 plus 500 plus 100) are served simultaneously by three lanes. When this is done, the capacity is 3 times 1,600 or 4,800, and the amount of green time needed to serve the ramp is 1,600 vehicles divided by 4,800 capacity or 33.3 percent. This assumption effectively assumes perfect lane distribution between the three lanes that is not realistic. It also means a left turn can be made from the right lane.

Another way is to equally split the capacity of a shared lane and in this case to assume there are 1.33 left turn lanes, 1.33 right turn lanes, and 0.33 through lanes. With this assumption, the critical movement is the left turns and the 1,000 left turns are served by a capacity of 1.33 times 1,600, or 2,133. The volume to capacity ratio of the critical move is 1,000 divided by 2,133 or 46.9 percent.

The first method results in a critical move of 33.3 percent and the second method results in a critical move of 46.9 percent. Neither is very accurate, and the difference in the calculated Level of Service will be approximately 1.5 Levels of Service (one Level of Service is 10 percent).

The way Kunzman Associates does it is to assign fractional lanes in a reasonable way. In this example, it would be assumed that there is 1.1 right turn lanes, 0.2 through lanes, and 1.7 left turn lanes. The volume to capacity ratios for each movement would be 31.3 percent for the through traffic, 28.4 percent for the right turn movement, and 36.8 percent for the left turn movement. The critical movement would be the 36.8 percent for the left turns.

Right Turn on Red

Kunzman Associates' software treats right turn lanes in one of five different ways. Each right turn lane is classified into one of five cases. The five cases are (1) free right turn lane, (2) right turn lane with separate right turn arrow, (3) standard right turn lane with no right turns on red allowed, (4) standard right turn lane with a certain percentage of right turns on red allowed, and (5) separate right turn arrow and a certain percentage of right turns on red allowed.

Free Right Turn Lane

If it is a free right turn lane, then it is given a capacity of one full lane with continuous or 100 percent green time. A Free right turn lane occurs when there is a separate approach lane for right turning vehicles, there is a separate departure lane for the right turning vehicles after they turn and are exiting the intersection, and the through cross street traffic does not interfere with the vehicles after they turn right.

Separate Right Turn Arrow

If there is a separate right turn arrow, then it is assumed that vehicles are given a green indication and can proceed on what is known as the left turn overlap.

The left turn overlap for a northbound right turn is the westbound left turn. When the left turn overlap has a green indication, the right turn lane is also given a green arrow

indication. Thus, if there is a northbound right turn arrow, then it can be turned green for the period of time that the westbound left turns are proceeding.

If there are more right turns than can be accommodated during the northbound through green and the time that the northbound right turn arrow is on, then an adjustment is made to the Intersection Capacity Utilization to account for the green time that needs to be added to the northbound through green to accommodate the northbound right turns.

Standard Right Turn Lane, No Right Turns on Red

A standard right turn lane, with no right turn on red assumed, proceeds only when there is a green indication displayed for the adjacent through movement. If additional green time is needed above that amount of time, then in the Intersection Capacity Utilization calculation a right turn adjustment green time is added above the green time that is needed to serve the adjacent through movement.

Standard Right Turn Lane, With Right Turns on Red

A standard right turn lane with say 20 percent of the right turns allowed to turn right on a red indication is calculated the same as the standard right turn case where there is no right turn on red allowed, except that the right turn adjustment is reduced to account for the 20 percent of the right turning vehicles that can logically turn right on a red light. The right turns on red are never allowed to exceed the time the overlap left turns take plus the unused part of the green cycle that the cross street traffic moving from left to right has.

As an example of how 20 percent of the cars are allowed to turn right on a red indication, assume that the northbound right turn volume needs 40 percent of the signal cycle to be satisfied. To allow 20 percent of the northbound right turns to turn right on red, then during 8 percent of the signal cycle (40 percent of signal cycle times 20 percent that can turn right on red) right turns on red will be allowed if it is feasible.

For this example, assume that 15 percent of the signal cycle is green for the northbound through traffic, and that means that 15 percent of the signal cycle is available to satisfy northbound right turns. After the northbound through traffic has received its green, 25 percent of the signal cycle is still needed to satisfy the northbound right turns (40 percent of the signal cycle minus the 15 percent of the signal cycle that the northbound through used).

Assume that the westbound left turns require a green time of 6 percent of the signal cycle. This 6 percent of the signal cycle is used by northbound right turns on red. After accounting for the northbound right turns that occur on the westbound overlap

left turn, 19 percent of the signal cycle is still needed for the northbound right turns (25 percent of the cycle was needed after the northbound through green time was accounted for [see above paragraph], and 6 percent was served during the westbound left turn overlap). Also, at this point 6 percent of the signal cycle has been used for northbound right turns on red, and still 2 percent more of the right turns will be allowed to occur on the red if there is unused eastbound through green time.

For purpose of this example, assume that the westbound through green is critical, and that 15 percent of the signal cycle is unused by eastbound through traffic. Thus, 2 percent more of the signal cycle can be used by the northbound right turns on red since there is 15 seconds of unused green time being given to the eastbound through traffic.

At this point, 8 percent of the signal cycle was available to serve northbound right turning vehicles on red, and 15 percent of the signal cycle was available to serve right turning vehicles on the northbound through green. So 23 percent of the signal cycle has been available for northbound right turns.

Because 40 percent of the signal cycle is needed to serve northbound right turns, there is still a need for 17 percent more of the signal cycle to be available for northbound right turns. What this means is the northbound through traffic green time is increased by 17 percent of the cycle length to serve the unserved right turn volume, and a 17 percent adjustment is added to the Intersection Capacity Utilization to account for the northbound right turns that were not served on the northbound through green time or when right turns on red were assumed.

Separate Right Turn Arrow, With Right Turns on Red

A right turn lane with a separate right turn arrow, plus a certain percentage of right turns allowed on red is calculated the same way as a standard right turn lane with a certain percentage of right turns allowed on red, except the turns which occur on the right turn arrow are not counted as part of the percentage of right turns that occur on red.

Critical Lane Method

Intersection Capacity Utilization parallels another calculation procedure known as the Critical Lane Method with one exception. Critical Lane Method dimensions capacity in terms of standardized vehicles per hour per lane. A Critical Lane Method result of 800 vehicles per hour means that the intersection operates as though 800 vehicles were using a single lane continuously. If one assumes a lane capacity of 1,600 vehicles per hour, then a Critical Lane Method calculation resulting in 800 vehicles per hour is the same as an Intersection Capacity Utilization calculation of 50 percent since 800/1,600

is 50 percent. It is our opinion that the Critical Lane Method is inferior to the Intersection Capacity Utilization method simply because a statement such as "The Critical Lane Method value is 800 vehicles per hour" means little to most persons, whereas a statement such as "The Intersection Capacity Utilization is 50 percent" communicates clearly. Critical Lane Method results directly correspond to Intersection Capacity Utilization results. The correspondence is as follows, assuming a lane capacity of 1,600 vehicles per hour and no clearance interval.

Critical Lane Method Method Result	**Intersection Capacity Utilization Result**
800 vehicles per hour	50 percent
960 vehicles per hour	60 percent
1,120 vehicles per hour	70 percent
1,280 vehicles per hour	80 percent
1,440 vehicles per hour	90 percent
1,600 vehicles per hour	100 percent
1,760 vehicles per hour	110 percent

INTERSECTION CAPACITY UTILIZATION
LEVEL OF SERVICE DESCRIPTION[1]

Level of Service	Description	Volume to Capacity Ratio
A	Level of Service A occurs when progression is extremely favorable and vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0.600 and below
B	Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average delay.	0.601 to 0.700
C	Level of Service C generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	0.701 to 0.800
D	Level of Service D generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	0.801 to 0.900
E	Level of Service E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent.	0.901 to 1.000
F	Level of Service F is considered to be unacceptable to most drivers. This condition often occurs when oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	1.001 and up

[1]Source: Highway Capacity Manual Special Report 209, Transportation Research Board, National Research Council, Washington D.C., 2010.

EXPLANATION AND CALCULATION OF INTERSECTION LEVEL OF SERVICE USING DELAY METHODOLOGY

The levels of service at the unsignalized and signalized intersections are calculated using the delay methodology in the Highway Capacity Manual. This methodology views an intersection as consisting of several lane groups. A lane group is a set of lanes serving a movement. If there are two northbound left turn lanes, then the lane group serving the northbound left turn movement has two lanes. Similarly, there may be three lanes in the lane group serving the northbound through movement, one lane in the lane group serving the northbound right turn movement, and so forth. It is also possible for one lane to serve two lane groups. A shared lane might result in there being 1.5 lanes in the northbound left turn lane group and 2.5 lanes in the northbound through lane group.

For each lane group, there is a capacity. That capacity is calculated by multiplying the number of lanes in the lane group times a theoretical maximum lane capacity per lane time's 12 adjustment factors.

Each of the 12 adjustment factors has a value of approximately 1.00. A value less than 1.00 is generally assigned when a less than desirable condition occurs.

The 12 adjustment factors are as follows:

1. Peak hour factor (to account for peaking within the peak hour)
2. Lane utilization factor (to account for not all lanes loading equally)
3. Lane width
4. Percent of heavy trucks
5. Approach grade
6. Parking
7. Bus stops at intersections
8. Area type (CBD or other)

9. Right turns

10. Left turns

11. Pedestrian activity

12. Signal progression

The maximum theoretical lane capacity and the 12 adjustment factors for it are all unknowns for which approximate estimates have been recommended in the Highway Capacity Manual. For the most part, the recommended values are not based on statistical analysis but rather on educated estimates. However, it is possible to use the delay method and get reasonable results as will be discussed below.

Once the lane group volume is known and the lane group capacity is known, a volume to capacity ratio can be calculated for the lane group.

With a volume to capacity ratio calculated, average delay per vehicle in a lane group can be estimated. The average delay per vehicle in a lane group is calculated using a complex formula provided by the Highway Capacity Manual, which can be simplified and described as follows:

Delay per vehicle in a lane group is a function of the following:

1. Cycle length

2. Amount of red time faced by a lane group

3. Amount of yellow time for that lane group

4. The volume to capacity ratio of the lane group

The average delay per vehicle for each lane group is calculated, and eventually an overall average delay for all vehicles entering the intersection is calculated. This average delay per vehicle is then used to judge Level of Service. The Level of Services are defined in the table that follows this discussion.

Experience has shown that when a maximum lane capacity of 1,900 vehicles per hour is used (as recommended in the Highway Capacity Manual), little or no yellow time penalty is used, and none of the 12 penalty factors are applied, calculated delay is

realistic. The delay calculation for instance assumes that yellow time is totally unused. Yet experience shows that most of the yellow time is used.

An idiosyncrasy of the delay methodology is that it is possible to add traffic to an intersection and reduce the average total delay per vehicle. If the average total delay is 30 seconds per vehicle for all vehicles traveling through an intersection, and traffic is added to a movement that has an average total delay of 15 seconds per vehicle, then the overall average total delay is reduced.

The delay calculation for a lane group is based on a concept that the delay is a function of the amount of unused capacity available. As the volume approaches capacity and there is no more unused capacity available, then the delay rapidly increases. Delay is not proportional to volume, but rather increases rapidly as the unused capacity approaches zero.

Because delay is not linearly related to volumes, the delay does not reflect how close an intersection is to overloading. If an intersection is operating at Level of Service C and has an average total delay of 18 seconds per vehicle, you know very little as to what percent the traffic can increase before Level of Service E is reached.

LEVEL OF SERVICE DESCRIPTION[1]

Level Of Service	Description	Average Total Delay Per Vehicle (Seconds)	
		Signalized	
A	Level of Service A occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0 to 10.00	0 to 10.00
B	Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average total delay.	10.01 to 20.00	10.01 to 15.00
C	Level of Service C generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	20.01 to 35.00	15.01 to 25.00
D	Level of Service D generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	35.01 to 55.00	25.01 to 35.00
E	Level of Service E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.	55.01 to 80.00	35.01 to 50.00
F	Level of Service F is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	80.01 and up	50.01 and up

[1] Source: Highway Capacity Manual Special Report 209, Transportation Research Board, National Research Council, Washington, D.C., 2010.

Existing

LA Glendale Water Treatment Plant

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Scenario 1 Existing
6/29/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	I-5 Fwy Extn EB Ramps (NS) at Colorado Blvd (EW)	Two-way stop	HCM 2010	SB Left	0.427	11.3	B
2	Edenhurst Avenue (NS) at I-5 FWY Extn WB Ramps (EW)	Two-way stop	HCM 2010	EB Left	0.005	23.1	C
3	Edenhurst Avenue (NS) at Colorado Blvd (EW)	Two-way stop	HCM 2010	NB Thru	0.024	14.8	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

LA Glendale Water Treatment Plant

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Report File: J:\...\PME.pdf

Scenario 1 Existing
6/25/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	I-5 Fwy Extn EB Ramps (NS) at Colorado Blvd (EW)	Two-way stop	HCM 2010	SB Left	0.286	10.7	B
2	Edenhurst Avenue (NS) at I-5 FWY Extn WB Ramps (EW)	Two-way stop	HCM 2010	EB Thru	0.040	12.1	B
3	Edenhurst Avenue (NS) at Colorado Blvd (EW)	Two-way stop	HCM 2010	NB Thru	0.093	18.6	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: I-5 Fwy Extn EB Ramps (NS) at Colorado Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	11.3
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.427

Intersection Setup

Name	Driveway			I-5 Fwy Ext Ramps			Colorado Blvd			Colorado Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Driveway			I-5 Fwy Ext Ramps			Colorado Blvd			Colorado Blvd		
Base Volume Input [veh/h]	1	0	2	421	20	18	1	5	0	2	9	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	0	2	421	20	18	1	5	0	2	9	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	105	5	5	0	1	0	1	2	1
Total Analysis Volume [veh/h]	1	0	2	421	20	18	1	5	0	2	9	4
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.43	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.89	9.16	8.35	11.35	9.29	8.52	7.24	0.00	0.00	7.23	0.00	0.00
Movement LOS	A	A	A	B	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.01	0.01	0.01	2.17	0.12	0.12	0.01	0.01	0.01	0.03	0.03	0.03
95th-Percentile Queue Length [ft]	0.22	0.22	0.22	54.26	3.11	3.11	0.28	0.28	0.28	0.70	0.70	0.70
d_A, Approach Delay [s/veh]	8.53			11.15			1.21			0.96		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	10.69											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 1: I-5 Fwy Extn EB Ramps (NS) at Colorado Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.7
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.286

Intersection Setup

Name	Driveway			I-5 Fwy Ext Ramps			Colorado Blvd			Colorado Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Driveway			I-5 Fwy Ext Ramps			Colorado Blvd			Colorado Blvd		
Base Volume Input [veh/h]	0	1	35	252	0	7	2	33	0	2	9	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1	35	252	0	7	2	33	0	2	9	17
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	9	63	0	2	1	8	0	1	2	4
Total Analysis Volume [veh/h]	0	1	35	252	0	7	2	33	0	2	9	17
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.03	0.29	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.02	9.51	8.59	10.73	9.36	8.41	7.27	0.00	0.00	7.28	0.00	0.00
Movement LOS	A	A	A	B	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.11	0.11	0.11	1.19	0.02	0.02	0.07	0.07	0.07	0.05	0.05	0.05
95th-Percentile Queue Length [ft]	2.71	2.71	2.71	29.66	0.50	0.50	1.69	1.69	1.69	1.35	1.35	1.35
d_A, Approach Delay [s/veh]	8.61			10.66			0.42			0.52		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	8.66											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 2: Edenhurst Avenue (NS) at I-5 FWY Extn WB Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	23.1
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Edenhurst Ave						Driveway			I-5 Fwy Extn Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Edenhurst Ave						Driveway			I-5 Fwy Extn Ramps		
Base Volume Input [veh/h]	1	0	2	421	20	18	1	5	0	2	9	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	0	2	421	20	18	1	5	0	2	9	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	105	5	5	0	1	0	1	2	1
Total Analysis Volume [veh/h]	1	0	2	421	20	18	1	5	0	2	9	4
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.02	0.00	0.01	0.04	0.00
d_M, Delay for Movement [s/veh]	7.29	0.00	0.00	8.00	0.00	0.00	23.06	22.56	8.95	22.27	22.85	8.95
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	1.18	1.18	1.18	0.09	0.09	0.09	0.09	0.15	0.15
95th-Percentile Queue Length [ft]	0.07	0.07	0.04	29.40	29.40	29.40	2.20	2.20	2.20	2.19	3.66	3.66
d_A, Approach Delay [s/veh]	2.43			7.34			22.64			19.07		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	7.86											
Intersection LOS	C											

Intersection Level Of Service Report

Intersection 2: Edenhurst Avenue (NS) at I-5 FWY Extn WB Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.1
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.040

Intersection Setup

Name	Edenhurst Ave						Driveway			I-5 Fwy Extn Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Edenhurst Ave						Driveway			I-5 Fwy Extn Ramps		
Base Volume Input [veh/h]	13	0	376	0	0	0	0	21	7	11	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	0	376	0	0	0	0	21	7	11	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	0	94	0	0	0	0	5	2	3	0	0
Total Analysis Volume [veh/h]	13	0	376	0	0	0	0	21	7	11	0	1
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	7.24	0.00	0.00	8.04	0.00	0.00	0.00	12.06	8.60	10.20	10.37	9.26
Movement LOS	A	A	A	A	A	A		B	A	B	B	A
95th-Percentile Queue Length [veh]	0.94	0.94	0.94	0.00	0.00	0.00	0.00	0.14	0.14	0.03	0.03	0.03
95th-Percentile Queue Length [ft]	23.50	23.50	23.50	0.00	0.00	0.00	0.00	3.61	3.61	0.64	0.63	0.63
d_A, Approach Delay [s/veh]	0.24			2.68			11.20			10.12		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.23											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: Edenhurst Avenue (NS) at Colorado Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	14.8
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.024

Intersection Setup

Name	Edenhurst Avenue			Edenhurst Ave			Colorado Blvd			Colorado Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Edenhurst Avenue			Edenhurst Ave			Colorado Blvd			Colorado Blvd		
Base Volume Input [veh/h]	1	9	1	14	1	3	63	332	15	4	13	138
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	9	1	14	1	3	63	332	15	4	13	138
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	0	4	0	1	16	83	4	1	3	35
Total Analysis Volume [veh/h]	1	9	1	14	1	3	63	332	15	4	13	138
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.00	0.03	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.84	14.77	10.38	13.14	13.28	8.64	7.63	0.00	0.00	7.98	0.00	0.00
Movement LOS	B	B	B	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.08	0.08	0.08	0.11	0.11	0.11	1.19	1.19	1.19	0.04	0.04	0.00
95th-Percentile Queue Length [ft]	2.12	2.12	2.12	2.77	2.77	2.77	29.87	29.87	29.87	1.07	1.07	0.00
d_A, Approach Delay [s/veh]	14.29			12.40			1.17			0.21		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.50											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: Edenhurst Avenue (NS) at Colorado Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	18.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.093

Intersection Setup

Name	Edenhurst Avenue			Edenhurst Ave			Colorado Blvd			Colorado Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Edenhurst Avenue			Edenhurst Ave			Colorado Blvd			Colorado Blvd		
Base Volume Input [veh/h]	0	27	2	13	1	4	123	253	9	0	18	258
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	27	2	13	1	4	123	253	9	0	18	258
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	7	1	3	0	1	31	63	2	0	5	65
Total Analysis Volume [veh/h]	0	27	2	13	1	4	123	253	9	0	18	258
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.09	0.00	0.03	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	16.66	18.65	10.86	14.65	14.20	8.73	8.09	0.00	0.00	7.76	0.00	0.00
Movement LOS	C	C	B	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.31	0.31	0.31	0.12	0.12	0.12	1.27	1.27	1.27	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	7.85	7.85	7.85	3.11	3.11	3.11	31.66	31.66	31.66	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	18.11			13.31			2.59			0.00		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	2.49											
Intersection LOS	C											

Existing Plus Project

LA Glendale Water Treatment Plant

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Scenario 2 Existing Plus Project
6/29/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	I-5 Fwy Extn EB Ramps (NS) at Colorado Blvd (EW)	Two-way stop	HCM 2010	SB Left	0.432	11.4	B
2	Edenhurst Avenue (NS) at I-5 FWY Extn WB Ramps (EW)	Two-way stop	HCM 2010	EB Left	0.005	23.2	C
3	Edenhurst Avenue (NS) at Colorado Blvd (EW)	Two-way stop	HCM 2010	NB Thru	0.037	14.9	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

LA Glendale Water Treatment Plant

Vistro File: J:\...\PM.vistro
Report File: J:\...\PMEp.pdf

Scenario 2 Existing Plus Project
6/25/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	I-5 Fwy Extn EB Ramps (NS) at Colorado Blvd (EW)	Two-way stop	HCM 2010	SB Left	0.286	10.7	B
2	Edenhurst Avenue (NS) at I-5 FWY Extn WB Ramps (EW)	Two-way stop	HCM 2010	EB Thru	0.040	12.1	B
3	Edenhurst Avenue (NS) at Colorado Blvd (EW)	Two-way stop	HCM 2010	NB Thru	0.093	18.6	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: I-5 Fwy Extn EB Ramps (NS) at Colorado Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.432

Intersection Setup

Name	Driveway			I-5 Extn EB Ramps			Colorado Blvd			Colorado Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Driveway			I-5 Extn EB Ramps			Colorado Blvd			Colorado Blvd		
Base Volume Input [veh/h]	1	0	2	421	20	18	1	5	0	2	9	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	5	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	0	2	426	20	18	1	5	0	2	9	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	107	5	5	0	1	0	1	2	1
Total Analysis Volume [veh/h]	1	0	2	426	20	18	1	5	0	2	9	4
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.43	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.89	9.16	8.35	11.40	9.29	8.52	7.24	0.00	0.00	7.23	0.00	0.00
Movement LOS	A	A	A	B	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.01	0.01	0.01	2.21	0.12	0.12	0.01	0.01	0.01	0.03	0.03	0.03
95th-Percentile Queue Length [ft]	0.22	0.22	0.22	55.34	3.11	3.11	0.28	0.28	0.28	0.70	0.70	0.70
d_A, Approach Delay [s/veh]	8.53			11.20			1.21			0.96		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	10.75											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 1: I-5 Fwy Extn EB Ramps (NS) at Colorado Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.7
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.286

Intersection Setup

Name	Driveway			I-5 Extn EB Ramps			Colorado Blvd			Colorado Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Driveway			I-5 Extn EB Ramps			Colorado Blvd			Colorado Blvd		
Base Volume Input [veh/h]	0	1	35	252	0	7	2	33	0	2	9	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1	35	252	0	7	2	33	0	2	9	17
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	9	63	0	2	1	8	0	1	2	4
Total Analysis Volume [veh/h]	0	1	35	252	0	7	2	33	0	2	9	17
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.03	0.29	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.02	9.51	8.59	10.73	9.36	8.41	7.27	0.00	0.00	7.28	0.00	0.00
Movement LOS	A	A	A	B	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.11	0.11	0.11	1.19	0.02	0.02	0.07	0.07	0.07	0.05	0.05	0.05
95th-Percentile Queue Length [ft]	2.71	2.71	2.71	29.66	0.50	0.50	1.69	1.69	1.69	1.35	1.35	1.35
d_A, Approach Delay [s/veh]	8.61			10.66			0.42			0.52		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	8.66											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 2: Edenhurst Avenue (NS) at I-5 FWY Extn WB Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	23.2
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Edenhurst Ave						Driveway			I-5 Fwy Extn Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Edenhurst Ave						Driveway			I-5 Fwy Extn Ramps		
Base Volume Input [veh/h]	1	0	2	421	20	18	1	5	0	2	9	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	5	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	0	7	421	20	18	1	5	0	2	9	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	2	105	5	5	0	1	0	1	2	1
Total Analysis Volume [veh/h]	1	0	7	421	20	18	1	5	0	2	9	4
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.02	0.00	0.01	0.04	0.00
d_M, Delay for Movement [s/veh]	7.29	0.00	0.00	8.02	0.00	0.00	23.16	22.71	8.95	22.30	22.88	8.95
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	A
95th-Percentile Queue Length [veh]	0.01	0.01	0.00	1.18	1.18	1.18	0.09	0.09	0.09	0.09	0.15	0.15
95th-Percentile Queue Length [ft]	0.19	0.19	0.10	29.57	29.57	29.57	2.22	2.22	2.22	2.19	3.67	3.67
d_A, Approach Delay [s/veh]	0.91			7.35			22.78			19.09		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	7.80											
Intersection LOS	C											

Intersection Level Of Service Report

Intersection 2: Edenhurst Avenue (NS) at I-5 FWY Extn WB Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.1
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.040

Intersection Setup

Name	Edenhurst Ave						Driveway			I-5 Fwy Extn Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Edenhurst Ave						Driveway			I-5 Fwy Extn Ramps		
Base Volume Input [veh/h]	13	0	376	0	0	0	0	21	7	11	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	0	376	0	0	0	0	21	7	11	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	0	94	0	0	0	0	5	2	3	0	0
Total Analysis Volume [veh/h]	13	0	376	0	0	0	0	21	7	11	0	1
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	7.24	0.00	0.00	8.04	0.00	0.00	0.00	12.06	8.60	10.20	10.37	9.26
Movement LOS	A	A	A	A	A	A		B	A	B	B	A
95th-Percentile Queue Length [veh]	0.94	0.94	0.94	0.00	0.00	0.00	0.00	0.14	0.14	0.03	0.03	0.03
95th-Percentile Queue Length [ft]	23.50	23.50	23.50	0.00	0.00	0.00	0.00	3.61	3.61	0.64	0.63	0.63
d_A, Approach Delay [s/veh]	0.24			2.68			11.20			10.12		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.23											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: Edenhurst Avenue (NS) at Colorado Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	14.9
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.037

Intersection Setup

Name	Edenhurst Avenue			Edenhurst Ave			Colorado Blvd			Colorado Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Edenhurst Avenue			Edenhurst Ave			Colorado Blvd			Colorado Blvd		
Base Volume Input [veh/h]	1	9	1	14	1	3	63	332	15	4	13	138
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	0	0	0	0	0	5	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	14	1	14	1	3	63	332	20	4	13	138
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	0	4	0	1	16	83	5	1	3	35
Total Analysis Volume [veh/h]	1	14	1	14	1	3	63	332	20	4	13	138
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.04	0.00	0.03	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.01	14.94	10.53	13.30	13.35	8.65	7.63	0.00	0.00	7.99	0.00	0.00
Movement LOS	B	B	B	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.13	0.13	0.13	0.11	0.11	0.11	1.21	1.21	1.21	0.04	0.04	0.00
95th-Percentile Queue Length [ft]	3.19	3.19	3.19	2.82	2.82	2.82	30.37	30.37	30.37	1.07	1.07	0.00
d_A, Approach Delay [s/veh]	14.61			12.52			1.16			0.21		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.61											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: Edenhurst Avenue (NS) at Colorado Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	18.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.093

Intersection Setup

Name	Edenhurst Avenue			Edenhurst Ave			Colorado Blvd			Colorado Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Edenhurst Avenue			Edenhurst Ave			Colorado Blvd			Colorado Blvd		
Base Volume Input [veh/h]	0	27	2	13	1	4	123	253	9	0	18	258
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	27	2	13	1	4	123	253	9	0	18	258
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	7	1	3	0	1	31	63	2	0	5	65
Total Analysis Volume [veh/h]	0	27	2	13	1	4	123	253	9	0	18	258
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.09	0.00	0.03	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	16.66	18.65	10.86	14.65	14.20	8.73	8.09	0.00	0.00	7.76	0.00	0.00
Movement LOS	C	C	B	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.31	0.31	0.31	0.12	0.12	0.12	1.27	1.27	1.27	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	7.85	7.85	7.85	3.11	3.11	3.11	31.66	31.66	31.66	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	18.11			13.31			2.59			0.00		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	2.49											
Intersection LOS	C											

Construction Year (2021) Without Project

LA Glendale Water Treatment Plant

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Report File: J:\...\AMOY.pdf

Scenario 3 Opening Year (2021)
6/29/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	I-5 Fwy Extn EB Ramps (NS) at Colorado Blvd (EW)	Two-way stop	HCM 2010	SB Left	0.485	12.1	B
2	Edenhurst Avenue (NS) at I-5 FWY Extn WB Ramps (EW)	Two-way stop	HCM 2010	EB Left	0.005	23.5	C
3	Edenhurst Avenue (NS) at Colorado Blvd (EW)	Two-way stop	HCM 2010	NB Thru	0.026	15.9	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

LA Glendale Water Treatment Plant

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Scenario 3 Opening Year (2021)
6/25/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	I-5 Fwy Extn EB Ramps (NS) at Colorado Blvd (EW)	Two-way stop	HCM 2010	SB Left	0.304	10.9	B
2	Edenhurst Avenue (NS) at I-5 FWY Extn WB Ramps (EW)	Two-way stop	HCM 2010	EB Thru	0.041	12.4	B
3	Edenhurst Avenue (NS) at Colorado Blvd (EW)	Two-way stop	HCM 2010	NB Thru	0.100	19.7	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: I-5 Fwy Extn EB Ramps (NS) at Colorado Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.1
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.485

Intersection Setup

Name	Driveway			I-5 Fwy Ext Ramps			Colorado Blvd			Colorado Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Driveway			I-5 Fwy Ext Ramps			Colorado Blvd			Colorado Blvd		
Base Volume Input [veh/h]	1	0	2	421	20	18	1	5	0	2	9	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	52	0	0	0	0	0	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	0	2	477	20	18	1	5	0	2	9	7
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	119	5	5	0	1	0	1	2	2
Total Analysis Volume [veh/h]	1	0	2	477	20	18	1	5	0	2	9	7
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.49	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.90	9.17	8.35	12.06	9.30	8.53	7.25	0.00	0.00	7.23	0.00	0.00
Movement LOS	A	A	A	B	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.01	0.01	0.01	2.71	0.12	0.12	0.01	0.01	0.01	0.03	0.03	0.03
95th-Percentile Queue Length [ft]	0.22	0.22	0.22	67.75	3.11	3.11	0.28	0.28	0.28	0.84	0.84	0.84
d_A, Approach Delay [s/veh]	8.53			11.83			1.21			0.80		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	11.33											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 1: I-5 Fwy Extn EB Ramps (NS) at Colorado Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.304

Intersection Setup

Name	Driveway			I-5 Fwy Ext Ramps			Colorado Blvd			Colorado Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Driveway			I-5 Fwy Ext Ramps			Colorado Blvd			Colorado Blvd		
Base Volume Input [veh/h]	0	1	35	252	0	7	2	33	0	2	9	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	11	0	0	0	0	0	0	0	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1	35	266	0	7	2	33	0	2	9	22
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	9	67	0	2	1	8	0	1	2	6
Total Analysis Volume [veh/h]	0	1	35	266	0	7	2	33	0	2	9	22
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.03	0.30	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.03	9.54	8.59	10.89	9.37	8.43	7.28	0.00	0.00	7.28	0.00	0.00
Movement LOS	A	A	A	B	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.11	0.11	0.11	1.29	0.02	0.02	0.07	0.07	0.07	0.06	0.06	0.06
95th-Percentile Queue Length [ft]	2.71	2.71	2.71	32.14	0.50	0.50	1.70	1.70	1.70	1.60	1.60	1.60
d_A, Approach Delay [s/veh]	8.61			10.82			0.42			0.44		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	8.74											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 2: Edenhurst Avenue (NS) at I-5 FWY Extn WB Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	23.5
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Edenhurst Ave						Driveway			I-5 Fwy Extn Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Edenhurst Ave						Driveway			I-5 Fwy Extn Ramps		
Base Volume Input [veh/h]	1	0	2	421	20	18	1	5	0	2	9	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	22	0	0	0	0	0	0	7	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	0	24	421	20	18	1	5	0	9	9	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	6	105	5	5	0	1	0	2	2	1
Total Analysis Volume [veh/h]	1	0	24	421	20	18	1	5	0	9	9	4
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.02	0.00	0.04	0.04	0.00
d_M, Delay for Movement [s/veh]	7.29	0.00	0.00	8.08	0.00	0.00	23.49	23.23	8.98	22.98	22.97	8.96
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	A
95th-Percentile Queue Length [veh]	0.02	0.02	0.01	1.21	1.21	1.21	0.09	0.09	0.09	0.14	0.15	0.15
95th-Percentile Queue Length [ft]	0.60	0.60	0.30	30.16	30.16	30.16	2.28	2.28	2.28	3.52	3.68	3.68
d_A, Approach Delay [s/veh]	0.29			7.41			23.27			20.43		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	7.80											
Intersection LOS	C											

Intersection Level Of Service Report

Intersection 2: Edenhurst Avenue (NS) at I-5 FWY Extn WB Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.041

Intersection Setup

Name	Edenhurst Ave						Driveway			I-5 Fwy Extn Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Edenhurst Ave						Driveway			I-5 Fwy Extn Ramps		
Base Volume Input [veh/h]	13	0	376	0	0	0	0	21	7	11	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	32	0	0	0	0	0	0	2	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	0	408	0	0	0	0	21	7	13	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	0	102	0	0	0	0	5	2	3	0	0
Total Analysis Volume [veh/h]	13	0	408	0	0	0	0	21	7	13	0	1
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	7.24	0.00	0.00	8.13	0.00	0.00	0.00	12.37	8.62	10.34	10.49	9.35
Movement LOS	A	A	A	A	A	A		B	A	B	B	A
95th-Percentile Queue Length [veh]	1.04	1.04	1.04	0.00	0.00	0.00	0.00	0.15	0.15	0.03	0.03	0.03
95th-Percentile Queue Length [ft]	26.09	26.09	26.09	0.00	0.00	0.00	0.00	3.75	3.75	0.77	0.76	0.76
d_A, Approach Delay [s/veh]	0.22			2.71			11.44			10.27		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.21											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: Edenhurst Avenue (NS) at Colorado Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	15.9
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.026

Intersection Setup

Name	Edenhurst Avenue			Edenhurst Ave			Colorado Blvd			Colorado Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Edenhurst Avenue			Edenhurst Ave			Colorado Blvd			Colorado Blvd		
Base Volume Input [veh/h]	1	9	1	14	1	3	63	332	15	4	13	138
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	7	0	0	0	52	0	0	3	22
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	9	1	21	1	3	63	384	15	4	16	160
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	0	5	0	1	16	96	4	1	4	40
Total Analysis Volume [veh/h]	1	9	1	21	1	3	63	384	15	4	16	160
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.00	0.05	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.85	15.89	10.79	14.08	14.12	8.85	7.69	0.00	0.00	8.12	0.00	0.00
Movement LOS	B	C	B	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.09	0.09	0.09	0.18	0.18	0.18	1.46	1.46	1.46	0.05	0.05	0.00
95th-Percentile Queue Length [ft]	2.36	2.36	2.36	4.39	4.39	4.39	36.48	36.48	36.48	1.32	1.32	0.00
d_A, Approach Delay [s/veh]	15.33			13.46			1.05			0.18		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	1.51											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 3: Edenhurst Avenue (NS) at Colorado Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	19.7
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.100

Intersection Setup

Name	Edenhurst Avenue			Edenhurst Ave			Colorado Blvd			Colorado Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Edenhurst Avenue			Edenhurst Ave			Colorado Blvd			Colorado Blvd		
Base Volume Input [veh/h]	0	27	2	13	1	4	123	253	9	0	18	258
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	2	0	0	0	11	0	0	5	32
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	27	2	15	1	4	123	264	9	0	23	290
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	7	1	4	0	1	31	66	2	0	6	73
Total Analysis Volume [veh/h]	0	27	2	15	1	4	123	264	9	0	23	290
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.10	0.00	0.04	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	17.42	19.73	11.11	15.05	14.51	8.82	8.20	0.00	0.00	7.79	0.00	0.00
Movement LOS	C	C	B	C	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.34	0.34	0.34	0.15	0.15	0.15	1.38	1.38	1.38	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	8.45	8.45	8.45	3.65	3.65	3.65	34.44	34.44	34.44	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	19.13			13.77			2.55			0.00		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	2.43											
Intersection LOS	C											

Construction Year (2021) With Project

LA Glendale Water Treatment Plant

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Scenario 4 Opening Year (2021) With Project
6/29/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	I-5 Fwy Extn EB Ramps (NS) at Colorado Blvd (EW)	Two-way stop	HCM 2010	SB Left	0.490	12.1	B
2	Edenhurst Avenue (NS) at I-5 FWY Extn WB Ramps (EW)	Two-way stop	HCM 2010	EB Left	0.005	23.6	C
3	Edenhurst Avenue (NS) at Colorado Blvd (EW)	Two-way stop	HCM 2010	NB Thru	0.041	16.1	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

LA Glendale Water Treatment Plant

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Scenario 4 Opening Year (2021) With Project
6/25/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	I-5 Fwy Extn EB Ramps (NS) at Colorado Blvd (EW)	Two-way stop	HCM 2010	SB Left	0.304	10.9	B
2	Edenhurst Avenue (NS) at I-5 FWY Extn WB Ramps (EW)	Two-way stop	HCM 2010	EB Thru	0.041	12.4	B
3	Edenhurst Avenue (NS) at Colorado Blvd (EW)	Two-way stop	HCM 2010	NB Thru	0.100	19.7	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: I-5 Fwy Extn EB Ramps (NS) at Colorado Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.1
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.490

Intersection Setup

Name	Driveway			I-5 Fwy Ext Ramps			Colorado Blvd			Colorado Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Driveway			I-5 Fwy Ext Ramps			Colorado Blvd			Colorado Blvd		
Base Volume Input [veh/h]	1	0	2	421	20	18	1	5	0	2	9	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	57	0	0	0	0	0	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	0	2	482	20	18	1	5	0	2	9	7
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	121	5	5	0	1	0	1	2	2
Total Analysis Volume [veh/h]	1	0	2	482	20	18	1	5	0	2	9	7
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.49	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.90	9.17	8.35	12.13	9.30	8.53	7.25	0.00	0.00	7.23	0.00	0.00
Movement LOS	A	A	A	B	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.01	0.01	0.01	2.76	0.12	0.12	0.01	0.01	0.01	0.03	0.03	0.03
95th-Percentile Queue Length [ft]	0.22	0.22	0.22	69.06	3.11	3.11	0.28	0.28	0.28	0.84	0.84	0.84
d_A, Approach Delay [s/veh]	8.53			11.89			1.21			0.80		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	11.39											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 1: I-5 Fwy Extn EB Ramps (NS) at Colorado Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.304

Intersection Setup

Name	Driveway			I-5 Fwy Ext Ramps			Colorado Blvd			Colorado Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Driveway			I-5 Fwy Ext Ramps			Colorado Blvd			Colorado Blvd		
Base Volume Input [veh/h]	0	1	35	252	0	7	2	33	0	2	9	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	11	0	0	0	0	0	0	0	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1	35	266	0	7	2	33	0	2	9	22
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	9	67	0	2	1	8	0	1	2	6
Total Analysis Volume [veh/h]	0	1	35	266	0	7	2	33	0	2	9	22
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.03	0.30	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.03	9.54	8.59	10.89	9.37	8.43	7.28	0.00	0.00	7.28	0.00	0.00
Movement LOS	A	A	A	B	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.11	0.11	0.11	1.29	0.02	0.02	0.07	0.07	0.07	0.06	0.06	0.06
95th-Percentile Queue Length [ft]	2.71	2.71	2.71	32.14	0.50	0.50	1.70	1.70	1.70	1.60	1.60	1.60
d_A, Approach Delay [s/veh]	8.61			10.82			0.42			0.44		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	8.74											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 2: Edenhurst Avenue (NS) at I-5 FWY Extn WB Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	23.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Edenhurst Ave						Driveway			I-5 Fwy Extn Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Edenhurst Ave						Driveway			I-5 Fwy Extn Ramps		
Base Volume Input [veh/h]	1	0	2	421	20	18	1	5	0	2	9	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	27	0	0	0	0	0	0	7	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	0	29	421	20	18	1	5	0	9	9	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	7	105	5	5	0	1	0	2	2	1
Total Analysis Volume [veh/h]	1	0	29	421	20	18	1	5	0	9	9	4
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.27	0.00	0.00	0.01	0.02	0.00	0.04	0.04	0.00
d_M, Delay for Movement [s/veh]	7.29	0.00	0.00	8.09	0.00	0.00	23.59	23.38	8.99	23.00	23.00	8.96
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	A
95th-Percentile Queue Length [veh]	0.03	0.03	0.01	1.21	1.21	1.21	0.09	0.09	0.09	0.14	0.15	0.15
95th-Percentile Queue Length [ft]	0.72	0.72	0.36	30.33	30.33	30.33	2.29	2.29	2.29	3.52	3.69	3.69
d_A, Approach Delay [s/veh]	0.24			7.42			23.42			20.45		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	7.75											
Intersection LOS	C											

Intersection Level Of Service Report

Intersection 2: Edenhurst Avenue (NS) at I-5 FWY Extn WB Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.041

Intersection Setup

Name	Edenhurst Ave						Driveway			I-5 Fwy Extn Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Edenhurst Ave						Driveway			I-5 Fwy Extn Ramps		
Base Volume Input [veh/h]	13	0	376	0	0	0	0	21	7	11	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	32	0	0	0	0	0	0	2	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	0	408	0	0	0	0	21	7	13	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	0	102	0	0	0	0	5	2	3	0	0
Total Analysis Volume [veh/h]	13	0	408	0	0	0	0	21	7	13	0	1
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	7.24	0.00	0.00	8.13	0.00	0.00	0.00	12.37	8.62	10.34	10.49	9.35
Movement LOS	A	A	A	A	A	A		B	A	B	B	A
95th-Percentile Queue Length [veh]	1.04	1.04	1.04	0.00	0.00	0.00	0.00	0.15	0.15	0.03	0.03	0.03
95th-Percentile Queue Length [ft]	26.09	26.09	26.09	0.00	0.00	0.00	0.00	3.75	3.75	0.77	0.76	0.76
d_A, Approach Delay [s/veh]	0.22			2.71			11.44			10.27		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.21											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: Edenhurst Avenue (NS) at Colorado Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	16.1
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.041

Intersection Setup

Name	Edenhurst Avenue			Edenhurst Ave			Colorado Blvd			Colorado Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Edenhurst Avenue			Edenhurst Ave			Colorado Blvd			Colorado Blvd		
Base Volume Input [veh/h]	1	9	1	14	1	3	63	332	15	4	13	138
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	7	0	0	0	52	5	0	3	22
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	14	1	21	1	3	63	384	20	4	16	160
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	0	5	0	1	16	96	5	1	4	40
Total Analysis Volume [veh/h]	1	14	1	21	1	3	63	384	20	4	16	160
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.04	0.00	0.05	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	15.05	16.10	10.98	14.27	14.19	8.87	7.69	0.00	0.00	8.13	0.00	0.00
Movement LOS	C	C	B	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.14	0.14	0.14	0.18	0.18	0.18	1.48	1.48	1.48	0.05	0.05	0.00
95th-Percentile Queue Length [ft]	3.56	3.56	3.56	4.47	4.47	4.47	37.06	37.06	37.06	1.32	1.32	0.00
d_A, Approach Delay [s/veh]	15.71			13.62			1.04			0.18		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	1.61											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 3: Edenhurst Avenue (NS) at Colorado Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	19.7
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.100

Intersection Setup

Name	Edenhurst Avenue			Edenhurst Ave			Colorado Blvd			Colorado Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Edenhurst Avenue			Edenhurst Ave			Colorado Blvd			Colorado Blvd		
Base Volume Input [veh/h]	0	27	2	13	1	4	123	253	9	0	18	258
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	2	0	0	0	11	0	0	5	32
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	27	2	15	1	4	123	264	9	0	23	290
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	7	1	4	0	1	31	66	2	0	6	73
Total Analysis Volume [veh/h]	0	27	2	15	1	4	123	264	9	0	23	290
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.10	0.00	0.04	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	17.42	19.73	11.11	15.05	14.51	8.82	8.20	0.00	0.00	7.79	0.00	0.00
Movement LOS	C	C	B	C	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.34	0.34	0.34	0.15	0.15	0.15	1.38	1.38	1.38	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	8.45	8.45	8.45	3.65	3.65	3.65	34.44	34.44	34.44	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	19.13			13.77			2.55			0.00		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	2.43											
Intersection LOS	C											

LADOT CMP Worksheets

Level of Service Workheet
(Circular 212 Method)

I/S #	North-South Street		Year of Count		Ambient Growth (%)		Conducted by		Date	
1	East-West Street	Colorado Blvd	Projection Year		Peak Hour		Reviewed by		Project	

	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
MOVEMENT	Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND																		
Left	1	0	1	0	1	1	0	1	0	1	0	1	0	1	0	1	0	1
Left-Through		0							0				0				0	
Through	0	0	3	0	0	3	0	0	0	3	0	0	0	3	0	0	0	3
Through-Right		0							0				0				0	
Right	2	0	0	0	2	0	0	2	0	0	0	2	0	0	0	2	0	0
Left-Through-Right		1							1				1				1	
Left-Right		0							0				0				0	
SOUTHBOUND																		
Left	421	1	421	5	426	426	52	490	1	490	5	495	1	495	0	495	1	495
Left-Through		0							0				0				0	
Through	20	0	38	0	20	38	0	21	0	40	0	21	0	40	0	21	0	40
Through-Right		1							1				1				1	
Right	18	0	0	0	18	0	0	19	0	0	0	19	0	0	0	19	0	0
Left-Through-Right		0							0				0				0	
Left-Right		0							0				0				0	
EASTBOUND																		
Left	1	0	1	0	1	1	0	1	0	1	0	1	0	1	0	1	0	1
Left-Through		0							0				0				0	
Through	5	0	6	0	5	6	0	5	0	6	0	5	0	6	0	5	0	6
Through-Right		0							0				0				0	
Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Left-Through-Right		1							1				1				1	
Left-Right		0							0				0				0	
WESTBOUND																		
Left	2	0	2	0	2	2	0	2	0	2	0	2	0	2	0	2	0	2
Left-Through		1							1				1				1	
Through	9	0	11	0	9	11	0	9	0	11	0	9	0	11	0	9	0	11
Through-Right		0							0				0				0	
Right	4	1	0	0	4	0	3	7	1	0	0	7	1	0	0	7	1	0
Left-Through-Right		0							0				0				0	
Left-Right		0							0				0				0	
CRITICAL VOLUMES	North-South:		424	North-South:		429	North-South:			493	North-South:			498	North-South:			498
	East-West:		12	East-West:		12	East-West:			12	East-West:			12	East-West:			12
	SUM:		436	SUM:		441	SUM:			505	SUM:			510	SUM:			510
VOLUME/CAPACITY (V/C) RATIO:			0.306			0.309				0.354				0.358				0.358
V/C LESS ATSAC/ATCS ADJUSTMENT:			0.236			0.239				0.284				0.288				0.288
LEVEL OF SERVICE (LOS):			A			A				A				A				A

	NB	SB	EB	WB
No. of Phases	3	3	3	3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	0	0	0	0
ATSAC-1 or ATSAC+ATCS-2?	0	0	0	0
Override Capacity	1	1	1	1

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.004	Δ*v/c* after mitigation:	0.004
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Workheet
(Circular 212 Method)

I/S #:	North-South Street:	Edenhurst Ave	Year of Count:	2017	Ambient Growth: (%):	1	Conducted by:	PDI	Date:	06.26.2017
2	East-West Street:	I-5 EXTN WB Ramps	Projection Year:	2021	Peak Hour:	AM	Reviewed by:	GG	Project:	LAGWRP Equalization

	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
No. of Phases			3			3			3				3				3	
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			0			0			0				0				0	
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	0	NB-- 0	SB--	0	NB-- 0	SB--	0		NB-- 0	SB--	0		NB-- 0	SB--	0	
	EB-- 0	WB--	0	EB-- 0	WB--	0	EB-- 0	WB--	0		EB-- 0	WB--	0		EB-- 0	WB--	0	
ATSAC-1 or ATSAC+ATCS-2?			1			1			1				1				1	
Override Capacity																		

	MOVEMENT	Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	42	0	42	0	42	42	0	44	0	44	0	44	0	44	0	44	0	44
	Left-Through		0							0				0				0	
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Through-Right		0							0				0				0	
	Right	169	1	102	5	174	104	22	198	1	115	5	203	1	118	0	203	1	118
	Left-Through-Right		0							0				0				0	
	Left-Right		1							1				1				1	
SOUTHBOUND	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Left-Through		0							0				0				0	
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Through-Right		0							0				0				0	
	Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Left-Through		0							0				0				0	
	Through	7	0	11	0	7	11	0	7	0	11	0	7	0	11	0	7	0	11
	Through-Right		1							1				1				1	
	Right	4	0	0	0	4	0	0	4	0	0	0	4	0	0	0	4	0	0
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	17	1	9	0	17	9	7	25	1	13	0	25	1	13	0	25	1	13
	Left-Through		1							1				1				1	
	Through	0	0	9	0	0	9	0	0	0	13	0	0	0	13	0	0	0	13
	Through-Right		0							0				0				0	
	Right	4	0	0	0	4	0	0	4	0	0	0	4	0	0	0	4	0	0
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
CRITICAL VOLUMES		North-South:		102	North-South:		104	North-South:			115	North-South:			118	North-South:			118
		East-West:		20	East-West:		20	East-West:			24	East-West:			24	East-West:			24
		SUM:		122	SUM:		124	SUM:			139	SUM:			142	SUM:			142
VOLUME/CAPACITY (V/C) RATIO:				0.086			0.087				0.098				0.100				0.100
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.056			0.057				0.063				0.065				0.065
LEVEL OF SERVICE (LOS):				A			A				A				A				A

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.002	Δ*v/c* after mitigation:	0.002
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Workheet
(Circular 212 Method)

I/S #:	North-South Street:	Edenhurst Ave	Year of Count:	2017	Ambient Growth: (%):	1	Conducted by:	PDI	Date:	06.26.2017
3	East-West Street:	Colorado Blvd	Projection Year:	2021	Peak Hour:	AM	Reviewed by:	GG	Project:	LAGWRP Equalization

	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
No. of Phases			3			3				3				3				3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			0			0				0				0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	0	NB-- 0	SB--	0	NB-- 0	SB--		0	NB-- 0	SB--		0	NB-- 0	SB--		0
	EB-- 0	WB--	0	EB-- 0	WB--	0	EB-- 0	WB--		0	EB-- 0	WB--		0	EB-- 0	WB--		0
ATSAC-1 or ATSAC+ATCS-2?			1			1				1				1				1
Override Capacity																		

MOVEMENT		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	1	0	1	0	1	1	0	1	0	1	0	1	0	1	0	1	0	1
	Left-Through		0							0				0				0	
	Through	9	0	11	5	14	16	0	9	0	11	5	14	0	16	0	14	0	16
	Through-Right		0							0				0				0	
	Right	1	0	0	0	1	0	0	1	0	0	0	1	0	0	0	1	0	0
	Left-Through-Right		1							1				1				1	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	14	0	14	0	14	14	7	22	0	22	0	22	0	22	0	22	0	22
	Left-Through		1							1				1				1	
	Through	1	0	15	0	1	15	0	1	0	23	0	1	0	23	0	1	0	23
	Through-Right		0							0				0				0	
	Right	3	1	3	0	3	3	0	3	1	3	0	3	1	3	0	3	1	3
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	63	0	63	0	63	63	0	66	0	66	0	66	0	66	0	66	0	66
	Left-Through		0							0				0				0	
	Through	332	0	410	0	332	415	52	397	0	479	0	397	0	484	0	397	0	484
	Through-Right		0							0				0				0	
	Right	15	0	0	5	20	0	0	16	0	0	5	21	0	0	0	21	0	0
	Left-Through-Right		1							1				1				1	
	Left-Right		0							0				0				0	
WESTBOUND	Left	4	0	4	0	4	4	0	4	0	4	0	4	0	4	0	4	0	4
	Left-Through		1							1				1				1	
	Through	13	0	17	0	13	17	3	17	0	21	0	17	0	21	0	17	0	21
	Through-Right		0							0				0				0	
	Right	138	1	138	0	138	138	22	166	1	166	0	166	1	166	0	166	1	166
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
CRITICAL VOLUMES		North-South:		25	North-South:		30	North-South:			33	North-South:			38	North-South:			38
		East-West:		414	East-West:		419	East-West:			483	East-West:			488	East-West:			488
		SUM:		439	SUM:		449	SUM:			516	SUM:			526	SUM:			526
VOLUME/CAPACITY (V/C) RATIO:				0.308			0.315				0.362				0.369				0.369
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.238			0.245				0.292				0.299				0.299
LEVEL OF SERVICE (LOS):				A			A				A				A				A

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.007	Δ*v/c* after mitigation:	0.007
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Workheet
(Circular 212 Method)

I/S #:	North-South Street:	I-5 EXTN EB Ramps	Year of Count:	2017	Ambient Growth: (%):	1	Conducted by:	PDI	Date:	06.26.2017
1	East-West Street:	Colorado Blvd	Projection Year:	2021	Peak Hour:	PM	Reviewed by:	GG	Project:	LAGWRP Equalization

	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
No. of Phases			3			3			3				3				3	
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			0			0			0				0				0	
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	0	NB-- 0	SB--	0	NB-- 0	SB--	0		NB-- 0	SB--	0		NB-- 0	SB--	0	
	EB-- 0	WB--	0	EB-- 0	WB--	0	EB-- 0	WB--	0		EB-- 0	WB--	0		EB-- 0	WB--	0	
ATSAC-1 or ATSAC+ATCS-2?			1			1			1				1				1	
Override Capacity																		

	MOVEMENT	Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Left-Through		0							0				0				0	
	Through	1	0	36	0	1	36	0	1	0	37	0	1	0	37	0	1	0	37
	Through-Right		0							0				0				0	
	Right	35	0	0	0	35	0	0	36	0	0	0	36	0	0	0	36	0	0
	Left-Through-Right		1							1				1				1	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	252	1	252	0	252	252	11	273	1	273	0	273	1	273	0	273	1	273
	Left-Through		0							0				0				0	
	Through	0	0	7	0	0	7	0	0	0	7	0	0	0	7	0	0	0	7
	Through-Right		1							1				1				1	
	Right	7	0	0	0	7	0	0	7	0	0	0	7	0	0	0	7	0	0
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	2	0	2	0	2	2	0	2	0	2	0	2	0	2	0	2	0	2
	Left-Through		0							0				0				0	
	Through	33	0	35	0	33	35	0	34	0	36	0	34	0	36		34	0	36
	Through-Right		0							0				0				0	
	Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Left-Through-Right		1							1				1				1	
	Left-Right		0							0				0				0	
WESTBOUND	Left	2	0	2	0	2	2	0	2	0	2	0	2	0	2	0	2	0	2
	Left-Through		1							1				1				1	
	Through	9	0	11	0	9	11	0	9	0	11	0	9	0	11		9	0	11
	Through-Right		0							0				0				0	
	Right	17	1	0	0	17	0	5	23	1	0	0	23	1	0	0	23	1	0
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
CRITICAL VOLUMES		North-South:		288	North-South:		288	North-South:			310	North-South:			310	North-South:			310
		East-West:		37	East-West:		37	East-West:			38	East-West:			38	East-West:			38
		SUM:		325	SUM:		325	SUM:			348	SUM:			348	SUM:			348
VOLUME/CAPACITY (V/C) RATIO:				0.228			0.228				0.244				0.244				0.244
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.128			0.128				0.144				0.144				0.144
LEVEL OF SERVICE (LOS):				A			A				A				A				A

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	Δ*v/c* after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Workheet
(Circular 212 Method)

I/S #:	North-South Street:	Edenhurst Ave	Year of Count:	2017	Ambient Growth: (%):	1	Conducted by:	PDI	Date:	06.26.2017
2	East-West Street:	I-5 EXTN WB Ramps	Projection Year:	2021	Peak Hour:	PM	Reviewed by:	GG	Project:	LAGWRP Equalization

	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
No. of Phases			3			3				3				3				3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			0			0				0				0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	0	NB-- 0	SB--	0	NB--	0	SB--	0	NB--	0	SB--	0	NB--	0	SB--	0
	EB-- 0	WB--	0	EB-- 0	WB--	0	EB--	0	WB--	0	EB--	0	WB--	0	EB--	0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?			2			2				2				2				2
Override Capacity			1069			1069				1069				1069				1069

MOVEMENT		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	13	0	13	0	13	13	0	14	0	14	0	14	0	14	0	14	0	14
	Left-Through		0							0				0				0	
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Through-Right		0							0				0				0	
	Right	376	1	192	0	376	192	32	423	1	216	0	423	1	216	0	423	1	216
	Left-Through-Right		0							0				0				0	
	Left-Right		1							1				1				1	
SOUTHBOUND	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Left-Through		0							0				0				0	
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Through-Right		0							0				0				0	
	Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Left-Through		0							0				0				0	
	Through	21	0	28	0	21	28	0	22	0	29	0	22	0	29		22	0	29
	Through-Right		1							1				1				1	
	Right	7	0	0	0	7	0	0	7	0	0	0	7	0	0	0	7	0	0
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	11	1	6	0	11	6	2	13	1	7	0	13	1	7	0	13	1	7
	Left-Through		1							1				1				1	
	Through	0	0	6	0	0	6	0	0	0	7	0	0	0	7		0	0	7
	Through-Right		0							0				0				0	
	Right	1	0	0	0	1	0	0	1	0	0	0	1	0	0	0	1	0	0
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
CRITICAL VOLUMES			North-South:	192		North-South:	192		North-South:		216		North-South:		216		North-South:		216
			East-West:	34		East-West:	34		East-West:		36		East-West:		36		East-West:		36
			SUM:	226		SUM:	226		SUM:		252		SUM:		252		SUM:		252
VOLUME/CAPACITY (V/C) RATIO:				0.159			0.159				0.177				0.177				0.177
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.079			0.079				0.088				0.088				0.088
LEVEL OF SERVICE (LOS):				A			A				A				A				A

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project: 0.000 | *Δv/c* after mitigation: 0.000

Significant impacted? NO | Fully mitigated? N/A

Level of Service Workheet
(Circular 212 Method)

I/S #:	North-South Street:	Edenhurst Ave	Year of Count:	2017	Ambient Growth: (%):	1	Conducted by:	PDI	Date:	06.26.2017
3	East-West Street:	Colorado Blvd	Projection Year:	2021	Peak Hour:	PM	Reviewed by:	GG	Project:	LAGWRP Equalization

	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
No. of Phases			3			3				3				3				3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			0			0				0				0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	0	NB-- 0	SB--	0	NB--	0	SB--	0	NB--	0	SB--	0	NB--	0	SB--	0
	EB-- 0	WB--	0	EB-- 0	WB--	0	EB--	0	WB--	0	EB--	0	WB--	0	EB--	0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?			2			2				2				2				2
Override Capacity			1069			1069				1069				1069				1069

MOVEMENT		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Left-Through		0							0				0				0	
	Through	27	0	29	0	27	29	0	28	0	30	0	28	0	30	0	28	0	30
	Through-Right		0							0				0				0	
	Right	2	0	0	0	2	0	0	2	0	0	0	2	0	0	0	2	0	0
	Left-Through-Right		1							1				1				1	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	13	0	13	0	13	13	2	16	0	16	0	16	0	16	0	16	0	16
	Left-Through		1							1				1				1	
	Through	1	0	14	0	1	14	0	1	0	17	0	1	0	17	0	1	0	17
	Through-Right		0							0				0				0	
	Right	4	1	4	0	4	4	0	4	1	4	0	4	1	4	0	4	1	4
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	123	0	123	0	123	123	0	128	0	128	0	128	0	128	0	128	0	128
	Left-Through		0							0				0				0	
	Through	253	0	385	0	253	385	11	274	0	411	0	274	0	411		274	0	411
	Through-Right		0							0				0				0	
	Right	9	0	0	0	9	0	0	9	0	0	0	9	0	0	0	9	0	0
	Left-Through-Right		1							1				1				1	
	Left-Right		0							0				0				0	
WESTBOUND	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Left-Through		1							1				1				1	
	Through	18	0	18	0	18	18	5	24	0	24	0	24	0	24		24	0	24
	Through-Right		0							0				0				0	
	Right	258	1	258	0	258	258	32	300	1	300	0	300	1	300	0	300	1	300
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
CRITICAL VOLUMES		North-South:		42	North-South:		42	North-South:			46	North-South:			46	North-South:			46
		East-West:		385	East-West:		385	East-West:			428	East-West:			428	East-West:			428
		SUM:		427	SUM:		427	SUM:			474	SUM:			474	SUM:			474
VOLUME/CAPACITY (V/C) RATIO:				0.300			0.300				0.333				0.333				0.333
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.200			0.200				0.233				0.233				0.233
LEVEL OF SERVICE (LOS):				A			A				A				A				A

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	Δ*v/c* after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

APPENDIX E

Congestion Management Program Data

Los Angeles County
Metropolitan Transportation Authority

2010 CONGESTION MANAGEMENT PROGRAM





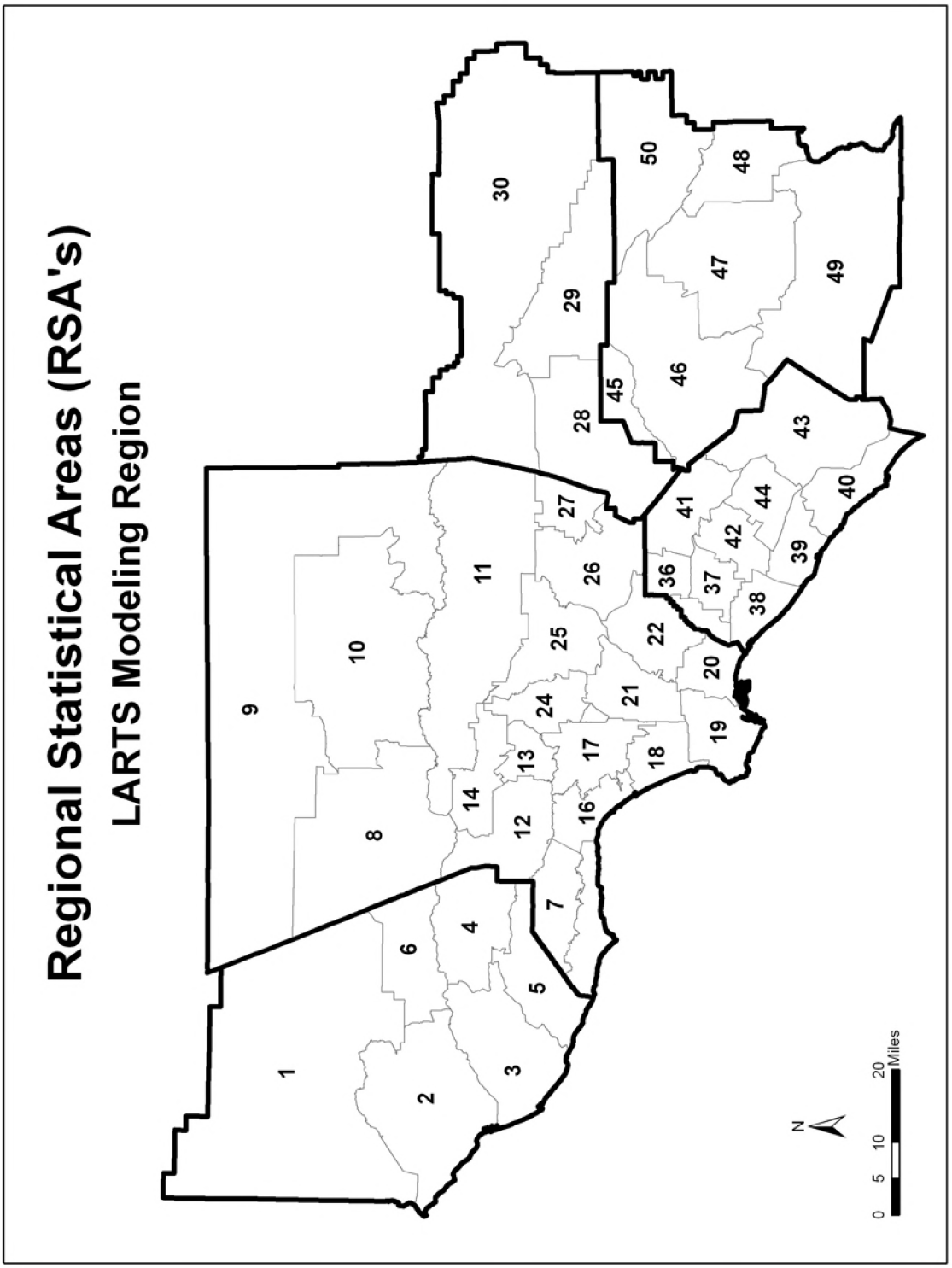




Exhibit D-1

GENERAL TRAFFIC VOLUME GROWTH FACTORS

RSA	Representative City/Place	2010	2015	2020	2025	2030	2035
7	Agoura Hills	1.000	1.020	1.041	1.052	1.063	1.075
8	Santa Clarita	1.000	1.145	1.291	1.348	1.405	1.461
9	Lancaster	1.000	1.214	1.427	1.676	1.924	2.172
10	Palmdale	1.000	1.134	1.267	1.363	1.458	1.553
11	Angeles Forest	1.000	1.151	1.301	1.394	1.487	1.580
12	West S.F. Valley	1.000	1.027	1.054	1.068	1.083	1.097
13	Burbank	1.000	1.024	1.049	1.063	1.077	1.092
14	Sylmar	1.000	1.024	1.049	1.071	1.093	1.114
15	Malibu	1.000	1.027	1.054	1.075	1.096	1.117
16	Santa Monica	1.000	1.014	1.028	1.038	1.049	1.059
17	West/Central L.A.	1.000	1.007	1.014	1.024	1.034	1.044
18	South Bay/LAX	1.000	1.013	1.026	1.035	1.044	1.053
19	Palos Verdes	1.000	1.025	1.051	1.061	1.071	1.081
20	Long Beach	1.000	1.076	1.152	1.160	1.168	1.177
21	Vernon	1.000	1.073	1.146	1.158	1.170	1.182
22	Downey	1.000	1.052	1.104	1.116	1.127	1.139
23	Downtown L.A.	1.000	1.009	1.018	1.030	1.042	1.054
24	Glendale	1.000	1.014	1.027	1.041	1.055	1.068
25	Pasadena	1.000	1.041	1.082	1.098	1.115	1.131
26	West Covina	1.000	1.023	1.046	1.066	1.086	1.106
27	Pomona	1.000	1.081	1.161	1.190	1.219	1.248


Regional Statistical Areas (RSA's)
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APPENDIX F

Other Development Information

CLATS

Welcome **eileen**! | Log Out | Profile | Admin

RELATED PROJECTS

Centroid Info:
PROJ ID: 31849
Address: 4600 Colorado Bl
LOS ANGELES, CA
Lat/Long: 34.1389, -118.274

Buffer Radius: 1.5 mile

Search

Column

Include NULL "Trip info":
Include NULL "FirstStudySubmittalDate" (latest):
Include "Inactive" projects:
Include "Do not show in Related Project":

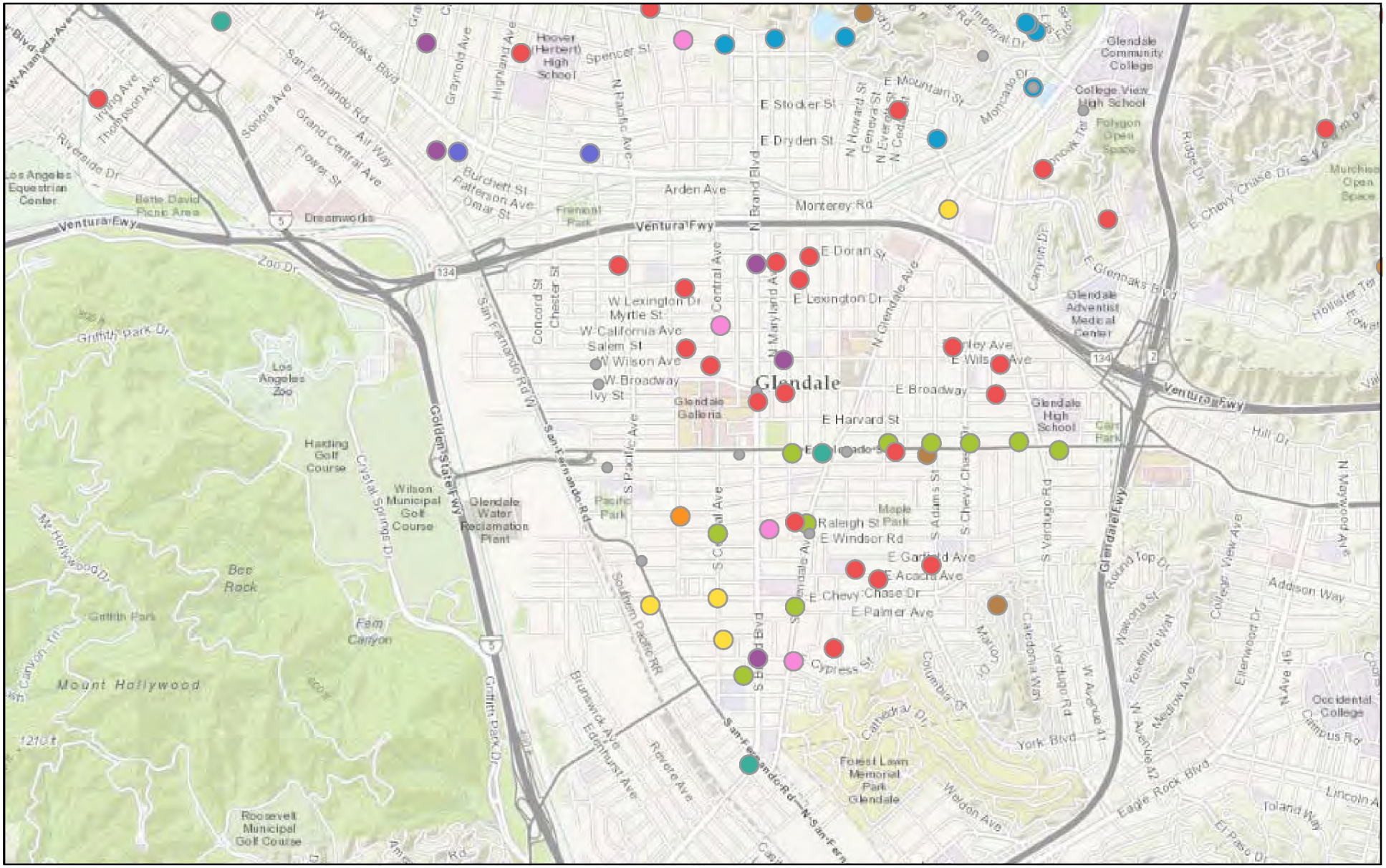
Net_AM_Trips - Select -
Net_PM_Trips - Select -
Net_Daily_Trips - Select -

Record Count: 5 | Record Per Page: All Records

Results generated since: (6/2/2017 12:56:05 PM)

Proj ID	Office	Area	CD	Year	Project Title	Project Desc	Address	First Study Submittal Date	Distance (mile)	Trip Info
34784	Metro	HWD	13	2008	Los Feliz Charter School	280 Students Elementary School	2861 W LOS FELIZ BLVD	10/26/2009	1.1	Land_Use: School; Unit_ID: Enrollment; size: 280; Net_AM_Trips: 82; Net_PM_Trips: 0; Net_Daily_Trips: 135; NetAMIn: 82; NetAMOut: 0; NetPMIn: 135; NetPMOut: 0; Comments:
34205	Metro	HWD	4	2007	Autry National Center Expansion	129000 SF Museum Expansion	4700 Western Heritage Wy	04/18/2007	0.8	Land_Use: Other; Unit_ID: S.F. Gross Area; size: 129000; Net_AM_Trips: 0; Net_PM_Trips: 0; Net_Daily_Trips: 0; NetAMIn: 0; NetAMOut: 0; NetPMIn: 0; NetPMOut: 0; Comments: 0
41114	Metro	HWD	13	2013	New Life Vision Church	85.631 KSF Church	2861 W LOS FELIZ BLVD	05/20/2013	1.1	Land_Use: Other; Unit_ID: S.F. Gross Area; size: 85631; Net_AM_Trips: 37; Net_PM_Trips: 36; Net_Daily_Trips: 602; NetAMIn: 23; NetAMOut: 14; NetPMIn: 18; NetPMOut: 18; Comments:
41527	Metro	MTR	4	2013	Griffith Park Crystal Springs New Baseball Fields	LA Dept of PW project; 2 new baseball fields	4730 N CRYSTAL SPRINGS DR	11/01/2013	1.1	Land_Use: Other; Unit_ID: Courts/Fields; size: 2; Net_AM_Trips: 0; Net_PM_Trips: 40; Net_Daily_Trips: 320; NetAMIn: 0; NetAMOut: 0; NetPMIn: 35; NetPMOut: 5; Comments:
45683	Metro	HWD	13	2017	Creative Office	79156 Sf Office	4000 E CHEVY CHASE DR	05/16/2017	0.4	Land_Use: Office; Unit_ID: S.F. Gross Area; size: 79156; Net_AM_Trips: 93; Net_PM_Trips: 87; Net_Daily_Trips: 563; NetAMIn: 84; NetAMOut: 9; NetPMIn: 13; NetPMOut: 74; Comments: Credit for existing uses and transit applied.

City of Glendale Planning Projects



June 2, 2017

1:44,538

0 0.35 0.7 1.4 mi

0 0.425 0.85 1.7 km

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey,

lisayan

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Appendix I: NPDES Permits

State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. R4-2008-0040

AMENDING WASTE DISCHARGE REQUIREMENTS
FOR

(CITY OF LOS ANGELES)
LOS ANGELES-GLENDALE WATER RECLAMATION PLANT
ORDER NO. R4-2007-0006 (FILE NO. 68-085)

AND

(CITY OF LOS ANGELES)
DONALD C. TILLMAN WATER RECLAMATION PLANT
ORDER NO. R4-2007-0008 (FILE NO. 70-117)

The California Regional Water Quality Control Board, Los Angeles Region (hereafter Regional Water Board), finds:

1. The following publicly owned treatment works (POTWs) reuse recycled water generated from their respective POTWs for the purposes of irrigation and surface impoundments and other industrial uses. The potential percolation of constituents that may be contained in recycled water to the underlying groundwater aquifer is regulated under the following Waste Discharge Requirements (WDRs):

WDR NO.	Discharge Location (Receiving Water)	Type of Waste (Flow)	File No. (Adoption Date)
Los Angeles-Glendale Water Reclamation Plant (Order No. R4-2007-0006)	Los Angeles-Glendale WRP 4600 Colorado Boulevard Los Angeles, CA (Los Angeles River)	Tertiary-treated municipal wastewater (20 million gallons per day)	File No. 68-085 (January 11, 2007)
Donald C. Tillman Water Reclamation Plant (Order No. R4-2007-0008)	Donald C. Tillman WRP 6100 Woodley Avenue Van Nuys, CA (Los Angeles River)	Tertiary-treated municipal wastewater (80 million gallons per day)	File No. 70-117 (January 11, 2007)

2. The aforementioned WDRs adopted on January 11, 2007, by this Regional Water Board, contain reopener language in section IV.2. that states:

   "The City of Los Angeles, Heal the Bay, and Regional Board staff will convene a workgroup to determine the best approach to addressing the competing issues associated with promoting water recycling and protecting groundwater in Los Angeles County. This order and the related Monitoring and Reporting Program shall be reopened by June 15, 2008. In the interim: (1) the groundwater monitoring requirements shall be stayed, (2) the permittee will not be required to design or construct additional wells to comply with the aforesaid monitoring requirements, and (3) the trigger mechanisms, set forth in section I. paragraph 5., shall be stayed."

3. Stakeholder meetings were conducted on March 28, 2007, May 14, 2007, August 22, 2007, and November 6, 2007, to discuss these competing issues. The Stakeholder group was made up of participants much broader than Regional Water Board staff, the City, and Heal the Bay, and included representatives from water supply, the California Department of Public Health, other environmental groups, and other producers of recycled water. While positive discussions took place, meetings were halted while the State Water Resources Control Board developed its Water Recycling Policy. That Policy has not yet been adopted.

4. On April 21, 2008, the City of Los Angeles (City) and the Regional Water Board staff met to discuss the City's proposal to address the conditions specified in the above-mentioned reopener, considering many of the elements discussed at the Stakeholder meetings. The City submitted a Workplan entitled *Groundwater Monitoring of Chloride and TDS in the San Fernando Basin*. The Workplan also includes Gantt chart to track progress. The purpose of this Workplan is to implement an interim and long-term groundwater monitoring approach that monitors and protects the overall health of the San Fernando Groundwater Basin and supports the City's goal to increase water supply reliability by maximizing the use of recycled water. The Workplan and Gantt chart (collectively as Workplan is presented as Attachment 1) incorporated herein and made part of this Order.

5. The purpose of this Order is to amend section I.5. of the WDRs and sections III.2.c. and V.2. of the Monitoring and Reporting Programs of the aforementioned WDRs.

The Regional Water Board notified the Discharger and interested agencies and persons of its intent to adopt the amended waste discharge requirements.

The Regional Water Board, in a public hearing, heard and considered all testimony pertinent to this matter. All Orders referred to above, Regional Water Board files on this matter, and records of hearings and testimony therein are included in the administrative record for this matter.

IT IS HEREBY ORDERED that the following Orders, adopted by this Regional Water Board on January 11, 2007, are hereby amended as follows (additions are underlined, deletions are lined through):

A. Waste Discharge Requirements Section I.5. Pages 7-8 of Order R4-2007-0006 for the Los Angeles-Glendale WRP, and Pages 7-8 of Order R4-2007-0008 for the Donald C. Tillman WRP, shall read as follows:

5. Maximum Contaminant Levels (MCLs) and Notification Levels (NLs) Triggers (non-enforceable)

a. Trigger Mechanism

The effluent will be monitored for all constituents with current applicable MCLs for drinking water established by the Department of Health Services (DHS) included in the Attachments A-1, A-2, A-3, A-4, A-5, and A-6 (chemicals with NLs). If annual average of these constituents are exceeded (target chemicals), using the criteria established in section V.2. of the Monitoring and Reporting Program (MRP) ~~No. 6183~~, the City will perform accelerated groundwater monitoring for these target chemicals. The trigger for accelerated groundwater monitoring shall become effective December 15, 2008.

b. Attenuation Study

An attenuation study will be conducted for the target chemicals where MCLs are exceeded in accordance with Section V.2. of the MRP. The trigger for an attenuation study shall become effective December 15, 2008. If the attenuation study is triggered by a chemical that has Notification Level only, the requirement for conducting attenuation study shall be stayed until a Maximum Contaminant Level (MCL) has been developed for the target chemical. The study will be a minimum of two years or until sufficient data is established to calculate the appropriate attenuation factor, if warranted. The City is required to submit a Workplan acceptable to the Executive Officer, which details the proposed attenuation study within 120 days after an average annual exceedance of the trigger.

c. Calculated Numeric Effluent Limits

The derivation of end-of-pipe numeric effluent limits for the target chemicals will be determined based upon the MCL multiplied by the attenuation factor (AF) and brought back to the Regional Board for consideration at a future board meeting.

B. Monitoring and Reporting Program No. 6183 Section III.2.C. - Reporting Requirements, on Page T-6 of Order R2007-0006 for the Los Angeles-Glendale WRP, and Monitoring and Reporting Program No. 8371 Section III.2.C. - Reporting Requirements, on Page T-6 of Order R2007-0008 for the Donald C. Tillman WRP, shall read as follows:

C. An in-depth discussion of the results of the groundwater monitoring and tertiary-treated effluent monitoring programs conducted during the previous year. This in-depth discussion will be submitted annually until the deliverables specified in Attachment 1 are approved and includes:

a. All chloride and total dissolved solids monitoring data collected from the WRP tertiary treated and disinfected effluent, and the monitoring wells described in Section V, Groundwater Monitoring. The report shall also analyze the observed data in conjunction with imported potable water concentrations. The data shall be presented in both tabular form and plotted graphically. The report shall include a calculation of the 5-year running average of chemical constituent(s) at each well, analysis of any trends, and identification of any correlation between imported water supplies, hydrologic conditions, and plant effluent.

b. Title 22 drinking water quality data (including minerals) for the nearest downgradient domestic water supply.

c. Thorough mass balance analysis of chloride and TDS.

Based on annual report findings, staff will present an update to the Board if chloride and TDS levels are increasing.

C. Monitoring and Reporting Program No. 6183, Section V – Groundwater Monitoring, Pages T-10 and T-11 of Order R4-2007-0006 for the Los Angeles-Glendale WRP, and Monitoring and Reporting Program No. 8371, Pages T-9, T-10 and T-11 of Order R4-2007-0008 for the Donald C. Tillman WRP, shall read as follows:

V. GROUNDWATER MONITORING

1. No Exceedance(s)

(The proceeding section is applicable only to Order R4-2007-0006, Los Angeles Glendale WRP)

A. If no effluent concentration(s) exceed the most current applicable Maximum Contaminant Levels (MCLs) for drinking water established by the DHS (Attachments A-1 to A-5) and Chemicals with NLs (Attachment A-6), the City shall conduct groundwater monitoring at the three monitoring wells listed in Table M4. Groundwater monitoring shall be initiated on December 15, 2008. The

groundwater samples shall be analyzed for the following constituents listed in Table M3 below.

I. Table M3 – Groundwater Monitoring			
Constituent	**Units**	**Type of Sample**	**Minimum Frequency of Analysis**
Total dissolved solids	mg/L	grab	quarterly
Chloride	mg/L	grab	quarterly

II. Table M4 – Well Numbers and Locations	
PO-VPB-01	Located on Brunswick Avenue in the southern part of the Los Angeles River Narrows Area.
PO-VPB-03	Located on Garden Avenue in the southern part of the Los Angeles River Narrows Area.
Pollock Well No.6	Located on Perlita Avenue south of Fletcher Drive in the southern part of Los Angeles River Narrows Area.

If any of the above cannot be sampled, the City shall propose, subject to Executive Officer approval, an alternate well that shall be sampled. The City may propose an alternative to the groundwater monitoring network, including the use of existing wells, shallower monitoring wells, soil lysimeters, etc., subject to the Executive Officer's approval.

(The proceeding section is applicable only to Order R4-2007-0008, Donald C. Tillman WRP)

A. If no effluent concentration(s) exceed the most current applicable Maximum Contaminant Levels (MCLs) for drinking water established by the DHS (Attachments A-1 to A-5) and Chemicals with NLs (Attachment A-6), the City shall conduct the groundwater monitoring for those constituents (in Table MM3) listed in the Basin Plan as well as at monitoring wells in Table MM4. Groundwater monitoring shall be initiated on December 15, 2008.

III. Table MM3 – Groundwater Monitoring			
Constituent	**Units**	**Type of Sample**	**Minimum Frequency of Analysis**
Total dissolved solids	mg/L	Grab	Quarterly
Chloride	mg/L	Grab	Quarterly

IV. Table MM4 – Well Numbers and Locations	
~~Well No. 1~~	~~Located on Oxnard Street approximately 500 feet from the east boundary of the Sepulveda Basin.~~
~~Well No. 2~~	~~Located on Oxnard Street approximately 1500 feet from the east boundary of the Sepulveda Basin.~~
Well EV-01	Located in the middle of the Hansen Spreading Grounds.
Well EV-03	Located on Branford St. approximately 200 feet from the South Boundary of the Hansen Golf Course.

If any of the above cannot be sampled, the City shall propose, subject to Executive Officer approval, an alternate well that shall be sampled. The City may propose an alternative to the groundwater monitoring network, including the use of existing wells, shallower monitoring wells, soil lysimeters, etc., subject to the Executive Officer's approval.

~~a. Well No. 1 and Well No. 2, located adjacent to the Sepulveda Basin, are proposed to be constructed. The City shall construct these new wells at the locations noted above near the Sepulveda Basin to monitor chemicals specified in Table MM5. The cost of constructing two monitoring wells based on City's estimate is approximately US$800,000. The city will complete the construction and establish chloride background concentrations within one year of beginning recycled water deliveries to the Woodley Golf Course in the Sepulveda Basin.~~

(The proceeding section is applicable to both Order R4-2007-0006 for Los Angeles Glendale WRP and Order R4-2007-0008 for Donald C. Tillman WRP)

B. Requirements For Chloride Assessment

Each well shall use a 5-year running average (most recent 5 years of chloride data) to track concentration changes over time. In the event that blending in groundwater is not occurring as anticipated, the following trigger is established for the assessment of chlorides in the groundwater. The trigger occurs when the 5-year running average chloride concentration for any of the above wells is higher than the initial average background concentration plus 50% of the difference between the initial average background concentration and the previous recycled water limit of 150 mg/l. Upon activating the trigger, the Los Angeles Department of Water and Power shall collect 5 additional monthly samples. If all of the 5 additional tests do not exceed the trigger, then the Los Angeles Department of Water and Power may return to a normal sampling frequency. If one sample exceeds the trigger, then the additional monitoring will continue until 5 consecutive monthly samples are below the trigger. If two of any additional monthly samples exceed the trigger, then a meeting will be held between staff from the Regional Board and the City to assess the observed condition. If accelerated groundwater monitoring is necessary, monitoring shall be effective on December 15, 2008. This assessment will be

based on the relative hydrologic conditions, imported water conditions, and other observed chloride trends to determine appropriate actions. These actions may range from additional data collection and analysis to modification of recycled water deliveries to irrigation customers.

2. Exceedance(s)

   Assessment for MCLs and Chemicals with NLs

   If annual averages of effluent concentrations exceed any MCLs or Chemicals with NLs, then groundwater monitoring will be initiated to track concentration changes over time. A 5-year running average (most recent five years of constituent[s] data) will be used to track concentration changes over time. The following trigger is established for the assessment of constituent(s): When the 5-year running average constituent(s) concentration for any of the above wells is higher than the background plus 50 percent of the difference between the initial average groundwater background concentration and the corresponding MCL(s) or/and Chemicals with NLs, the Los Angeles Department of Water and Power (DWP) shall collect five additional monthly samples. If all of the five additional tests do not exceed the trigger, then the DWP may return to normal sampling frequency. If one sample exceeds the trigger, then the additional monitoring will continue until five consecutive monthly samples are below the trigger. If two of any additional monthly samples exceed the trigger, then a meeting will be held between staff from the Regional Board, the DWP, and the Los Angeles Department of Public Works Bureau of Sanitation to assess the observed condition. If accelerated groundwater monitoring is necessary, monitoring shall be effective on December 15, 2008.

   This assessment will be based on the relative hydrologic conditions, and other observed constituent(s) trends to determine appropriate actions. These actions may range from additional data collection and analysis to modification of recycled water deliveries to irrigation customers.

3. The results of groundwater monitoring shall be submitted with the recycled water monitoring reports.

4. Monitoring activities associated with these major use areas will be considered representative of irrigation use of LAG WRP/DCT WRP effluent on the San Fernando Valley Groundwater Basin. For example, if recycled water is piped to the Los Angeles Coastal Plain Groundwater Basin for wide-spread irrigation use, then the Regional Board may require monitoring of additional wells located in that Basin

D. The Tasks and deliverables specified in Attachment 1, are incorporated herein and made part of this Order, and must be completed according to the time schedule specified by the Discharger. Extensions may be granted by the Executive Officer for just cause.

E. The Expiration date, and all other Limitations, Requirements, and Provisions of Order Nos. R4-2007-0006 and R4-2007-0008 are unchanged and shall remain in full force and effect.

IT IS SO ORDERED.

I, Tracy J. Egoscue, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an order adopted by the California Regional Water Quality Control Board, Los Angeles Region, on July 10, 2008.

David A. Bacharowski, AEO
for Tracy J. Egoscue
Executive Officer

ATTACHMENT 1
City of Los Angeles Proposal for Groundwater Monitoring of Chloride and TDS in the San Fernando Basin

Purpose/Objective

To implement an interim and long-term groundwater monitoring approach that monitors and protects the overall health of the San Fernando Groundwater Basin and supports the City of Los Angeles' goal to increase water supply reliability by maximizing the use of recycled water.

Proposed Interim Measures

1. **Prepare summary of existing conditions**
   (Estimated duration: 6 months, estimated completion: December 2008)
   A. Summarize and chart existing monitoring data for:
      1. DCT/LAG effluent concentrations for TDS and chloride (1998-Present)
      2. Potable source water: Los Angeles Aqueduct and State Water Project (1998-Present)
   B. Summarize existing groundwater monitoring data at LA River Narrows and Hansen Dam
   C. Summarize background salt characteristics and compare to DCT/LAG Basin Plan Objectives
   D. Prepare maps showing groundwater velocities by area and other relevant soil conditions
   E. Compile long-term recycled water plan for the Cities of Los Angeles and Glendale
   F. Meet with Regional Board staff to present existing conditions

2. **Establish Interim Groundwater Sampling & Analysis**
   (Estimated duration: 6 months, estimated start of monitoring: December 2008)
   A. Initiate quarterly Chloride and TDS monitoring at two wells in the Hansen Dam Area (EV-01 and EV-03) and at three wells in the Los Angeles River Narrows Area (PO-VPB-01, PO-VPB-03, and Pollock No. 6)
   B. Identify preliminary list of existing representative LADWP production wells
   C. Select a total of 3 existing wells in the Tujunga, Rinaldi-Toluca, or North Hollywood well fields.
   D. Meet with Regional Board to get approval of interim plan
   E. Perform interim quarterly monitoring for Chloride and TDS at the above 8 wells until San Fernando GW Monitoring Plan is developed and incorporate results into database

3. **Review the Salt Mass Balance Analysis**
   (Estimated duration: 3 months, estimated completion: July 2008)
   A. Validate original assumptions for irrigation usage and chloride/TDS concentrations
   B. Incorporate updated data points where available

4. **Peer review of revised Salt Mass Balance**
   (Estimated duration: 6 months, estimated completion: January 2009)
   A. Develop structure of peer review
   B. City and Regional Board to identify experts for peer review panel
   C. Submit mass balance for peer review
   D. Present report recommendations to Regional Board

ATTACHMENT 1
City of Los Angeles Proposal for Groundwater Monitoring of Chloride and TDS in the San Fernando Basin

Proposed Long-Term Plan for the San Fernando Basin

1. **Development of Groundwater Monitoring Plan for Chloride and TDS**
   (Estimated duration: 24 months; estimated completion: July 2010)
   A. Form the San Fernando Basin Groundwater Monitoring Committee
      - LARWQCB
      - City of Los Angeles
      - Upper Los Angeles River Area Watermaster
      - City of Burbank
      - City of Glendale
      - City of San Fernando
      - Crescenta Valley Water District
      - Metropolitan Water District
      - Los Angeles County Department of Public Works (stormwater recharge)
      - California Department of Public Health (would be selected/invited by LARWQCB)
      - San Fernando Basin Specific Non Governmental Organizations (would be selected/invited by LARWQCB)
   B. Develop Groundwater Monitoring Committee's work plan, budget, and cost sharing agreement among all stakeholders
   C. Inform Stakeholders
   D. Establish Master contact list
   E. Conduct literature review and develop Survey or Questionnaire for recycled water beneficial users
   F. Collect data from existing representative monitoring wells and create database
   G. Define and Establish Representative Study Areas within San Fernando Basin
   H. Establish existing water quality ("background") for each study area as a whole
   I. Identify information data gaps and develop plan to address data gaps
   J. Produce Groundwater Monitoring Plan Summary Report
   K. Present Summary Report for Regional Board consideration

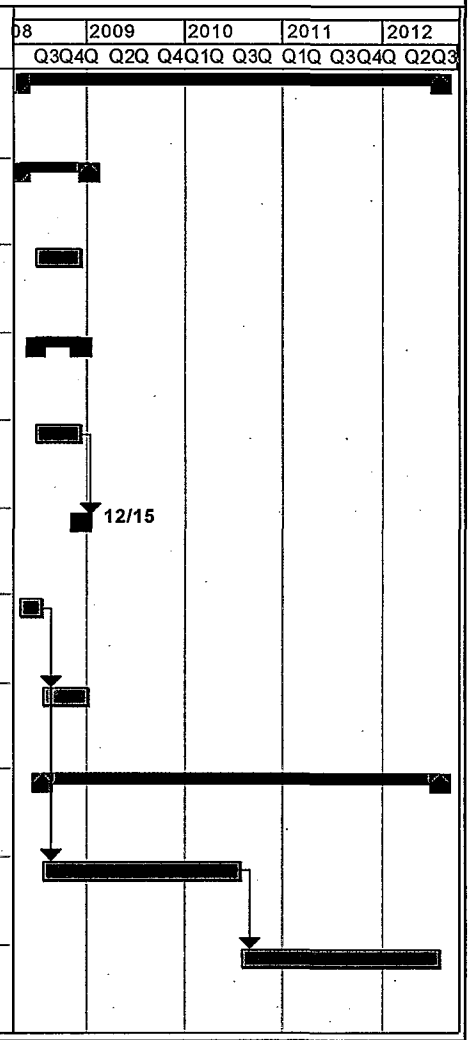
2. **Development of "San Fernando Basin Salt Management Plan"**
   (Estimated duration: 24 months; estimated completion July 2012)
   A. Identify the various activities and the parties responsible for salinity contributions
   B. Form the San Fernando Basin Salt Management Committee
   C. Develop Committee's work plan, budget, and cost sharing agreement among all responsible parties
   D. Develop funding plan based on cost sharing agreements
   E. Responsible parties will develop Draft San Fernando Basin Salt Management Plan for Chloride and TDS
   F. Present Draft Plan for Regional Board consideration

List of Attachment:
- Gantt Chart

DRAFT

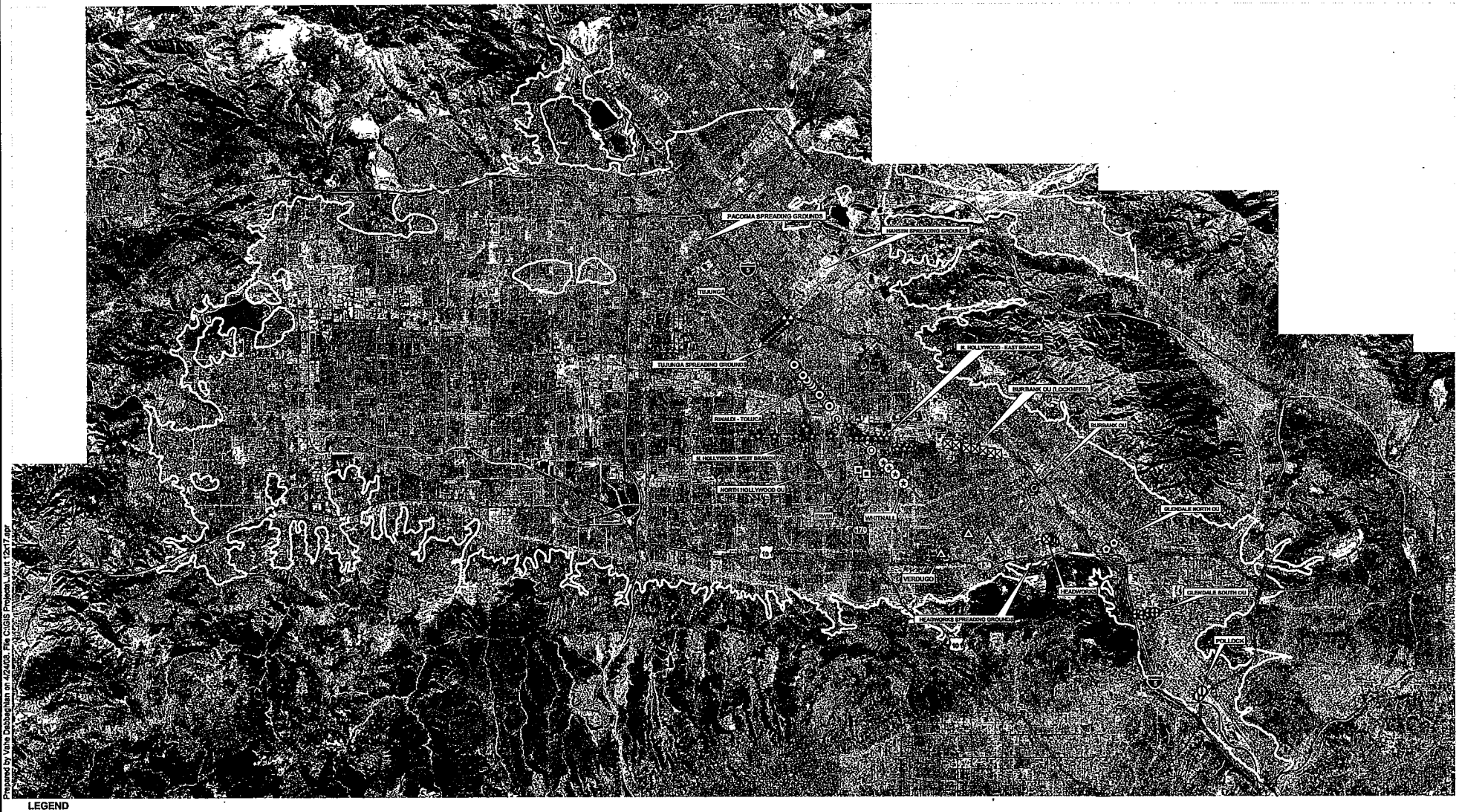
CITY OF LOS ANGELES PROPOSAL FOR GROUNDWATER MONITORING OF CHLORIDE/TDS IN THE SAN FERNANDO BASIN

ID	Task Name	Start	Finish
1	**PROPOSAL FOR CHLORIDE/TDS MONITORING IN SF BASIN (4 Years 2 Months)**	**Thu 5/1/08**	**Wed 7/25/12**
2	**Proposed Interim Measures (8 Months)**	**Thu 5/1/08**	**Wed 1/7/09**
3	Prepare summary of existing conditions	Tue 7/1/08	Mon 12/15/08
4	Establish Interim Groundwater Sampling & analysis	Tue 7/1/08	Mon 12/15/08
5	*Prep total of 8 sampling locations*	Tue 7/1/08	Mon 12/15/08
6	*Initiate INTERIM quarterly monitoring for TDS/chloride*	Mon 12/15/08	Mon 12/15/08
7	Review the Salt Mass Balance Analysis	Thu 5/1/08	Wed 7/23/08
8	Peer Review of revised Salt Mass Balance	Thu 7/24/08	Wed 1/7/09
9	**Proposed Long-Term Plan for San Fernando Basin (48 Months)**	**Thu 7/24/08**	**Wed 7/25/12**
10	Develop Groundwater Monitoring Plan for Chloride/TDS	Thu 7/24/08	Wed 7/28/10
11	Develop "San Fernando Basin Salt Management Plan"	Thu 7/29/10	Wed 7/25/12



Project: GWmonitoring_SFBasin-Chlor
Date: Fri 5/9/08

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External Milestone
Deadline



LEGEND

- North Hollywood well field
- Erwin well field
- Whitnall well field
- Verdugo well field
- Rinaldi - Toluca well field
- Tujunga well field
- North Hollywood OU extraction well
- Burbank OU (Lockheed) extraction well
- Burbank OU extraction well
- Pollock well
- Glendale North OU extraction well
- Glendale South OU extraction well
- Headworks well
- San Fernando Basin Boundary

SAN FERNANDO GROUNDWATER BASIN

N

9000 0 9000 Feet

Los Angeles Department of Water & Power
Water Resources Division
Groundwater Management Group

STANDARD PROVISIONS
APPLICABLE TO WASTE DISCHARGE REQUIREMENTS

1. DUTY TO COMPLY

The discharger must comply with all conditions of these waste discharge requirements. A responsible party has been designated in the Order for this project, and is legally bound to maintain the monitoring program and permit. Violations may result in enforcement actions, including Regional Board orders or court orders requiring corrective action or imposing civil monetary liability, or in modification or revocation of these waste discharge requirements by the Regional Board. [CWC Section 13261, 13263, 13265, 13268, 13300, 13301, 13304, 13340, 13350]

2. GENERAL PROHIBITION

Neither the treatment nor the discharge of waste shall create a pollution, contamination or nuisance, as defined by Section 13050 of the California Water Code (CWC). [H&SC Section 5411, CWC Section 13263]

3. AVAILABILITY

A copy of these waste discharge requirements shall be maintained at the discharge facility and be available at all times to operating personnel. [CWC Section 13263]

4. CHANGE IN OWNERSHIP

The discharger must notify the Executive Officer, in writing at least 30 days in advance of any proposed transfer of this Order's responsibility and coverage to a new discharger. The notice must include a written agreement between the existing and new discharger containing a specific date for the transfer of this Order's responsibility and coverage between the current discharger and the new discharger. This agreement shall include an acknowledgement that the existing discharger is liable for violations up to the transfer date and that the new discharger is liable from the transfer date on. [CWC Sections 13267 and 13263]

5. CHANGE IN DISCHARGE

In the event of a material change in the character, location, or volume of a discharge, the discharger shall file with this Regional Board a new Report of Waste Discharge. [CWC Section 13260(c)]. A material change includes, but is not limited to, the following:

(a) Addition of a major industrial waste discharge to a discharge of essentially domestic sewage, or the addition of a new process or product by an industrial facility resulting in a change in the character of the Waste.

(b) Significant change in disposal method, e.g., change from a land disposal to a direct discharge to water, or change in the method of treatment which would significantly alter the characteristics of the waste.

(c) Significant change in the disposal area, e.g., moving the discharge to another drainage area, to a different water body, or to a disposal area significantly removed from the original area potentially causing different water quality or nuisance problems.

(d) Increase in flow beyond that specified in the waste discharge requirements.

(e) Increase in area or depth to be used for solid waste disposal beyond that specified in the waste discharge requirements. [CCR Title 23 Section 2210]

6. REVISION

These waste discharge requirements are subject to review and revision by the Regional Board. [CCR Section 13263]

7. TERMINATION

Where the discharger becomes aware that it failed to submit any relevant facts in a Report of Waste Discharge or submitted incorrect information in a Report of Waste Discharge or in any report to the Regional Board, it shall promptly submit such facts or information. [CWC Sections 13260 and 13267]

8. VESTED RIGHTS

This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, do not protect the discharger from his liability under Federal, State or local laws, nor do they create a vested right for the discharger to continue the waste discharge. [CWC Section 13263(g)]

9. SEVERABILITY

Provisions of these waste discharge requirements are severable. If any provision of these requirements are found invalid, the remainder of these requirements shall not be affected. [CWC Section 921]

10. OPERATION AND MAINTENANCE

The discharger shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with conditions of this Order. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order. [CWC Section 13263(f)]

11. HAZARDOUS RELEASES

Except for a discharge which is in compliance with these waste discharge requirements, any person who, without regard to intent or negligence, causes or permits any hazardous substance or sewage to be discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, shall, as soon as (a) that person has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State toxic disaster contingency plan adopted pursuant to Article 3.7 (commencing with Section 8574.7) of Chapter 7 of Division 1 of Title 2 of the Government Code, and immediately notify the State Board or the appropriate Regional Board of the discharge. This provision does not require reporting of any discharge of less than a reportable quantity as provided for under subdivisions (f) and (g) of Section 13271 of the Water Code unless the discharger is in violation of a prohibition in the applicable Water Quality Control plan. [CWC Section 13271(a)]

12. PETROLEUM RELEASES

Except for a discharge which is in compliance with these waste discharge requirements, any person who without regard to intent or negligence, causes or permits any oil or petroleum product to be discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, shall, as soon as (a) such person has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State oil spill contingency plan adopted pursuant to Article 3.5 (commencing with Section 8574.1) of Chapter 7 of Division 1 of Title 2 of the Government Code. This provision does not require reporting of any discharge of less than 42 gallons unless the discharge is also required to be reported pursuant to Section 311 of the Clean Water Act or the discharge is in violation of a prohibition in the applicable Water Quality Control Plan. [CWC Section 13272]

13. ENTRY AND INSPECTION

The discharger shall allow the Regional Board, or an authorized representative upon the presentation of credentials and other documents as may be required by law, to:

(a) Enter upon the discharger's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and

(d) Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order, or as otherwise authorized by the California Water Code, any substances or parameters at any location. [CWC Section 13267]

14. MONITORING PROGRAM AND DEVICES

The discharger shall furnish, under penalty of perjury, technical monitoring program reports; such reports shall be submitted in accordance with specifications prepared by the Executive Officer, which specifications are subject to periodic revisions as may be warranted. [CWC Section 13267]

All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year, or more frequently, to ensure continued accuracy of the devices. Annually, the discharger shall submit to the Executive Officer a written statement, signed by a registered professional engineer, certifying that all flow measurement devices have been calibrated and will reliably achieve the accuracy required.

Unless otherwise permitted by the Regional Board Executive officer, all analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. The Regional Board Executive Officer may allow use of an uncertified laboratory under exceptional circumstances, such as when the closest laboratory to the monitoring location is outside the State boundaries and therefore not subject to certification. All analyses shall be required to be conducted in accordance with the latest edition of "Guidelines Establishing Test Procedures for Analysis of Pollutants" [40 CFR Part 136] promulgated by the U.S. Environmental Protection Agency. [CCR Title 23, Section 2230]

15. TREATMENT FAILURE

In an enforcement action, it shall not be a defense for the discharger that it would have been necessary to halt or to reduce the permitted activity in order to maintain compliance with this Order. Upon reduction, loss, or failure of the treatment facility, the discharger shall, to the extent necessary to maintain compliance with this Order, control production or all discharges, or both, until the facility is restored or an alternative method of treatment is provided. This provision applies, for example, when the primary source of power of the treatment facility fails, is reduced, or is lost. [CWC Section 13263(f)]

16. DISCHARGES TO NAVIGABLE WATERS

Any person discharging or proposing to discharge to navigable waters from a point source (except for discharge of dredged or fill material subject to Section 404 of the Clean Water Act and discharge subject to a general NPDES permit) must file an NPDES permit application with the Regional Board. [CCR Title 2 Section 22357]

17. ENDANGERMENT TO HEALTH AND ENVIRONMENT

The discharger shall report any noncompliance which may endanger health or the environment. Any such information shall be provided verbally to the Executive Officer within 24 hours from the time the discharger becomes aware of the circumstances. A written submission shall also be provided within five days of the time the discharger becomes aware of the circumstances. The written submission shall contain adescription of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected; the anticipated time it is expected to continue and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Executive officer, or an authorized representative, may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The following occurrence(s) must be reported to the Executive Officer within 24 hours:

(a) Any bypass from any portion of the treatment facility.

(b) Any discharge of treated or untreated wastewater resulting from sewer line breaks, obstruction, surcharge or any other circumstances.

(c) Any treatment plant upset which causes the effluent limitation of this Order to be exceeded. [CWC Sections 13263 and 13267]

18. MAINTENANCE OF RECORDS

The discharger shall retain records of all monitoring information including all calibration and maintenance records, all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used

to complete the application for this Order. Records shall be maintained for a minimum of three years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board Executive Officer.

Records of monitoring information shall include:

(a) The date, exact place, and time of sampling or measurements;

(b) The individual(s) who performed the sampling or measurements;

(c) The date(s) analyses were performed;

(d) The individual(s) who performed the analyses;

(e) The analytical techniques or method used; and

(f) The results of such analyses.

19. (a) All application reports or information to be submitted to the Executive Officer shall be signed and certified as follows:

(1) For a corporation – by a principal executive officer or at least the level of vice president.

(2) For a partnership or sole proprietorship – by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency – by either a principal executive officer or ranking elected official.

(b) A duly authorized representative of a person designated in paragraph (a) of this provision may sign documents if:

(1) The authorization is made in writing by a person described in paragraph (a) of this provision.

(2) The authorization specifies either an individual or position having responsibility for the overall operation of the regulated facility or activity; and

(3) The written authorization is submitted to the Executive Officer.

Any person signing a document under this Section shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. [CWC Sections 13263, 13267, and 13268]"

20. OPERATOR CERTIFICATION

Supervisors and operators of municipal wastewater treatment plants and privately owned facilities regulated by the PUC, used in the treatment or reclamation of sewage and industrial waste shall possess a certificate of appropriate grade in accordance with Title 23, California Code of Regulations Section 3680. State Boards may accept experience in lieu of qualification training. In lieu of a properly certified wastewater treatment plant operator, the State Board may approve use of a water treatment plant operator of appropriate grade certified by the State Department of Health Services where reclamation is involved.

Each plant shall be operated and maintained in accordance with the operation and maintenance manual prepared by the municipality through the Clean Water Grant Program. [CWC Title 23, Section 2233(d)]

ADDITIONAL PROVISIONS APPLICABLE TO
PUBLICLY OWNED TREATMENT WORKS' ADEQUATE CAPACITY

21. Whenever a publicly owned wastewater treatment plant will reach capacity within four years the discharger shall notify the Regional Board. A copy of such notification shall be sent to appropriate local elected officials, local permitting agencies and the press. The discharger must demonstrate that adequate steps are being taken to address the capacity problem. The discharger shall submit a technical report to the Regional Board showing flow volumes will be prevented from exceeding capacity, or how capacity will be increased, within 120 days after providing notification to the Regional Board, or within 120 days after receipt of notification from the Regional Board, of a finding that the treatment plant will reach capacity within four years. The time for filing the required technical report may be extended by the Regional Board. An extension of 30 days may be granted by the Executive Officer, and longer extensions may be granted by the Regional Board itself. [CCR Title 23, Section 2232]

D.TSAI

California Regional Water Quality Control Board

Los Angeles Region

Recipient of the 2001 *Environmental Leadership Award* from Keep California Beautiful

Linda S. Adams
Agency Secretary

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.waterboards.ca.gov/losangeles

Arnold Schwarzenegger
Governor

January 18, 2007

Rita L. Robinson, Director
City of Los Angeles, Bureau of Sanitation
1149 S. Broadway Street, Suite 900
Los Angeles, CA 90015_2213

Dear Ms. Robinson:

WASTE DISCHARGE REQUIREMENTS (WDRs) AND WATER RECYCLING REQUIREMENTS (WRRs) PERMITS – CITY OF LOS ANGELES – DONALD C. TILLMAN WATER RECLAMATION PLANT (FILE NO. 70-117) AND LOS ANGELES – GLENDALE WATER RECLAMATION PLANT (FILE NO. 68-85)

Our letter dated January 5, 2007, transmitted revised tentative Orders for renewal of your permits to deliver recycled water under the WDRs and WRRs.

Pursuant to Division 7 of the California Water Code, this Regional Board at a public hearing held on January 11, 2007, reviewed the revised tentative requirements and the additional language proposed by Regional Board staff, the City of Los Angeles, and the Heal the Bay, considered all comments received, and adopted Order Nos. R4-2007-0006, R4-2007-0007, R4-2007-0008, and R4-2006-0009 (copies enclosed) for your recycled water projects.

Please note that both WDRs Orders and the related Monitoring and Reporting Programs are required to be reopened by June 15, 2008. In the interim: (1) the groundwater monitoring requirements are stayed; (2) the permittee will not be required to design or construct additional groundwater monitoring wells; and, (3) the trigger mechanisms, set forth in section I. paragraph 5. of WDRs, are also stayed. All other provisions and requirements of this order, the Monitoring and Reporting Program, and the Water Recycling Requirements, remain in effect.

The complete final Orders will be sent only to the City of Los Angeles. However, these documents are available on the Regional Board's website for your review. The Regional Board's web address is www.waterboards.ca.gov/losangeles/.

You are required to implement the *Monitoring and Reporting Program (MRP)* on the effective date of both Orders. The dates that the monitoring and annual reports must be received at the Regional Board Office are provided in the *MRP*. Please submit all monitoring reports and annual reports to the Regional Board, Attn: Information Technology Unit. When submitting monitoring, technical reports, or any correspondence regarding the discharge for each Order to the Regional Board, please include a reference to our *Compliance File Nos. CI-6183, CI-9198, CI-8371,* and *CI-9199* for Order Nos. R4-2007-0006, R4-2007-0007, R4-2007-0008, and R4-2007-0009, respectively, to assure that the reports are directed to the appropriate staff and file.

Please do not combine your discharge monitoring reports with other reports. Submit each type of report as a separate document.

If you have any questions, please contact me at (213) 576-6605 or Don Tsai at (213) 576-6665 for Donald C. Tillman Water Reclamation Plant and Raul Medina at (213) 620-2160 for Los Angeles Glendale Water Reclamation Plant.

Sincerely,

Blythe Ponek-Bacharowski

Blythe Ponek-Bacharowski
Chief, Municipal Permitting Unit

Enclosures

cc: See attached mailing list

MAILING LIST

Environmental Protection Agency, Region IX, Clean Water Act Standards and Permits (WTR-5)
U.S. Army Corp of Engineers
NOAA, National Maritime Fisheries Service
U.S. Fish and Wildlife Service, Division of Ecological Services
State Water Resources Control Board, Office of Chief Counsel - Michael Levy
State Water Resources Control Board, Division of Water Quality – Phil Isorena
California Department of Fish and Game, Region 5
California Department of Fish and Game, Marine Resources Region
California Department of Health Services, Environmental Management Branch
California Department of Health Services, Drinking Water Branch – Kurt Souza
California Coastal Commission, South Coast Region
Santa Monica Bay Restoration Commission
Los Angeles County, Department of Public Works, Waste Management Division
Los Angeles County, Department of Health Services
Los Angeles County Sanitation Districts
City of Los Angeles, Department of Public Works, Bureau of Engineering, Wastewater System Engineering Division
City of Los Angeles, Department of Public Works, Bureau of Sanitation, Industrial Waste Management
City of Los Angeles, Department of Public Works, Bureau of Sanitation, Watershed Protection Division
City of Los Angeles, Department of Water and Power
City of Los Angeles, Office of Chief Legislative Analyst, - Rafael Prieto
ULARA Watermaster
Water Replenishment District of Southern California
City of Long Beach
American Ocean Campaign
Heal The Bay
Environment Now
Santa Monica Bay Keeper
Sierra Club
Surfrider Foundation
Southern California Coastal Water Research Project
Natural Resources Defense Council
Water Reuse Association

Attachment A-1

Table 64431-A – Inorganic Chemicals*	
Chemical	**Maximum Contaminant Levels (mg/L)**
Aluminum	1
Antimony	0.006
Arsenic	0.010
Asbestos	7 MFL**
Barium	1
Beryllium	0.004
Cadmium	0.005
Chromium	0.05
Cyanide	0.15
Mercury	0.002
Nickel	0.1
Nitrite (as nitrogen)	1
Selenium	0.05
Thallium	0.002
Fluoride	2

California Code of Regulation (CCR) Title 22, Section 64431
**MFL = million fibers per liter; MCL for fibers exceeding 10μm in length.

Attachment A-2

Table 4 – Radioactivity*	
Chemical	**Maximum Contaminant Levels (pCi/L)**
Combined Radium-226 and Radium-228	5
Gross Alpha Particle Activity (Including Radium-226 but Excluding Radon and Uranium)	15
Tritium	20,000
Strontium-90	8
Gross Beta Particle Activity	50
Uranium	20

California Code of Regulation (CCR) Title 22, Section 64443
*Last update: September 12, 2003.

Attachment A-3

Table 64444-A – Organic Chemicals*	
Chemical	**Maximum Contaminant Levels (mg/L)**
(a) Volatile Organic Chemicals	
Benzene	0.001
Carbon Tetrachloride (CTC)	0.0005
1,2-Dichlorobenzene	0.6
1,4-Dichlorobenzene	0.005
1,1-Dichloroethane	0.005
1,2-Dichloroethane (1,2-DCA)	0.0005
1,1-Dichloroethene (1,1-DCE)	0.006
Cis-1,2-Dichloroethylene	0.006
Trans-1,2-Dichloroethylene	0.01
Dichloromethane	0.005
1,2-Dichloropropane	0.005
1,3-Dichloropropene	0.0005
Ethylbenzene	0.3
Methyl-tert-butyl-ether (MTBE)	0.013
Monochlorobenzene	0.07
Styrene	0.1
1,1,2,2-Tetrachloroethane	0.001
Tetrachloroethylene (PCE)	0.005
Toluene	0.15
1,2,4-Trichlorobenzene	0.005
1,1,1-Trichloroethane	0.2
1,1,2-Trichloroethane	0.005
Trichloroethylene (TCE)	0.005
Trichlorofluoromethane	0.15
1,1,2-Trichloro-1,2,2-Trifluoroethane	1.2
Vinyl Chloride	0.0005
Xylenes (m,p)	1.75**
(b) Non-Volatile synthetic Organic Chemicals	
Alachlor	0.002
Atrazine	0.001
Bentazon	0.018
Benzo(a)pyrene	0.0002
Carbofuran	0.018
Chlordane	0.0001
2,4-D	0.07
Dalapon	0.2
1,2-Dibromo-3-chloropropane (DBCP)	0.0002

(Continuous to the Next Page)

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Table 64444-A – Organic Chemicals*	
Chemical	**Maximum Contaminant Levels (mg/L)**
Di(2-ethylhexyl)adipate	0.4
Di(2-ethylhexyl)phthalate	0.004
Dinoseb	0.007
Diquat	0.02
Endothall	0.1
Endrin	0.002
Ethylene Dibromide (EDB)	0.00005
Glyphosate	0.7
Heptachlor	0.00001
Heptachlor Epoxide	0.00001
Hexachlorobenzene	0.001
Hexachlorocyclopentadiene	0.05
Lindane	0.0002
Methoxychlor	0.03
Molinate	0.02
Oxamyl	0.05
Pentachlorophenol	0.001
Picloram	0.5
Polychlorinated Biphenyls	0.0005
Simazine	0.004
Thiobencarb	0.07
Toxaphene	0.003
2,3,7,8-TCDD (Dioxin)	3×10^{-8}
2,4,5-TP (Silvex)	0.05

California Code of Regulation (CCR) Title 22, Section 64444
*Last update: September 12, 2003.
**MCL is for either a single isomer or the sum of the isomers.

Attachment A-4

Table 64533-A – Primary MCLs for Disinfection Byproducts*	
Constituent	**Maximum Contaminant Levels (mg/L)**
Total Trihalomethanes (TTHM)	0.080
Bromodichloromethane	
Bromoform	
Chloroform	
Dibromochloromethane	
Haloacetic acid (five) (HAA5)	0.060
Monochloroacetic acid	
Dichloroacetic acid	
Trichloroacetic acid	
Monobromoacetic acid	
Dibromoacetic acid	
Bromate**	0.010
Chlorite***	1.0

California Code of Regulation (CCR) Title 22, Section 64533, Chapter 15.5
*Last update: January 28, 2004.
** Bromate is listed for plants using ozone disinfection only.
*** Chlorite is listed for plants using chlorine dioxide only.

Attachment A-5

Table 64449-A – Secondary Maximum Contaminant Levels Consumer Acceptance Limits*	
Chemical	**Units**
Aluminum	0.2 mg/L
Copper	1.0 mg/L
Corrosivity	Non-corrosive
Foam Agents (MBAS)	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Methyl-tert-butyl-ether (MTBE)	0.005 mg/L
Odor – Threshold	3 units
Silver	0.1 mg/L
Thiobencarb	0.001 mg/L
Turbidity	5 units
Zinc	5.0 mg/L

California Code of Regulation (CCR) Title 22, Section 64449
*Last update: September 12, 2003.

Attachment A-6

Monitoring for Chemicals with Notification Levels
n-Butylbenzene
sec-Butylbenzene
tert-Butylbenzene
Carbon disulfide
Chlorate
2-Chlorotoluene
4-Chlorotoluene
Diazinon
Dichlorodifluoromethane (Freon 12)
1,4-Dioxane
Ethylene glycol
Formaldehyde
Isopropylbenzene
Manganese
Methyl isobutyl ketone (MIBK)
Naphthalene
n-Nitrosodiethyamine (NDEA)
n-Nitrosodimethylamine (NDMA)
Perchlorate
n-Propylbenzene
Tertiary butyl alcohol (TBA)
1,2,3-Trichloropropane (1,2,3-TCP)
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
Vanadium

Attachment A-7

Monitoring for Remaining Priority Pollutants

Pesticides	**Base/Neutral Extractibles**	Di-n-butyl phthalate
Aldrin	Acenaphthene	Di-n-octyl phthalate
Dieldrin	Benzidine	Diethyl phthalate
4,4'-DDT	Hexachloroethane	Dimethyl phthalate
4,4'-DDE	Bis(2-chloroethyl)ether	Benzo(a)anthracene
4,4'-DDD	2-chloronaphthalene	Benzo(a)fluoranthene
Alpha-endosulfan	1,3-dichlorobenzene	Benzo(k)fluoranthene
Beta-endosulfan	3,3'-dichlorobenzidine	Chrysene
Endosulfan sulfate	2,4-dinitrotoluene	Acenaphthylene
Endrin aldehyde	2,6-dinitrotoluene	Anthracene
Alpha-BHC	1,2-diphenylhydrazine	1,12-benzoperylene
Beta-BHC	Fluoranthene	Fluorene
Delta-BHC	4-chlorophenyl phenyl ether	Phenanthrene
Acid Extractibles	4-bromophenyl phenyl ether	1,2,5,6-dibenzanthracene
2,4,6-trichlorophenol	Bis(2-chloroisopropyl)ether	Indeno(1,2,3-cd)pyrene
P-chloro-m-cresol	Bis(2-chloroethoxyl)methane	Pyrene
2-chlorophenol	Hexachlorobutadiene	**Volatile Organics**
2,4-dichlorophenol	Isophorone	Acrolein
2,4-dimethylphenol	Naphthalene	Acrylonitrile
2-nitrophenol	Nitrobenzene	Chlorobenzene
4-nitrophenol	N-nitrosodimethylamine	Chloroethane
2,4-dinitrophenol	N-nitrosodi-n-propylamine	1,1-dichloroethylene
4,6-dinitro-o-cresol	N-nitrosodiphenylamine	Methyl chloride
Phenol	Bis(2-ethylhexyl)phthalate	Methyl bromide
---	Butyl benzyl phthalate	2-chloroethyl vinyl ether

State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

MONITORING AND REPORTING PROGRAM NO. 6183
(File No. 68-085)
FOR
WASTE DISCHARGE REQUIREMENTS OF TITLE 22 RECYCLED WATER

ISSUED TO

CITY OF LOS ANGELES
(Los Angeles-Glendale Water Reclamation Plant)

The City of Los Angeles (City) shall implement this monitoring and reporting program on the effective date of this Order.

I. SUBMITTAL OF REPORTS

1. The City shall submit the required reports, outlined in the following paragraphs, to the California Regional Water Quality Control Board, Los Angeles Region (Regional Board), and to the California Department of Health Services, Drinking Water Field Operations, Los Angeles Region (DHS). The reports shall be received at the Regional Board and the DHS on the dates indicated as follows:

   A. **Quarterly Monitoring Reports** shall be received at the Regional Board by the 15th day of the second month following the end of each quarterly monitoring period according to Table M1. The first Quarterly Monitoring Report under this program shall be received at the Regional Board and the DHS by May 15, 2007, covering the monitoring period from January 1 to March 31, 2007.

Table M1 Quarterly Report Periods and Due Dates	
Reporting Period	**Report Due**
January – March	May 15th
April – June	August 15th
July – September	November 15th
October – December	February 15th

   B. **Annual Summary Report** shall be received at the Regional Board and the DHS by April 15th of each year. The first Annual Summary Report under this program shall be received at the Regional Board and the DHS by April 15, 2008, covering the monitoring periods from January 2007 to December 2007.

2. All monitoring and annual summary reports must be addressed to the Regional Board, Attention: Information Technology Unit. Reference the reports to Compliance File No. CI-6183 to facilitate routing to the appropriate staff and file.

3. The monitoring data shall be submitted to the Regional Board and to the DHS on hard copy, and on either a 3 1/2" computer diskette or a CD-ROM disk. The

Regional Board and to the DHS may request electronic submittal of data contained in a CD-ROM disk or other appropriate electronic medium at any time. The submittal data must be IBM compatible, preferably using Microsoft Excel software.

4. The Regional Board and the State Water Resources Control Board (State Board) are developing a database compliance monitoring management system that may require the City to submit the monitoring reports electronically, when it becomes operational. (Note that DHS requires groundwater monitoring to be submitted to DHS by the Electronic Data Transfer, which is available in the DHS' website at http://www.dhs.ca.gov/ps/ddwem/EDT/default.htm. The draft regulations state: "Analytical results for chemicals shall be reported directly to the Department, as follows:

   A. Analytical results of all analyses completed in a calendar month shall be reported to the Department no later than the 15th day following the end of the second month of the designated monitoring period.

   B. Analytical results shall be reported to the DHS electronically using the Electronic Deliverable Format as defined in The Electronic Deliverable Format (EDF) Version 1.2i Guidelines & Restrictions dated April 2001 and Data Dictionary dated April 2001."

   The City should request PSCodes from the DHS so the data can be entered by the laboratories in the DHS' database.

II. MONITORING REQUIREMENTS

1. Whenever possible, quarterly monitoring shall be performed during the 1st quarter (January, February, and March), the 2nd quarter (April, May, and June), the 3rd quarter (July, August, and September), and the 4th quarter (October, November, and December); and annual monitoring shall be conducted during the third quarter of each calendar year. However, if the use of recycled water does not occur during that monitoring period, the City shall collect a sample during the next reuse event. Results of quarterly and annual analyses shall be reported in the following quarterly monitoring report. If there is no use of recycled water during the reporting period, the report shall so state. Monitoring reports shall continue to be submitted to the Regional Board, regardless of whether or not there was a use of recycled water.

2. Monitoring shall be used to determine compliance with the requirements of this Order and shall include, but not limited to, the following:

   A. Locations of each groundwater monitoring station where representative samples can be obtained and the rationale for the selection. The City must include a map, at a scale of 1 inch equals 1,200 feet or less, that clearly identifies the locations of all monitoring wells, and production wells.

   B. Sampling protocols (specified in 40 CFR Part 136 or AWWA standards where appropriate) and chain of custody procedures.

C. For groundwater monitoring, outline the methods and procedures to be used for measuring water levels; purging wells; collecting samples; decontaminating equipment; containing, preserving, and shipping samples, and maintaining appropriate documentation. Also include the procedures for handling, storing, testing, and disposing of purge and decontamination waters generated from the sampling events.

D. Laboratory or laboratories, which conducted the analyses. Include copy or copies of laboratory certifications by the California Health Services Environmental Laboratory Accreditation Program (ELAP) every year or when the City changes their contract laboratory.

E. Analytical test methods used and the corresponding detection limits for reporting purposes (DLRs) unregulated and regulated chemicals. Please see the DHS' website at http://www.dhs.ca.gov/ps/ddwem/chemicals/unregulated/index.htm and http://www.dhs.ca.gov/ps/ddwem/chemicals/DLR/dlrindex.htm for unregulated and regulated chemicals, respectively.

F. Quality assurance and control measures.

3. The samples shall be analyzed using analytical methods described in 40 CFR Part 136; or where no methods are specified for a given pollutant, by commercially available methods approved by the DHS, Regional Board and/or State Board. The City shall select the analytical methods that provide reporting detection limits (DLRs) lower than the limits prescribed in this Order. For those constituents that have drinking water notification levels (NLs) and/or public health goals (PHGs), the DLRs shall be equal to or lower than either the NLs or the PHGs (note this is not always feasible). Every effort should be made to analyze Chemicals with NLs in Attachment A-6 using the least DLR possible.

4. The City shall instruct its laboratories to establish calibration standards so that the DLRs (or its equivalent if there is a different treatment of samples relative to calibration standards) are the lowest calibration standard. At no time shall the City use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

5. Upon request by the City, the Regional Board, in consultation with the DHS and the State Board Quality Assurance Program, may establish DLRs, in any of the following situations:

A. When the pollutant has no established method under 40 CFR 136 (revised May 14, 1999, or subsequent revision);

B. When the method under 40 CFR 136 for the pollutant has a RDL higher than the limit specified in this Order; or

C. When the Project Sponsors agree to use a test method that is more sensitive than those specified in 40 CFR Part 136 and is commercially available.

6. Samples of tertiary treated and disinfected effluent must be analyzed within allowable holding time limits as specified in 40 CFR Part 136.3. All QA/QC analyses must be run on the same dates when samples were actually analyzed. The City shall make available for inspection and/or submit the QA/QC documentation upon request by Regional Board staff. Proper chain of custody procedures must be followed and a copy of that documentation shall be submitted with the quarterly report.

7. For unregulated chemical analyses, the City should select methods according to the following approach:

   A. Use drinking water methods, if available;

   B. Use DHS-recommended methods for unregulated chemicals, if available;

   C. If there is no DHS-recommended drinking water method for a chemical, and more than a single EPA-approved method is available, use the most sensitive of the EPA-approved methods;

   D. If there is no EPA-approved method for a chemical, and more than one method is available from the scientific literature and commercial laboratory, after consultation with DHS, use the most sensitive method;

   E. If no approved method is available for a specific chemical, the City's laboratory may develop or use its own methods and should provide the analytical methods to DHS for review. Those methods may be used until DHS recommended or EPA-approved methods are available.

   F. If the only method available for a chemical is for wastewater analysis (e.g., a chemical listed as a priority pollutant only), sample and analyze for that chemical in the tertiary treated and disinfected effluent immediately to increase the likelihood of detection. Use this approach until the City's laboratory develops a method for the chemical in drinking water, or until a DHS-recommended or EPA-approved drinking water method is available.

   G. The City is required to inform the Regional Board, in event that D, E, F is occurring.

III. REPORTING REQUIREMENTS

The City shall submit all reports, shown on Section I SUBMITTAL OF REPORTS to the Regional Board and the DHS by the dates indicated. All quarterly and annual monitoring reports should contain a separate section titled "Summary of Non-Compliance", which discusses the compliance records and corrective actions taken or planned that may be needed to bring the reuse into full compliance with water recycling requirements. This section shall clearly list all non-compliance with water recycling requirements, as well as all excursions of effluent limitations.

1. Quarterly Reports

A. These reports shall include, at a minimum, the following information:

a. The volume of the tertiary-treated effluent used for recycled water. If no recycled water is used during the quarter, the report shall so state.

b. The date and time of sampling and analyses.

c. All analytical results of samples collected during the monitoring period of the tertiary-treated effluent and groundwater.

d. Records of any operational problems, plant upset and equipment breakdowns or malfunctions, and any discharge(s) of the tertiary-treated effluent used for recycled water.

e. Discussion of compliance, noncompliance, or violation of requirements.

f. All corrective or preventive action(s) taken or planned with schedule of implementation, if any.

B. For the purpose of reporting compliance with numerical limitations, analytical data shall be reported using the following reporting protocols:

a. Sample results greater than or equal to the DLR must be reported "as measured" by the laboratory (i.e., the measured chemical concentration in the sample); or

b. Sample results less than the DLR, but greater than or equal to the laboratory's method detection limit (MDL), must be reported as "Detected, but Not Quantified", or DNQ. The laboratory must write the estimated chemical concentration of the sample next to DNQ as well as the words "Estimated Concentration" (may be shortened to Est. Conc.); or

c. Sample results less than the laboratory's MDL must be reported as "Not-Detected", or ND.

C. If the City samples and performs analyses (other than for process/operational control, startup, research, or equipment testing) on any sample more frequently than required in this MRP using approved analytical methods, the results of those analyses shall be included in the report. These results shall be reflected in the calculation of the average used in demonstrating compliance with average effluent, receiving water, etc., limitations.

D. The Regional Board may request supporting documentation, such as daily logs of operations.

2. Annual Reports

A. Tabular and graphical summaries of the monitoring data (tertiary-treated effluent used for recycled water and ground water) obtained during the previous calendar year.

B. Discussion of the compliance record and corrective or preventive action(s) taken or planned that may be needed to bring the tertiary-treated effluent used for recycled water into full compliance with the requirements in this Order.

C. An in-depth discussion of the results of the groundwater monitoring and tertiary-treated effluent monitoring programs conducted during the previous year includes:

   a. All chloride and total dissolved solids monitoring data collected from the Los Angeles-Glendale WRP tertiary treated and disinfected effluent, and the three monitoring wells described in Section V, Groundwater Monitoring. The report shall also analyze the observed data in conjunction with imported potable water concentrations. The data shall be presented in both tabular form and plotted graphically. The report shall include a calculation of the 5-year running average of chemical constituent(s) at each well, analysis of any trends, and identification of any correlation between imported water supplies, hydrologic conditions, and plant effluent.

   b. Title 22 drinking water quality data for the nearest downgradient domestic water supply.

   c. Thorough mass balance analysis of chloride and TDS.

   Based on annual report findings, staff will present an update of the Board if chloride and TDS levels are increasing.

D. The description of any changes and anticipated changes including any impacts in operation of any unit processes or facilities shall be provided.

E. A list of the analytical methods employed for each test and associated laboratory quality assurance/quality control procedures shall be included. The report shall restate, for the record, the laboratories used by the City to monitor compliance with this Order, their status of certification, and provide a summary of performance.

F. The report shall confirm operator certification and provide a list of current operating personnel, their responsibilities, and their corresponding grade of certification.

G. The report shall also include the date of the facility's Operation and Maintenance Management Plan, the date the plan was last reviewed, and whether the plan is complete and valid for the current facilities.

H. The groundwater monitoring portion of the annual report shall be prepared under the direction of an engineer registered in the State of California, or a certified hydrogeologist in California, and experienced in the field of recycled water practices.
Each annual monitoring report shall contain a separate section titled "Exceedance of MCL Triggers" which discusses the exceedance of MCLs for constituents of concern. The following information should also be provided:

a. A list of the constituent(s) that triggered attenuation study;

b. The Drinking Water Standard that was exceeded for each given constituent;

c. The concentration of constituent(s);

d. The test method used to analyze the sample; and,

e. The date and time of sample collection.

3. **Work Plan of Site-Specific Attenuation Analysis**

Should effluent concentration(s) exceed either the most current applicable Maximum Contaminant Levels (MCLs) for drinking water established by the DHS (Attachments A-1 to A-5) or/and Chemicals with NLs (Attachment A-6), in accordance with MRP Section V.2., the City shall conduct a site-specific attenuation analysis within 180 days since the exceedances occurred. The Work Plan must be submitted to the Regional Board for Executive Officer approval within 120 days after an average annual exceedance of the trigger.

IV. EFFLUENT WATER MONITORING

The sampling station shall be established where representative samples of LAG WRP tertiary treated and disinfected effluent (effluent) water can be obtained. Tertiary-treated effluent samples shall be obtained from the effluent channel downstream of the chlorine contact basin. Should there be any change in the sampling station, the proposed station shall be approved by the Executive Officer prior to its use. Table M2 shall constitute the Title 22 effluent monitoring program:

Table M2 – Tertiary Treated and Disinfected Effluent Monitoring

Constituent	Units	Type of Sample	Minimum Frequency of Analysis
Total recycled water flow	mgd	---	continuous[1]
pH	pH units	grab[2]	daily
Settleable solids	mL/L	grab[2]	daily
Suspended solids	mg/L	24-hr comp.	weekly
BOD_5 20°C	mg/L	24-hr comp.	weekly
Oil and grease	mg/L	grab[2]	monthly
Total dissolved solids	mg/L	24-hr comp.	monthly
Chloride	mg/L	24-hr comp.	monthly
Boron	mg/L	24-hr comp.	monthly
Sulfate	mg/L	24-hr comp.	monthly
MBAS	mg/L	24-hr comp.	monthly
Nitrate-N	mg/L	24-hr comp.	quarterly
Nitrite-N	mg/L	24-hr comp.	quarterly
Nitrate-N + nitrite-N	mg/L	24-hr comp.	quarterly
Inorganic[3] with primary MCL	mg/L	24-hr comp/grab[2]	quarterly
Constituents/parameters[4] with secondary MCL	--	24-hr comp	quarterly
Regulated organic chemicals[5]	µg/L	24-hr comp./grab[2]	quarterly

[1] For those constituents that are continuously monitored, the City shall report the monthly minimum and maximum, and daily average values.

[2] Grab sample is an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples shall be collected during normal peak loading conditions for the parameter of interest, which may or may not be during hydraulic peaks. When an automatic composite sampler is not used, composite sampling shall be done as follows: If the duration of the discharge is equal to or less than 24 hours but greater than eight (8) hours, at least eight (8) flow-weighted samples shall be obtained during the discharge period and composited. For discharge duration of less than eight (8) hours, individual 'grab' sample may be substituted.

[3] See Attachment A-1 for specific constituents to be monitored.

[4] See Attachment A-5 for specific constituents to be monitored. Sampling frequency of MBAS is monthly.

[5] See Attachment A-3 for specific constituents to be monitored. Grab samples shall be used for analyses of volatile organics and cyanide; composite samples shall be used for others.

Table M2 – Tertiary Treated and Disinfected Effluent Monitoring			
Constituent	**Units**	**Type of Sample**	**Minimum Frequency of Analysis**
Remaining priority pollutants[6]	µg/L	24-hr comp./grab[2]	quarterly
Disinfection byproduct[7, 8]	µg/L	24-hr comp./grab[2]	quarterly
Radioactivity[9]	pCi/L	24-hr comp.	annually
Chemicals with NLs[10, 11]	µg/L	24-hr comp./grab[2]	semi-annually
Endocrine disrupting chemicals[10, 12]	µg/L	24-hr comp	every 5 years
Pharmaceuticals and other chemicals[10, 13]	µg/L	24 –hr comp	every 5 years

[6] Attachment A-7 for specific constituents to be monitored. Grab samples shall be used for analyses of volatile organics and cyanide; composite samples shall be used for others.

[7] See Attachment A-4 for specific constituents to be monitored. Grab samples shall be used for analyses of volatile organics and cyanide; composite samples shall be used for others.

[8] There are no numeric limits for these constituents, no numeric limits are anticipated at this time, and analytical methods may not be widely available.

Monitoring for these constituents are viewed as a diligent way of assessing and verifying recycled water quality characteristics, which can be useful in addressing issues of public perception about the safety of recycled water. Further, should there be a positive finding, the Regional Board and the DHS can give the result due consideration as to whether it is of concern or not. Just what such consideration might entail would depend on the knowns and unknowns of these constituents, including its potential health effects at the given concentration, the source of the chemical, as well as possible means of better control to limit its presence, treatment strategies if necessary, and other appropriate actions.

[9] See Attachment A-2 for specific constituents to be monitored.

[10] Prior to the commencement of delivering recycled water, at least one grab sample of recycled water shall be collected and analyzed. The results for the initial recycled water quality analysis shall be submitted to the Regional Board and the DHS. After that, at least one grab sample of recycled water shall be collected and analyzed every five years.

[11] See Attachment A-6 for specific constituents to be monitored. Grab samples shall be used for analyses of volatile organics and cyanide; composite samples shall be used for others

[12] Endocrine disrupting chemicals include ethinyl estradiol, 17-B estradiol, estrone, bisphenol A, nonylphenol and nonylphenol polyethoxylate, octylphenol and octylphenol polyethoxylate, and polybrominated diphenyl ethers. The analytical methods for these chemicals shall be approved by the DHS.

[13] Pharmaceuticals and other chemicals include acetaminopen, amoxicillin, azithromycin, caffeine, carbamazepine, ciprofloxacin, ethylenediamine tetra-acetic acid (EDTA), gemfibrozil, ibuprofen, iodinated contrast media, lipitor, methadone, morphine, salicylic acid, and triclosan. The analytical methods for these chemicals shall be approved by the DHS.

V. GROUNDWATER MONITORING

1. No Exceedance(s)

A. If no effluent concentration(s) exceed the most current applicable Maximum Contaminant Levels (MCLs) for drinking water established by the DHS (Attachments A-1 to A-5) and Chemicals with NLs (Attachment A-6), the City shall conduct groundwater monitoring at the three monitoring wells listed in Table M4. The groundwater samples shall be analyzed for the following constituents listed in Table M3 below.

Table M3 – Groundwater Monitoring			
Constituent	**Units**	**Type of Sample**	**Minimum Frequency of Analysis**
Total dissolved solids	mg/L	grab	quarterly
Chloride	mg/L	grab	quarterly

Table M4 – Well Numbers and Locations	
PO-VPB-01	Located on Brunswick Avenue in the southern part of the Los Angeles River Narrows Area.
PO-VPB-03	Located on Garden Avenue in the southern part of the Los Angeles River Narrows Area.
Pollock Well No.6	Located on Perlita Avenue south of Fletcher Drive in the southern part of Los Angeles River Narrows Area.

If any of the above cannot be sampled, the City shall propose, subject to Executive Officer approval, an alternate well that shall be sampled. The City may propose an alternative to the groundwater monitoring network, including the use of existing wells, shallower monitoring wells, soil lysimeters, etc., subject to the Executive Officer's approval.

B. Requirements For Chloride Assessment

Each well shall use a 5-year running average (most recent 5 years of chloride data) to track concentration changes over time. In the event that blending in groundwater is not occurring as anticipated, the following trigger is established for the assessment of chlorides in the groundwater. The trigger occurs when the 5-year running average chloride concentration for any of the above wells is higher than the initial average background concentration plus 50% of the difference between the initial average background concentration and the previous recycled water limit of 150 mg/l. Upon activating the trigger, the Los Angeles Department of Water and Power shall collect 5 additional monthly samples. If all of the 5 additional tests do not exceed the trigger, then the Los Angeles Department of Water and Power may return to a normal sampling

frequency. If one sample exceeds the trigger, then the additional monitoring will continue until 5 consecutive monthly samples are below the trigger. If two of any additional monthly samples exceed the trigger, then a meeting will be held between staff from the Regional Board and the City to assess the observed condition. This assessment will be based on the relative hydrologic conditions, imported water conditions, and other observed chloride trends to determine appropriate actions. These actions may range from additional data collection and analysis to modification of recycled water deliveries to irrigation customers.

2. Exceedance(s)

   Assessment for MCLs and Chemicals with NLs

   If annual averages of effluent concentrations exceed any MCLs or Chemicals with NLs, then groundwater monitoring will be initiated to track concentration changes over time. A 5-year running average (most recent five years of constituent[s] data) will be used to track concentration changes over time. The following trigger is established for the assessment of constituent(s): When the 5-year running average constituent(s) concentration for any of the above wells is higher than the background plus 50 percent of the difference between the initial average groundwater background concentration and the corresponding MCL(s) or/and Chemicals with NLs, the Los Angeles Department of Water and Power (DWP) shall collect five additional monthly samples. If all of the five additional tests do not exceed the trigger, then the DWP may return to normal sampling frequency. If one sample exceeds the trigger, then the additional monitoring will continue until five consecutive monthly samples are below the trigger. If two of any additional monthly samples exceed the trigger, then a meeting will be held between staff from the Regional Board, the DWP, and the Los Angeles Department of Public Works Bureau of Sanitation to assess the observed condition.

   This assessment will be based on the relative hydrologic conditions, and other observed constituent(s) trends to determine appropriate actions. These actions may range from additional data collection and analysis to modification of recycled water deliveries to irrigation customers.

3. The results of groundwater monitoring shall be submitted with the recycled water monitoring reports.

4. Monitoring activities associated with these major use areas will be considered representative of irrigation use of LAG WRP effluent on the San Fernando Valley Groundwater Basin. For example, if recycled water is piped to the Los Angeles Coastal Plain Groundwater Basin for wide-spread irrigation use, then the Regional Board may require monitoring of additional wells located in that Basin

VI. GENERAL MONITORING AND REPORTING REQUIREMENTS

1. For every item where the requirements are not met, the City shall submit a statement of the actions undertaken or proposed which will bring the tertiary-treated and disinfected effluent used for the recycled water program into full compliance with requirements at the earliest possible time, and submit a timetable for implementation of the corrective measures.

2. Monitoring reports shall be signed by either the principal Executive Officer or ranking elected official. A duly authorized representative of the aforementioned signatories may sign documents if:

   A. The authorization is made in writing by the signatory;

   B. The authorization specifies the representative as either an individual or position having responsibility for the overall operation of the regulated facility or activity; and

   C. The written authorization is submitted to the Executive Officer of this Regional Board.

3. The monitoring report shall contain the following completed declaration:

   "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments thereto; and that, based on my inquiry of the individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

   Executed on the ____day of _____at _____
   _____ Signature
   _____ Title

4. The City shall retain records of all monitoring information, including all calibration and maintenance, monitoring instrumentation, and copies of all reports required by this Order, for a period of at least three (3) years from the date of sampling measurement, or report. This period may be extended by request of the Regional Board or the DHS at any time and shall be extended during the course of any unresolved litigation regarding the regulated activity.

5. Records of monitoring information shall include:

   A. The date, exact place, and time of sampling or measurements;

   B. The individual(s) who performed the sampling or measurements;

   C. The date(s) analyses were performed;

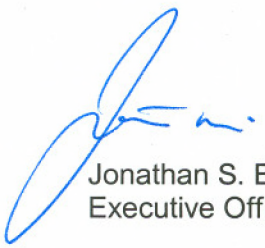
D. The individual(s) who performed the analysis;

E. The analytical techniques or methods used; and

F. The results of such analyses.

6. The City shall submit to the Regional Board, together with the first monitoring report required by this Order, a list of all chemicals and proprietary additives which could affect the quality of the tertiary-treated and disinfected effluent used for recycled water, including quantities of each. Any subsequent changes in types and/or quantities shall be reported promptly. An annual summary of the quantities of all chemicals, listed by both trade and chemical names, which are used in the treatment process shall be included in the annual report.

Ordered by:



Jonathan S. Bishop
Executive Officer

Date: January 11, 2007

/RMedina

State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. R4-2007-0006
(File No. 68-85)

WASTE DISCHARGE REQUIREMENTS
FOR
TITLE 22 RECYCLED WATER

ISSUED TO

CITY OF LOS ANGELES
(Los Angeles-Glendale Water Reclamation Plant)

The California Regional Water Quality Control Board, Los Angeles Region, (Regional Board), finds:

BACKGROUND

1. Chloride concentrations in disinfected tertiary treated wastewater effluent used as recycled water produced at the Los Angeles-Glendale Water Reclamation Plant (Los Angeles-Glendale WRP) have continued to rise over the years due to the following major reasons:

   A. During recent periods of drought, the City of Los Angeles (City), as well as other agencies, have augmented their source water with additional purchases from the Metropolitan Water District. This source water has significantly escalating chloride concentrations as a result of drought conditions.

   B. In addition, a significant amount of chloride loading may occur from the use of water softeners.

2. In order to encourage the use of recycled water in the Los Angeles Region and to allow the use of recycled water for irrigation, park and recreational, and industrial purposes from the Los Angeles-Glendale WRP in lieu of scarce potable water resources, the City requested that the chloride limit in this permit should be raised from 150 mg/L in the current permit (Order No. 86-16, adopted on June 23, 1986) to 190 mg/L, which is presently in the Resolution No. 97-072, *Amendment to the Water Quality Control Plan to Incorporate a Policy for Addressing Levels of Chloride in Discharges of Wastewater* (see Finding No. 14), adopted on January 27, 1997, and in the National Pollutant Discharge Elimination System (NPDES) permit (No. CA0053953, Order No. 98-047, adopted on June 15, 1998). Under the NPDES Permit No. CA0053953, Order No. 98-047, the Los Angeles-Glendale WRP's tertiary-treated wastewater is discharged to the Los Angeles River. However, no similar chloride relief was provided for recycled water used for irrigation, recreation, or industrial purposes and the groundwater objective for the basin underlying this project is 150 mg/L.

PURPOSE OF ORDER

3. The City of Los Angeles operates the Los Angeles-Glendale Water Reclamation under Order No. 86-16 issued on March 24, 1986. Order No. 86-16 was readopted without changes under blanket Order No. 97-072 on May 12, 1997. Order No. 86-16 is a Master Waste Discharge Requirements (WDRs) and Water Recycling Requirements (WRRs). At the request of the City, these WDRs are being separated from the WRRs. This Order now becomes a stand alone Waste Discharge Requirements and is being reissued to the City pursuant to California Water Code section 13263. These WDRs are reissued to regulate the potential percolation of constituents that may be contained in recycled water to the underlying groundwater aquifer. Los Angeles-Glendale WRP discharges tertiary treated water to the Los Angeles River that is currently regulated under a separate Waste Discharge Requirements and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0053953, Order No. R4-2006-0092, adopted by this Regional Board on December 14, 2006. The reuse of recycled water is regulated under a separate Water Recycling Requirements, Order No. R4-2007-0007.

DESCRIPTION OF FACILITY AND TREATMENT PROCESS

4. The City of Los Angeles operates the Los Angeles-Glendale WRP located at 4600 Colorado Boulevard, Los Angeles, California, and treats wastewater generated from the cities of Glendale, Burbank, Los Angeles, La Canada~Flintridge, and from the Los Angeles Zoo. The plant has a dry weather design capacity of 20.0 million gallons per day. All or a portion of the treated municipal wastewater may be reused for irrigation in Griffith Park, general park and golf course irrigation, fire fighting uses, and impoundments. The City of Glendale's irrigation and industrial projects are also served by Los Angeles-Glendale WRP.

5. Treatment consists of bar screens, primary sedimentation, activated sludge biological treatment, secondary sedimentation, filtration, chlorination, and dechlorination. The sludge from the primary and secondary treatment processes, and filter backwash is returned to the North Outfall Interceptor sewer line for treatment at the City of Los Angeles Hyperion Treatment Plant.

6. Modifications to the Treatment Plant: Los Angeles-Glendale WRP made changes to its treatment system to conduct a pilot study on nitrification and de-nitrification (NDN) process that would limit the nitrogen compounds in its effluent, as required by nitrogen TMDL, Resolution No. R4-2003-009, adopted by Regional Board on July 10, 2003. Los Angeles-Glendale WRP is making changes to its Wastewater Treatment Plant to achieve compliance with the nitrogen compounds by September 2007. Currently, Los Angeles-Glendale WRP is in compliance with the total nitrogen limitation prescribed in the existing WRRs.

QUALITY OF TERTIARY-TREATED EFFLUENT

7. The treatment process at the Los Angeles-Glendale WRP produces Title 22 Recycled Water, which can be used for irrigation, recreation, and industrial purposes.

8. Los Angeles-Glendale WRP produces recycled water containing chloride concentrations in the range of 140 mg/l to 175 mg/l.

9. The new chloride limit will accommodate fluctuations in chloride concentrations that may occur in the future and will still be below secondary drinking water standards (250 mg/l to 500 mg/l).

MASS BALANCE ANALYSIS

10. In a March 28, 2004 letter, the City provided the mass balance analysis results for chloride and total dissolved solids (TDS) to estimate impacts of chloride discharges to underlying groundwater basins over time. The mass balance analyses were conservative as they did not take into account the effect of using proper irrigation practices, or the areas underlain primarily by clay where percolation is limited, and the City assumed that recycled water will always have a chloride and TDS concentrations of 190 mg/L and 605 mg/L, respectively. Under average conditions, replacement of 10,000 acre-feet/year (AFY) of imported water with 10,000 AFY of recycled water would result in an increase in chloride and TDS loadings in the San Fernando Basin which would result in concentrations increasing from approximately 31 mg/L to 45 mg/L and 225 mg/L to 257 mg/L, respectively. The increase reflected in the Mass Balance Analysis would eventually occur if the stated conservative assumptions were realized. The City's conservative analysis estimated an increase that might occur over many years (decades), and is reflective of long-term steady state conditions on a Basin-wide basis. However, there may be short-term, localized increases in chloride in the groundwater, and inasmuch, groundwater monitoring will be required under the actual conditions to evaluate the magnitude of, and temporal nature of impacts to groundwater and to ensure that these localized increases do not impact any beneficial uses nor cause increasing concentrations that adversely impact the high quality of the groundwater. The City ultimately will need to perform an Antidegradation Analysis which the Board will consider in evaluating the longer term regulation of these discharges. The mass balance analysis results indicate that long term affects of using recycled water will not result in groundwater chloride and TDS concentrations in excess of the Basin Plan's groundwater quality objectives, which is 900 mg/L and 150 mg/L for TDS and chloride, respectively, for the San Fernando Basin Narrows area during the term of this permit. In addition, the mass balance analysis results support the City's request that the chloride limit in the Water Recycling Requirements for irrigation use of the Los Angeles-Glendale WRP's effluent should be modified to 190 mg/L subject to further review of groundwater monitoring results. Monitoring required by this Order will verify that there is no adverse impact to groundwater quality as a result of the application of recycled water with a chloride concentration of 190 mg/L. A reopener has been provided for the Board to consider revisions to this limit should the monitoring show an unacceptable increase in chloride levels in the groundwater basin.

11. Due to the above-mentioned unique situation where the proposed discharge limitation (190 mg/L) for chloride is six times greater than background concentration (31 mg/L) and 25 percent greater than the Basin Plan's Groundwater Quality Objective (150 mg/L), it is critical to confirm the assumed results of the mass balance calculation and accurately assess potential increases in overall chloride levels due to the long-term application of recycled water. Therefore, the City is required to implement a ground water monitoring program and continue to conduct the mass balance analysis to track chloride levels in

strategically located ground water wells (receiving water). The City has identified three existing wells (PO-VPB-01, PO-VPB-03 and Pollock Well No.6) to monitor the impact of recycled water application in groundwater. Monitoring required by this Order will verify that there is no adverse impact to groundwater quality as a result of applications recycled water with a chloride concentration of 190 mg/L. In the event that the groundwater monitoring data show any degradation of groundwater quality, the City will be required to conduct an Antidegradation Analysis in accordance with the Antidegradation Policy.

HYDROLOGIC UNIT

12. The Regional Board adopted a revised Water Quality Control Plan for Los Angeles River Basin on June 13, 1994. This Plan contains water quality objectives for the San Fernando Sub-unit, which is considered to be the receiving waters for recycled water applied to land. The requirements contained in the Order, as they are met, will be in conformance with the goals of the Water Quality Control Plan.

APPLICABLE PLANS, POLICIES AND REGULATIONS

13. ***Basin Plan –*** The Regional Board adopted a revised *Water Quality Control Plan for the Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan) on June 13, 1994, and amended by various Regional Board resolutions. This updated and consolidated plan represents the Board's master quality control planning document and regulations. The Basin Plan (i) designates beneficial uses for surface and groundwater, (ii) sets narrative and numerical objectives that must be attained or maintained to protect the designated (existing and potential) beneficial uses and conform to the State's antidegradation policy, and (iii) includes implementation provisions, programs, and policies to protect all waters in the Region. In addition, the Basin Plan incorporates (by reference) all applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations. This Order implements the plans, policies, and provisions of the Board's Basin Plan.

    The Basin Plan (Chapter 3) incorporates Title 22 primary Maximum Contaminant Levels (MCLs) by reference. This incorporation by reference is prospective including future changes to the incorporated provisions as the changes take effect. Also, the Basin Plan specifies that "Ground waters shall not contain taste or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses." Therefore the secondary MCLs, which are limits based on aesthetic, organoleptic standards, are also incorporated into this permit to protect groundwater quality.

14. ***Resolution No. 97-02 –*** On January 27, 1997, the Regional Board adopted Resolution No. 97-02 in order to develop a long-term solution to the chloride compliance problems stemming from elevated levels of chloride, caused by the drought and the use of water softeners, in supply waters imported into the Los Angeles region. Water Quality Objectives for chloride for the Los Angeles River between Sepulveda Flood Control Basin and Figueroa Street (including Burbank Western Channel only) has been raised from 100 mg/L to 190 mg/L.

15. ***Antidegradation Policy –*** On October 28, 1968, the State Water Resources Control Board (State Board) adopted Resolution No. 68-16*, Maintaining High Quality Water*, which

established an Antidegradation Policy for State and Regional Boards. The State Board has, in State Board Order No. 86-17 and an October 7, 1987 guidance memorandum, interpreted Resolution No. 68-16 to be fully consistent with the federal antidegradation policy. As a result, the federal antidegradation policy provides some guidance in interpreting State Board Resolution No. 68-16. The State Policy is designed to ensure that a water body will not be degraded resulting from the permitted discharge, except under the conditions established in the State Antidegradation Policy. The provisions of this Order are consistent with the Antidegradation Policy.

16. ***Beneficial Uses –*** Table 2-2, Beneficial Uses of Groundwater on page 2-17 of the Basin Plan list the beneficial uses of the San Fernando Valley Groundwater Basin as municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.

17. A February 24, 2004 State Board memorandum from Celeste Cantú to the Regional Board Executive Officers entitled "Incidental Runoff of Recycled Water", provided recommendations regarding regulatory management of incidental runoff. The memorandum state: "To further the goal of maximizing the use of recycled water, the water quality laws should be interpreted in a manner that is consistent with the intent of the Legislature to promote recycled water use." Consequently, incidental runoff from recycled water projects should be handled as follows:

    A. Where reclamation requirements prohibit the discharge of water to waters of the State and discharges are not expected to occur, occasional runoff should not trigger the need for either an individual NPDES permit or enforcement action.

    B. If discharges from reclamation project area occur routinely, such discharges can be regulated under municipal storm water NPDES permit in most cases.

    C. In limited cases, where necessary to address a water quality concern, discharges of recycled water to surface waters may be regulated under an individual NPDES permit. A NPDES permit, however, should not be issued unless necessary to achieve water quality objectives.

    The memorandum also describes the framework for regulating incidental runoff from irrigation systems and from storage ponds without issuing such a NPDES permit.

18. Section 13523.5 on water reclamation requirements in the Water Code states that a Regional Board may not deny issuance of water reclamation requirements to a project that violates only a salinity standard in a Basin Plan. In 1985, soon after this provision was added to the Water Code, the State Board Office of Chief Counsel issued a legal opinion concluding that this provision does not apply to waste discharge requirements. Hence, waste discharge requirements for projects that recycle water may contain effluent and other limitations on discharges of salts as necessary to meet water quality objectives, comply with the Antidegradation Policy, or otherwise protect beneficial uses.

CEQA AND NOTIFICATION

19. The City of Los Angeles prepared a "Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) City of Los Angeles Wastewater Facilities Plan Update" that was reported on October 1990. No significant adverse impacts on ground water quality were identified in the EIS/EIR as a result of proposed irrigation projects.

20. This Title 22 recycled water project for purposes of the California Environmental Quality Act is the use of disinfected tertiary treated discharge water as recycled water in conformance with DHS regulations and the Regional Board's Basin Plan. The Regional Board is a CEQA responsible agency for the project and has reviewed the EIS/EIR and concludes that based on substantial evidence set forth in the EIS/EIR that there will be no adverse impact on the environment that can not be mitigated.

21. Pursuant to California Water Code section 13320, any aggrieved party may seek review of this Order by filing a petition with the State Board. A petition must be sent to: State Water Resources Control Board, P.O. Box 100, Sacramento, CA 95812, within 30 days of adoption.

The Regional Board has notified the City of Los Angeles and interested agencies and persons of its intent to issue Waste Discharge Requirements Order No. R4-2007-0006 and a separate Water Recycling Requirements Order No. R4-2007-0007 for the production, distribution and use of recycled water, and has provided them with an opportunity to submit their written views and recommendations.

The Regional Board, in a public meeting, heard and considered all comments pertaining to these Waste Discharge and Water Recycling Requirements.

IT IS HEREBY ORDERED that the City of Los Angeles shall comply with the following:

I. EFFLUENT LIMITATIONS (End-of-Pipe)

1. The disinfected tertiary treated effluent shall not contain pollutants at end-of-pipe in excess of the following limits listed in Table 1.

Table 1 – Concentrations of Constituents in Disinfected Tertiary Treated Effluent

Constituents	Units	30-Day Average	7-Day Average	Daily Maximum
BOD_5 20°C	mg/L	20[1]	---	60[1]
Oil and grease	mg/L	10[1]	---	15[1]
Suspended solids	mg/L	15[1]	---	40[1]

[1] The existing permit limit has been carried over because relaxing this limitation will have the effect of increasing the amount of allowed pollutant and therefore there is the potential of lowering water quality, inconsistent with the State's Antidegradation Policy.

Table 1 – Concentrations of Constituents in Disinfected Tertiary Treated Effluent				
Constituents	**Units**	**30-Day Average**	**7-Day Average**	**Daily Maximum**
Settleable solids	mL/L	0.1[1]	---	0.3[1]
Total dissolved solids	mg/L	---	---	900[2]
Chloride	mg/L	---	---	190[3]
Sulfate	mg/L	---	---	300[2]
Boron	mg/L	---	---	1.5[2]
Nitrate-N + nitrite-N	mg/L	---	---	10[2]
Nitrate	mg/L	---	---	45[2]
Nitrate-N	mg/L	---	---	10[2]
Nitrite-N	mg/L	---	---	1[2]

2. The pH of the disinfected tertiary treated effluent used as recycled water shall at all times be within the range of 6.0 to 9.0 pH units.

3. Disinfected tertiary treated effluent used as recycled water, which could affect the receiving ground water, shall not contain any substances in concentrations toxic to human, animal, or plant life.

4. Disinfected tertiary treated effluent used as recycled water shall not contain taste or odor-producing substances in concentrations that cause nuisance or adversely affect the beneficial uses of the receiving groundwater.

5. Maximum Contaminant Levels (MCLs) and Notification Levels (NLs) Triggers (non-enforceable)

   a. Trigger Mechanism

      The effluent will be monitored for all constituents with current applicable MCLs for drinking water established by the Department of Health Services (DHS) included in the Attachments A-1, A-2, A-3, A-4, A-5, and A-6 (chemicals with NLs). If annual average of these constituents are exceeded (target chemicals), using the criteria established in section V.2. of the Monitoring and Reporting Program (MRP) No. 6183, the City will perform accelerated groundwater monitoring for these target chemicals.

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[2] This is a Ground Water Quality Objective in the Basin Plan.

[3] This is based on the revised chloride Water Quality Objective for waterbody of Los Angeles River between Sepulveda Flood Control Basin and Figueroa Street in the Resolution No. 97-02. **However, the chloride concentrations in the aquifers located below the above areas shall not be greater than 150 mg/L, groundwater water quality objective for chloride in the Basin Plan, as a result of using disinfected, tertiary-treated effluent used as recycled water.**

b. Attenuation Study

An attenuation study will be conducted for the target chemicals where MCLs are exceeded in accordnance with Section V.2. of the MRP. The study will be a minimum of two years or until sufficient data is established to calculate the appropriate attenuation factor, if warranted. The City is required to submit a workplan acceptable to the Executive Officer, which details the proposed attenuation study within 120 days after an average annual exceedance of the trigger.

c. Calculated Numeric Effluent Limits

The derivation of end-of-pipe numeric effluent limits for the target chemicals will be determined based upon the MCL multiplied by the attenuation factor (AF) and brought back to the Regional Board for consideration at a future board meeting.

II. GENERAL REQUIREMENTS

1. The City shall, at all times, properly operate and maintain all treatment facilities and control systems (and related appurtenances) which are installed or used by the City to achieve compliance with the conditions of this Order. Proper operation and maintenance includes: effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls (including appropriate quality assurance procedures).

2. Indirect potable uses and groundwater recharge are not covered by this Order.

3. A copy of these requirements shall be maintained at the water reclamation facility so as to be available at all times to operating personnel.

4. The use of recycled water shall not impact tastes, odors, color, foaming, or other objectionable characteristics to the receiving water.

III. PROVISIONS

1. To assess potential increases in overall chloride levels due to the long-term application of recycled water, the City is required to implement a ground water monitoring program to track chloride levels in strategically located ground water wells as identified in the section V of the Monitoring and Reporting Program (MRP No. 6183).

2. This Order does not alleviate the responsibility of the City to obtain other necessary local, state, and federal permits to construct facilities necessary for compliance with this Order; nor does this Order prevent imposition of additional standards, requirements, or conditions by any other regulatory agency. Expansion of the recycling facility shall be contingent upon issuance of all necessary requirements and permits, including a conditional use permit.

3. After notice and opportunity for a hearing, this Order may be modified, revoked and reissued, or terminated for cause, that include, but is not limited to: failure to comply with any condition in this Order; endangerment of human health or environment resulting from the permitted activities in this Order; obtaining this Order by misrepresentation or failure to disclose all relevant facts; acquisition of new information which could have justified the application of different conditions if known at the time of Order adoption.

   The filing of a request by the City for modification, revocation and reissuance, or termination of the Order; or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

4. The City shall furnish, within a reasonable time, any information the Regional Board or the DHS may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order. The City shall also furnish the Regional Board, upon request, with copies of records required to be kept under this Order for at least three years.

5. In an enforcement action, it shall not be a defense for the City that it would have been necessary to halt or to reduce the permitted activity in order to maintain compliance with this Order. Upon reduction, loss, or failure of the treatment facility, the City shall, to the extent necessary to maintain compliance with this Order, control production or all discharges, or both, until the facility is restored or an alternative method of treatment is provided. This provision applies, for example, when the primary source of power of the treatment facility fails, is reduced, or is lost.

6. This Order includes the attached "Standard Provisions Applicable to Waste Discharge Requirements". If there is any conflict between provisions stated hereinbefore and said "Standard Provisions", those provisions stated hereinbefore prevail.

7. This Order includes the attached Monitoring and Reporting Program CI-6183. If there is any conflict between provisions stated in the Monitoring and Reporting Program and the Standard Provisions, those provisions stated in the Monitoring and Reporting Program prevail.

IV. REOPENER

1. This Order may be reopened to include the most scientifically relevant, and appropriate limitations or other requirements for this recycling project, including (1) a revised chloride limit based on monitoring results, Antidegradation studies, or other Board Policy or (2) the application of an attenuation factor based upon an approved site-specific attenuation study conducted by the City.

2. The City of Los Angeles, Heal the Bay, and Regional Board staff will convene a workgroup to determine the best approach to addressing the competing issues associated with promoting water recycling and protecting groundwater in Los Angeles County. This order and the related Monitoring and Reporting Program shall be reopened by June 15, 2008. In the interim: (1) the groundwater monitoring requirements shall be stayed, (2) the permittee will not be required to design or

construct additional wells to comply with the aforesaid monitoring requirements, and (3) the trigger mechanisms, set forth in section I. paragraph 5., shall be stayed.

All other provisions and requirements of this order, the Monitoring and Reporting Program, and the Water Reclamation Requirements shall remain in effect.

V. EFFECTIVE DATE OF THE ORDER

This Order takes effect upon its adoption.

I, Jonathan S. Bishop, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Los Angeles Region on January 11, 2007.

Jonathan S. Bishop
Executive Officer

/RMedina

State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

MONITORING AND REPORTING PROGRAM NO. 9198
(File No. 68-085)
FOR
WATER RECYCLING REQUIREMENTS OF TITLE 22 RECYCLED WATER

ISSUED TO

CITY OF LOS ANGELES
(Los Angeles-Glendale Water Reclamation Plant)

The City of Los Angeles (City) shall implement this monitoring and reporting program on the effective date of this Order.

I. SUBMITTAL OF REPORTS

1. The City shall submit the required reports, outlined in the following paragraphs, to the California Regional Water Quality Control Board, Los Angeles Region (Regional Board), and to the California Department of Health Services, Drinking Water Field Operations, Los Angeles Region (DHS). The reports shall be received at the Regional Board and the DHS on the dates indicated as follows:

   A. **Quarterly Monitoring Reports** shall be received at the Regional Board by the 15th day of the second month following the end of each quarterly monitoring period according to Table M1. The first Quarterly Monitoring Report under this program shall be received at the Regional Board and the DHS by May 15, 2007, covering the monitoring period from January 1 to March 31, 2007.

Table M1 Quarterly Report Periods and Due Dates	
Reporting Period	**Report Due**
January – March	May 15th
April – June	August 15th
July – September	November 15th
October – December	February 15th

   B. **Annual Summary Report** shall be received at the Regional Board and the DHS by April 15th of each year. The first Annual Summary Report under this program shall be received at the Regional Board and the DHS by April 15, 2008, covering the monitoring period of year 2007.

   C. **Updated Title 22 Engineering Report** shall be submitted to the Regional Board and the DHS by December 1, 2007.

2. All monitoring and annual summary reports must be addressed to the Regional Board, Attention: Information Technology Unit. Reference the reports to Compliance File No. CI-9198 to facilitate routing to the appropriate staff and file.

3. The monitoring data shall be submitted to the Regional Board and to the DHS on hard copy, and on either a 3 1/2" computer diskette or a CD-ROM disk. The Regional Board and to the DHS may request electronic submittal of data contained in a CD-ROM disk or other appropriate electronic medium at any time. The submittal data must be IBM compatible, preferably using Microsoft Excel software.

4. The Regional Board and the State Water Resources Control Board (State Board) are developing a database compliance monitoring management system that may require the City to submit the monitoring reports electronically, when it becomes operational. (Note that DHS requires groundwater monitoring to be submitted to DHS by the Electronic Data Transfer, which is available in the DHS' website at http://www.dhs.ca.gov/ps/ddwem/EDT/default.htm). The draft regulations state: "Analytical results for chemicals shall be reported directly to the Department, as follows:

   A. Analytical results of all analyses completed in a calendar month shall be reported to the Department no later than the 15th day following the end of the second month of the designated monitoring period.

   B. Analytical results shall be reported to the DHS electronically using the Electronic Deliverable Format as defined in The Electronic Deliverable Format (EDF) Version 1.2i Guidelines & Restrictions dated April 2001 and Data Dictionary dated April 2001."

   The City should request PSCodes from the DHS so the data can be entered by the laboratories in the DHS' database.

II. MONITORING REQUIREMENTS

1. Whenever possible, quarterly monitoring shall be performed during the 1st quarter (January, February, and March), the 2nd quarter (April, May, and June), the 3rd quarter (July, August, and September), and the 4th quarter (October, November, and December); and annual monitoring shall be conducted during the third quarter of each calendar year. However, if the use of recycled water does not occur during that monitoring period, the City shall collect a sample during the next reuse event. Results of quarterly and annual analyses shall be reported in the following quarterly monitoring report. If there is no use of recycled water during the reporting period, the report shall so state. Monitoring reports shall continue to be submitted to the Regional Board, regardless of whether or not there was a use of recycled water.

2. Monitoring shall be used to determine compliance with the requirements of this Order and shall include, but not limited to, the following:

   A. Locations of each groundwater monitoring station where representative samples can be obtained and the rationale for the selection. The City must include a map, at a scale of 1 inch equals 1,200 feet or less, that clearly identifies the locations of all monitoring wells, and production wells.

B. Sampling protocols (specified in 40 CFR Part 136 or AWWA standards where appropriate) and chain of custody procedures.

C. For groundwater monitoring, outline the methods and procedures to be used for measuring water levels; purging wells; collecting samples; decontaminating equipment; containing, preserving, and shipping samples, and maintaining appropriate documentation. Also include the procedures for handling, storing, testing, and disposing of purge and decontamination waters generated from the sampling events.

D. Laboratory or laboratories, which conducted the analyses. Include copy or copies of laboratory certifications by the California Health Services Environmental Laboratory Accreditation Program (ELAP) every year or when the City changes their contract laboratory.

E. Analytical test methods used and the corresponding detection limits for reporting purposes (DLRs) unregulated and regulated chemicals. Please see the DHS' website at http://www.dhs.ca.gov/ps/ddwem/chemicals/unregulated/index.htm and http://www.dhs.ca.gov/ps/ddwem/chemicals/DLR/dlrindex.htm for unregulated and regulated chemicals, respectively.

F. Quality assurance and control measures.

3. Recycled water samples must be analyzed within allowable holding time limits as specified in 40 CFR Part 136.3. All QA/QC analyses must be run on the same dates when samples were actually analyzed. The City shall make available for inspection and/or submit the QA/QC documentation upon request by Regional Board staff. Proper chain of custody procedures must be followed and a copy of that documentation shall be submitted with the quarterly report.

4. For all bacterial analyses, sample dilutions should be performed so the range of values extends from 1 to 800. The detection methods used for each analysis shall be reported with the results of the analyses.

5. For determination of compliance with the concentration-time (CT) requirement of 450 milligram-minutes per liter at all times, the City shall obtain the following information in a 24-hour period. The CT is the product of total chlorine residual and modal contact time measured at the same time.

A. Modal contact time under highest flow and corresponding chlorine residual at that time.

B. Lowest chlorine residual and corresponding modal contact time.

C. Highest chlorine residual and corresponding modal contact time.

D. Modal contact time under lowest flow and corresponding chlorine residual at that time.

CT values shall be calculated from these four sets of data and the lowest value shall be used to determine worst case CT for the period. For the purpose of this determination, modal contact time shall be derived from a predetermined plot correlating modal contact times to varying flow conditions (results of tracer studies required in Order No.R4-2007-0007, Section I.1.A.a.). The daily lowest CT value and the daily lowest modal contact time shall be included in the monitoring reports.

Should the City use another method to determine CT compliance, the alternative method shall first be approved by the California Department of Health Services (DHS) and the Regional Board.

III. REPORTING REQUIREMENTS

The City shall submit all reports, shown on Section I SUBMITTAL OF REPORTS to the Regional Board and the DHS by the dates indicated. All quarterly, and annual monitoring reports should contain a separate section titled "Summary of Non-Compliance," which discusses the compliance records and corrective actions taken or planned that may be needed to bring the reuse into full compliance with water recycling requirements. This section shall clearly list all non-compliance with water recycling requirements, as well as all excursions of effluent limitations.

1. Quarterly Reports

A. These reports shall include, at a minimum, the following information:

a. The volume of the recycled water used. If no recycled water is used during the quarter, the report shall so state.

b. The date and time of sampling and analyses.

c. All analytical results of samples collected during the monitoring period of the recycled water and groundwater.

d. Records of any operational problems, plant upset and equipment breakdowns or malfunctions, and any diversion (s) of off-specification recycled water and the location(s) of final disposal.

e. Discussion of compliance, noncompliance, or violation of requirements.

f. All corrective or preventive action(s) taken or planned with schedule of implementation, if any.

B. For the purpose of reporting compliance with numerical limitations, analytical data shall be reported using the following reporting protocols:

a. Sample results greater than or equal to the DLR must be reported "as measured" by the laboratory (i.e., the measured chemical concentration in the sample); or

b. Sample results less than the DLR, but greater than or equal to the laboratory's method detection limit (MDL), must be reported as "Detected, but Not Quantified", or DNQ. The laboratory must write the estimated chemical concentration of the sample next to DNQ as well as the words "Estimated Concentration" (may be shortened to Est. Conc.); or

c. Sample results less than the laboratory's MDL must be reported as "Not-Detected", or ND.

C. If the City samples and performs analyses (other than for process/operational control, startup, research, or equipment testing) on any sample more frequently than required in this MRP using approved analytical methods, the results of those analyses shall be included in the report. These results shall be reflected in the calculation of the average used in demonstrating compliance with average effluent, receiving water, etc., limitations.

D. The Regional Board may request supporting documentation, such as daily logs of operations.

2. Annual Reports

A. Tabular and graphical summaries of the monitoring data obtained during the previous calendar year.

B. Discussion of the compliance record and corrective or preventive action(s) taken or planned that may be needed to bring the recycled water into full compliance with the requirements in this Order.

C. The description of any changes and anticipated changes including any impacts in operation of any unit processes or facilities shall be provided.

D. A list of the analytical methods employed for each test and associated laboratory quality assurance/quality control procedures shall be included. The report shall restate, for the record, the laboratories used by the City to monitor compliance with this Order, their status of certification, and provide a summary of performance.

E. The report shall confirm operator certification and provide a list of current operating personnel, their responsibilities, and their corresponding grade of certification.

F. The report shall also include the date of the facility's Operation and Maintenance Management Plan, the date the plan was last reviewed, and whether the plan is complete and valid for the current facilities.

3. Updated Title 22 Engineering Report (Report)

A. This Report should outline compliance with all specifications, requirements, and provisions of this accompanying Order as well as any new regulations

pertaining to recycled water that become effective after the effective date of this Order.

B. This Report shall update all information listed in the current Title 22 Engineering Report, *San Fernando Valley Water Reclamation Project*, issued on June 1992.

C. This Updated Title 22 Engineering Report shall be prepared under the direction of a properly qualified engineer, or geologist registered in California and experienced in the field of hydrogeology.

IV. RECYCLED WATER MONITORING

The sampling station shall be established where representative samples of recycled water can be obtained. For this recycling project, recycled water samples shall be obtained from the effluent channel downstream of the chlorine contact basin. Should there be any change in the sampling station, the proposed station shall be approved by the Executive Officer prior to its use. Table M2 shall constitute the Title 22 recycled water monitoring program:

Table M2 – Title 22 Recycled Water Monitoring

Constituent	Units	Type of Sample	Minimum Frequency of Analysis
Total recycled water flow	mgd	---	continuous[1]
Turbidity[2]	NTU	---	continuous[1]
Total chlorine residual[3]	mg/L	---	continuous[1]
Coliform[4]	MPN/100ml	grab[5]	daily
pH	pH units	grab[5]	daily

[1] For those constituents that are continuously monitored, the City shall report the monthly minimum and maximum, and daily average values.

[2] Turbidity shall be continuously monitored and recorded at a point after final filtration. The average value recorded each day, the amount of time that 5 NTU is exceeded, and the incident of exceeding 10 NTU, if any, shall be reported.

[3] Chlorine residual concentration shall be continuously monitored and recorded at a point after the final chlorine contact basins. Both the minimum and maximum values shall be reported daily.

[4] Samples shall be obtained subsequent to the chlorination process.

[5] Grab sample is an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples shall be collected during normal peak loading conditions for the parameter of interest, which may or may not be during hydraulic peaks. When an automatic composite sampler is not used, composite sampling shall be done as follows: If the duration of the discharge is equal to or less than 24 hours but greater than eight (8) hours, at least eight (8) flow-weighted samples shall be obtained during the discharge period and composited. For discharge duration of less than eight (8) hours, individual 'grab' sample may be substituted.

Table M2 – Title 22 Recycled Water Monitoring			
Constituent	**Units**	**Type of Sample**	**Minimum Frequency of Analysis**
Settleable solids	mL/L	grab[5]	daily
Suspended solids	mg/L	24-hr comp.	weekly

V. RECYCLED WATER USE MONITORING

The City shall submit a quarterly report, in a tabular form, on the list of users serviced during the quarter, the amount of recycled water delivered to each user, and the use of the recycled water. A summary of these data shall be included in the annual report.

VI. GENERAL MONITORING AND REPORTING REQUIREMENTS

1. For every item where the requirements are not met, the City shall submit a statement of the actions undertaken or proposed which will bring the recycled water program into full compliance with requirements at the earliest possible time, and submit a timetable for implementation of the corrective measures.

2. Monitoring reports shall be signed by either the principal Executive Officer or ranking elected official. A duly authorized representative of the aforementioned signatories may sign documents if:

   A. The authorization is made in writing by the signatory;

   B. The authorization specifies the representative as either an individual or position having responsibility for the overall operation of the regulated facility or activity; and,

   C. The written authorization is submitted to the Executive Officer of this Regional Board.

3. The monitoring report shall contain the following completed declaration:

   "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments thereto; and that, based on my inquiry of the individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

   Executed on the ____day of _____at _____
   _____ Signature
   _____ Title

4. The City shall retain records of all monitoring information, including all calibration and maintenance, monitoring instrumentation, and copies of all reports required by this Order, for a period of at least three (3) years from the date of sampling measurement, or report. This period may be extended by request of the Regional Board or the DHS at any time and shall be extended during the course of any unresolved litigation regarding the regulated activity.

5. Records of monitoring information shall include:

   A. The date, exact place, and time of sampling or measurements;

   B. The individual(s) who performed the sampling or measurements;

   C. The date(s) analyses were performed;

   D. The individual(s) who performed the analysis;

   E. The analytical techniques or methods used; and

   F. The results of such analyses.

6. The City shall submit to the Regional Board, together with the first monitoring report required by this Order, a list of all chemicals and proprietary additives which could affect the quality of the recycled water, including quantities of each. Any subsequent changes in types and/or quantities shall be reported promptly. An annual summary of the quantities of all chemicals, listed by both trade and chemical names, which are used in the treatment process shall be included in the annual report.

Ordered by:

Jonathan S. Bishop
Executive Officer

Date: January 11, 2007

/RMedina

State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. R4-2007-0007
(File No. 68-085)

WATER RECYCLING REQUIREMENTS
FOR
TITLE 22 RECYCLED WATER

ISSUED TO

CITY OF LOS ANGELES

(Los Angeles-Glendale Water Reclamation Plant)

The California Regional Water Quality Control Board, Los Angeles Region, (Regional Board), finds:

PURPOSE OF ORDER

1. The City of Los Angeles operates the Los Angeles-Glendale Water Reclamation under Order No. 86-16 issued on March 24, 1986. Order No. 86-16 was readopted without changes under blanket Order No. 97-072 on May 12, 1997. Order No. 86-16 is a Master Waste Discharge Requirements (WDRs) and Water Recycling Requirements (WRRs). At the request of the City, these WRRs are being separated from the WDRs. This Order now becomes a stand alone Water Recycling Requirements and is being reissued to the City pursuant to California Water Code section 13523. This Order prescribes the limits for the recycled water and the City's responsibilities for the production, distribution, monitoring, and application of recycled water. The City is also responsible for processing individual end-users' applications, inspecting point-of-use facilities, and ensuring end-users' compliance with the water recycling requirements contained in this Order. The actual delivery of recycled water to end-users is subject to approval by the California Department of Health Services (DHS), and/or its delegated local health agency. Los Angeles-Glendale Water Reclamation Plant (WRP) discharges tertiary treated water to the Los Angeles River that is currently regulated under a separate Waste Discharge Requirements and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0053953, Order No. R4-2006-0092, adopted by this Regional Board on December 14, 2006. The potential percolation of constituents to groundwater as a result of reusing recycled water is regulated under a separate Waste Discharge Requirements, Order No. R4-2007-0006.

DESCRIPTION OF FACILITY AND TREATMENT PROCESS

2. The City of Los Angeles operates the Los Angeles-Glendale WRP located at 4600 Colorado Boulevard, Los Angeles, California, and treats wastewater generated from the cities of Glendale, Burbank, Los Angeles, La Canada~Flintridge, and from the Los Angeles Zoo. The plant has a dry weather design capacity of 20.0 million gallons per day (mgd). All or a portion of the treated municipal wastewater may be reused for irrigation in Griffith Park, general park and golf course irrigation, fire fighting uses, and

impoundments. The City of Glendale's irrigation and industrial projects are also served by Los Angeles-Glendale WRP.

3. Treatment consists of bar screens, primary sedimentation, activated sludge biological treatment, secondary sedimentation, filtration, chlorination, and dechlorination. The sludge from the primary and secondary treatment processes, and filter backwash are returned to the North Outfall Interceptor sewer line for treatment at the City of Los Angeles Hyperion Treatment Plant.

4. Modifications to the Treatment Plant: Los Angeles-Glendale WRP made changes to its treatment system to conduct a pilot study on nitrification and de-nitrification (NDN) process that would limit the nitrogen compounds in its effluent, as required by nitrogen TMDL, Resolution No. R4-2003-009, adopted by Regional Board on July 10, 2003. Los Angeles-Glendale WRP is making changes to its Wastewater Treatment Plant to achieve compliance with the nitrogen compounds by September 2007. Currently, Los Angeles-Glendale WRP is in compliance with the total nitrogen limitation prescribed in the existing WRRs.

Recycled Water Distribution System

5. The Los Angeles-Glendale Water Reclamation Plant (LAG) provides treated water to the Cities of Los Angeles and Glendale for distribution to reclaimed water customers. Los Angeles Department of Water and Power (LADPW) major customers include Griffith Park (parkland and two golf courses), Forest Lawn Memorial Park, Mount Sinai Memorial Park, Lakeside Golf Course and MCA/Universal Studios. Water is used primarily for irrigation. Glendale's major customers of reclaimed water include Glendale-Greyson Power Plant, Scholl Canyon Park, Scholl Canyon Landfill, Scholl Canyon Golf Course and Glendale Sports Complex. Water is used primarily for irrigation and cooling water. Plans are currently underway to expand reclaimed water service south and east of LAG.

   Treated water is generated by LAG continually, but not always at rates demanded by Reclaimed Water customers. As water is generated, it is temporarily stored in a common tank used by both LADWP and Glendale. Water distributed by the system roughly varies from 2 mgd in the winter months to 5 mgd in the summer months (both flows on monthly averages). Distribution of reclaimed water is higher in the late evening to early morning hours compared to daytime use.

   The LADPW and Glendale operate five (5) product water pumps at LAG to fill a recycled water storage tank (2 million gallon capacity) at the beginning of the recycled water distribution system. Each pump is 600 horse power, 4500 gpm and VFD driven. There are provisions to install three additional pumps to facilitate future expansion. Sodium bisulfite is metered by LADWP into the water pumped to the storage tank to partially de-chlorinate the treated water from LAG.

   Water from the LADWP storage tank is distributed by gravity flow to LADWP customers and to the City of Glendale. Glendale uses a network of pump stations to pump water to five smaller storage tanks (0.13 to 0.30 million gallon capacity). Water is distributed by gravity to end users from these tanks.

LADWP controls the product water pumps remotely and would normally shut down the pumps after verbal confirmation that product water exceeded permit limits. LAG has the capability of shutting down the pumps locally if necessary.

APPLICABLE PLANS, POLICIES AND REGULATIONS

6. ***Title 22 of the California Code of Regulations*** **–** The DHS established criteria for using recycled water. These criteria are codified in Title 22, California Code of Regulations, Chapter 3 Water Recycling Criteria, including such requirements as Sources of Recycled Water, Uses of Recycled Water, and Use of Area Requirements, etc. The DHS adopted revised Water Recycling Criteria that became effective on March 20, 2001. Applicable criteria are prescribed in this Order.

7. The State Board adopted Resolution No. 77-1, Policy with Respect to Water Reclamation in California, which includes principles that encourage and recommend funding for water recycling and its use in water-short areas of the State. On September 26, 1988, the Regional Board also adopted Resolution No. 88-012, Supporting Beneficial Use of Available Reclaimed Water in Lieu of Potable Water for the Same Purpose, which encourages the beneficial use of recycled wastewater and supports water recycling projects.

8. A February 24, 2004 State Board memorandum from Celeste Cantú to the Regional Board Executive Officers entitled "Incidental Runoff of Recycled Water", provided recommendations regarding regulatory management of incidental runoff. The memorandum stated: To further the goal of maximizing the use of recycled water, the water quality laws should be interpreted in a manner that is consistent with the intent of the Legislature to promote recycled water use. Consequently, incidental runoff from recycled water projects should be handled as follows:

   A. Where reclamation requirements prohibit the discharge of waste to waters of the State and discharges are not expected to occur, occasional runoff should not trigger the need for either an individual NPDES permit or enforcement action.

   B. If discharges from reclamation project area occur routinely, such discharges can be regulated under municipal storm water NPDES permit in most cases.

   C. In limited cases, where necessary to address a water quality concern, discharges of recycled water to surface waters may be regulated under an individual NPDES permit. A NPDES permit, however, should not be issued unless necessary to achieve water quality objectives.

   The memorandum also describes the framework for regulating incidental runoff from irrigation systems and from storage ponds without issuing such a NPDES permit.

9. Section 13523 of the California Water Code provides that a Regional Board, after consulting with and receiving recommendations from DHS or its delegated local health agency, and after any necessary hearing, shall, if it determines such action to be necessary to protect the health, safety, or welfare of the public, prescribe water recycling

requirements for water that is used or proposed to be used as recycled water. Section 13523 further provides **at a minimum**, that the recycling requirements shall include, or be in conformance with, the statewide water recycling criteria established by DHS pursuant to Water Code section 13521.

10. Pursuant to California Water Code section 13523, the Regional Board has consulted with the DHS regarding the proposed recycling project and has incorporated their recommendations in this Order.

11. The requirements contained in this Order are in conformance with the goals and objectives of the Basin Plan and implement the requirements of the California Water Code and Title 22 California Code of Regulations, Chapter 3 Water Recycling Criteria.

12. Section 13523.5 on water reclamation requirements in the Water Code states that a Regional Board may not deny issuance of water reclamation requirements to a project that violates only a salinity standard in a Basin Plan. In 1985, soon after this provision was added to the Water Code, the State Board Office of Chief Counsel issued a legal opinion concluding that this provision does not apply to waste discharge requirements. Hence, waste discharge requirements for projects that recycle water may contain effluent and other limitations on discharges of salts as necessary to meet water quality objectives, comply with the Antidegradation Policy, or otherwise protect beneficial uses.

CEQA AND NOTIFICATION

13. The City of Los Angeles prepared a "Final Supplemental Environmental Impact Statement/Environmental Impact Report (EIS/EIR) City of Los Angeles Wastewater Facilities Plan Update" that was reported on October 1990. No significant adverse impacts on ground water quality were identified in the EIS/EIR as a result of proposed irrigation projects.

14. This Title 22 recycled water project for purposes of the California Environmental Quality Act is the use of disinfected tertiary-treated effluent, produced at the Los Angeles-Glendale WRP, as recycled water in conformance with DHS regulations and the Regional Board's Basin Plan. The Regional Board is a CEQA responsible agency for the project and has reviewed the EIS/EIR and concludes that based on substantial evidence set forth in the EIS/EIR, that there will be no adverse impact on the environment that cannot be mitigated.

15. Pursuant to the California Water Code section 13320, any aggrieved party may seek review of this Order by filing a petition with the State Board. A petition must be sent to: State Water Resources Control Board, P.O. Box 100, Sacramento, CA 95812, within 30 days of adoption.

The Regional Board has notified the City of Los Angeles and interested agencies and persons of its intent to issue Water Recycling Requirements Order No. R4-2007-0007 and a separate Waste Discharge Requirements Order No. R4-2007-0006 for the production, distribution and use of recycled water, and has provided them with an opportunity to submit their written views and recommendations.

The Regional Board, in a public meeting, heard and considered all comments pertaining to these Water Recycling and separate Waste Discharge Requirements.

IT IS HEREBY ORDERED that the City of Los Angeles shall comply with the following:

I. RECYCLED WATER LIMITATIONS

1. Recycled water used for irrigation shall be limited to tertiary-treated and disinfected effluent only as proposed for irrigation, industrial and other uses. The disinfected tertiary-treated effluent used as recycled water (hereafter disinfected tertiary recycled water or recycled water) is wastewater that has been filtered and subsequently disinfected that meets the following criteria:

   A. The filtered wastewater has been disinfected by either Section I.1.A.a or Section I.1.A.b.:

      a. A chlorine disinfection process that provides a concentration-time (CT) value of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on peak dry weather design flow. The CT is the product of total chlorine residual and modal contact time measured at the same period. The modal contact time is the amount of time that elapsed between the time that a tracer, such as salt or dye, is injected into the influent at the entrance of the chlorination chamber and the time that the highest concentration of the tracer is observed in the effluent from the chamber. The peak dry weather design flow is the arithmetic mean of the maximum peak flow rates sustained over some period of time (for example three hours) during the maximum 24-hour dry weather period. Dry weather period is defined as periods of little or no rainfall.

         For purposes of calculating and demonstrating compliance with the CT requirement, within 30 days after the initial delivery of recycled water, the City shall complete tracer studies under four different flow rates (the maximum, the minimum, and two points in between) to determine the respective modal contact time at the chlorine contact basin. The studies shall follow the protocol outlined in *Tracer Studies in Water Treatment Facilities: A Protocol and Case Studies* published by the American Water Works Association Research Foundation. A curve of flow rate vs. modal contact time, based on the study results, shall be used for estimating the modal contact time at a given flow rate, which is essential for the CT calculation. A final report on the tracer studies shall be submitted to the DHS and the Regional Board within 30 days after the completion of the studies.

         In the interim period before the completion of tracer studies, the theoretical retention time based on the volume of the chlorine contact basin and the design flow rate shall be used as the modal contact time in the calculation of CT.

b. A disinfection process that, when combined with the filtration process, has been demonstrated to inactivate and/or remove 99.999 percent of the plaque-forming units of F-specific bacteriophage MS2, or polio virus in the wastewater. A virus that is at least as resistant to disinfection as polio virus may be used for purposes of the demonstration.
F-specific bacteriophage MS-2 means a strain of a specific type of virus that infects coliform bacteria that is traceable to the American Type Culture Collection (ATCC 15597B1) and is grown on lawns of E. coli (ATCC 15597).

B. The median concentration of total coliform bacteria measured in the disinfected wastewater does not exceed a most probable number (MPN) or a colony forming unit (CFU) of 2.2 per 100 milliliters based on the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN/CFU of 23 per 100 milliliters in more than one sample in any 30 day period. No sample shall exceed an MPN/CFU of 240 total coliform bacteria per 100 milliliters.

C. A filtered wastewater shall be an oxidized wastewater that has been coagulated and passed through natural undisturbed soil or a bed of filter media under the following conditions:

1. At a rate that does not exceed 5 gallons per minute per square foot of surface area in mono, dual or mixed media gravity, upflow or pressure filtration systems, or does not exceed 2 gallons per minute per square foot of surface area in a traveling bridge automatic backwash filter; and,

2. The turbidity of the filtered wastewater does not exceed any of the following:

   i. An average of 2 NTU within a 24-hour period;

   ii. 5 NTU more than 5 percent of the time within a 24-hour period; and

   iii. 10 NTU at any time.

   "NTU" (Nephelometric Turbidity Unit) is a turbidity measurement determined by the ratio of the intensity of light scattered by the sample to the intensity of incident light as measured by Method 2130 B. in *Standard Methods for the Examination of Water and Wastewater, 20th E*dition; Eaton, A. D., Clesceri, L. S., and Greenberg, A. E., Eds; American Public Health Association, Washington, D.C., 1998; p2-8.

3. Continuous chemical addition upstream of the filters is not required if

   i. Final effluent turbidity does not exceed 2 NTU;

   ii. The turbidity of the influent to the filters is continuously measured;

ii. The influent turbidity to the filters does not exceed 5 NTU for more than 15 minutes in any 24-hour period and never exceeds 10 NTU; and,

iv. There is the capability to automatically activate chemical addition or divert the wastewater should the filter influent turbidity exceed 5 NTU for more than 15 minutes.

D. A coagulated wastewater shall be an oxidized wastewater in which colloidal and finely divided suspended matter have been destabilized and agglomerated upstream from a filter by the addition of suitable floc-forming chemicals.

E. An oxidized wastewater shall be wastewater in which the organic matter has been stabilized, is nonputrescible, and contains dissolved oxygen.

II. SPECIFICATIONS FOR USE OF RECYCLED WATER

The City shall oversee the end-users such that the following requirements are complied with.

1. The disinfected tertiary recycled water may be used for those applications specified in Title 22, Division 4, Chapter 3, Water Recycling Criteria of the California Code of Regulations. Should the water not meet the definition of tertiary recycled water, but instead meet the definition of disinfected secondary -23 recycled water, it may only be used for those applications specified for use of disinfected secondary -23 recycled water in Title 22, Division 4, Chapter 3, Water Recycling Criteria of the California Code of Regulations.

2. Indirect potable uses and groundwater recharge are not covered by this Order.

3. Recycled water shall not be used other than those specified in section II.1 unless a revision to engineering report has been submitted to and approved by the DHS for such other uses and/or requirements for these uses have been prescribed by this Regional Board, in accordance with Section 13523 of the California Water Code.

III. USE AREA REQUIREMENTS

Use area is an area of recycled water use with defined boundaries, which may contain one or more facilities where recycled water is used.

The City shall be responsible to ensure that all users of recycled water comply with the following:

1. No irrigation areas with disinfected tertiary recycled water shall be located within 50 feet of any domestic water supply well unless all of the following conditions have been met:

A. A geological investigation demonstrates that an aquitard exists at the well between the uppermost aquifer being drawn from and the ground surface;

B. The well contains an annular seal that extends from the surface into the aquitard;

C. The well is housed to prevent any recycled water spray from coming into contact with the wellhead facilities;

D. The ground surface immediately around the wellhead is contoured to allow surface water to drain away from the well; and,

E. The owner of the well approves of the elimination of the buffer zone requirement.

2. There shall be no storage or impoundment of disinfected tertiary recycled water within 100 feet of any domestic water supply well.

3. No irrigation shall take place within 50 feet of any open reservoir, subsurface storage reservoir, or stream currently used as a source of domestic water.

4. Use of recycled water shall comply with the following:

A. Recycled water shall be applied at such a rate and volume as not to exceed vegetative demand and soil moisture conditions. Special precautions must be taken to: prevent clogging of spray nozzles, prevent over-watering, and minimize the production of run-off. Pipelines shall be maintained so as to prevent leakage;

B. Any incidental runoff from recycled water projects should be handled as follows and shall not be considered a violation of this Order:

1. Where these WRRs prohibit the discharge of recycled water to waters of the State or the United Sates and discharges are not expected to occur, occasional runoff should not trigger the need for either an individual NPDES permit or enforcement action.

2. If discharges from recycling project area occur routinely, such discharges can be regulated under municipal storm water NPDES permit in most cases.

3. In limited cases, where necessary to address a water quality concern, discharges of recycled water to surface waters may be regulated under an individual NPDES permit. A NPDES permit, however, should not be issued unless necessary to achieve water quality objectives.

C. Spray, mist, or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities, and shall not contact any drinking water fountain; and,

D. Recycled water shall not be used for irrigation during periods of rainfall and/or runoff.

5. All recycled water use areas that are accessible to the public shall be posted with signs that are visible to the public, in a size no less than 4 inches high by 8 inches wide, that include the following wording: "RECYCLED WATER – DO NOT DRINK". Each sign shall display an international symbol similar to that shown in Figure 1. An alternative signage and wording may be used provided they are approved by the DHS.

6. No physical connection shall be made or allowed to exist between any recycled water piping and any piping conveying potable water, except as allowed under Section 7604 of Title 17, California Code of Regulations.

7. The portions of the recycled water piping system that are in areas subject to access by the general public shall not include any hose bibbs (a faucet or similar device to which a common garden hose can be readily attached). Only quick couplers that differ from those used on the potable water system shall be used on the portions of the recycled water piping system in areas subject to public access.

8. Recycled water use shall not result in earth movement in geologically unstable areas.

IV. REQUIREMENTS FOR DUAL-PLUMBED SYSTEM

1. "Dual plumbed" means a system that utilizes separated piping systems for recycled water and potable water within a facility and where the recycled water is used for either of the following purposes:

   A. To serve plumbing outlets (excluding fire suppression systems) within a building, or

   B. Outdoor landscape irrigation at individual residences.

2. The public water supply shall not be used as a backup or supplemental source of water for a dual-plumbed recycled water system unless the connection between the two systems is protected by an air gap separation which complies with the requirements of Section 7602 (a) and 7603 (a) of Title 17, California Code of Regulations, and that such connection has been approved by the DHS and/or its delegated local agency.

3. The City shall not deliver recycled water to a facility using a dual-plumbed system unless the report required pursuant to Section 13522.5 of the California Water Code, and which meets the requirements set forth in sections IV.4 and/or IV.5 of this Order, has been submitted, and approved by, the DHS and/or its delegated local agency.

The Regional Board shall be furnished with a copy of the DHS approval together with the aforementioned report within 30 days following the approval.

4. The report pursuant to Section 13522.5 of the California Water Code shall contain the following information for dual-plumbed systems, in addition to the information required by Section 60323 of Title 22, California Code of Regulations (Engineering Report):

   A. A detailed description of the intended use site identifying the following:

      1. The number, location, and type of facilities within the use area proposing to use dual-plumbed systems;

      2. The average number of persons estimated to be served by each facility on a daily basis;

      3. The specific boundaries of the proposed use site including a map showing the location of each facility to be served;

      4. The person or persons responsible for operation of the dual-plumbed system at each facility; and

      5. The specific use to be made of the recycled water at each facility.

   B. Plans and specifications describing the following:

      1. Proposed piping system to be used;

      2. Pipe locations of both the recycled and potable systems;

      3. Type and location of the outlets and plumbing fixtures that will be accessible to the public; and

      4. The methods and devices to be used to prevent backflow of recycled water into the public water system.

   C. The methods to be used by the City to assure that the installation and operation of the dual-plumbed system will not result in cross connections between the recycled water piping system and the potable water piping system. These shall include a description of pressure, dye or other test methods to be used to test the system every four years.

5. Prior to the initial operation of the dual-plumbed recycled water system and annually thereafter, the dual-plumbed system within each facility and use site shall be inspected for possible cross connections with the potable water system. The recycled water system shall also be tested for possible cross connections at least once every four years. The testing shall be conducted in accordance with the method described in section IV.4.C. of this Order. The inspections and the testing shall be performed by a cross connection control specialist certified by the California-

Nevada section of the American Water Works Association or an organization with equivalent certification requirements. A written report documenting the result of the inspection and testing for the prior year shall be submitted to the DHS within 30 days following completion of the inspection or testing.

6. The City shall notify the DHS of any incidence of backflow from the dual-plumbed recycled water system into the potable water system within 24 hours of discovery of the incident.

7. Any backflow prevention device installed to protect the public water system serving the dual-plumbed recycled water system shall be inspected and maintained in accordance with Section 7605 of Title 17, California Code of Regulations.

V. GENERAL REQUIREMENTS

1. Recycled water shall not be used for direct human consumption or for the processing of food or drink intended for human consumption.

2. Bypass, discharge, or delivery to the use area of inadequately treated recycled water, at any time, is prohibited.

3. The recycling facility shall be adequately protected from inundation and damage by storm flows and run-off.

4. Adequate freeboard and/or protection shall be maintained in the recycled water storage tanks and process tanks to ensure that direct rainfall will not cause overtopping.

5. The wastewater treatment and use of recycled water shall not result in problems caused by breeding of mosquitoes, gnats, midges, or other pests.

7. Odors of sewage origin shall not be perceivable any time outside the boundary of the treatment facility.

8. The City shall, at all times, properly operate and maintain all treatment facilities and control systems (and related appurtenances) which are installed or used by the City to achieve compliance with the conditions of this Order. Proper operation and maintenance includes: effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls (including appropriate quality assurance procedures).

9. A copy of these requirements shall be maintained at the water reclamation facility so as to be available at all times to operating personnel.

10. The City shall furnish each user of recycled water a copy of these requirements and ensure that the requirements are maintained at the user's facility so as to be available at all times to operating personnel.

11. The current Title 22 Engineering Report for the San Fernando Valley Water Recycling Project was issued on June 1992. In accordance with section 13522.5 of the California Water Code, and Title 22, Division 4, Chapter 3, Article 7, Section 60323 of the California Code of Regulations, the City shall file an updated engineering report, prepared by a properly qualified engineer registered in California, for any material change or proposed change in character, location or volume of the recycled water or its uses, and send copy to the Regional Board and to the DHS for review and approval within one year from the adoption date of January 11, 2007. This updated engineering report shall describe the current treatment plant, their impacts on the recycled water operation, and the operation and maintenance management plan, including a preventive (fail-safe) procedure and contingency plan for controlling accidental discharge and/or delivery to users of inadequately treated recycled water.

VI. PROVISIONS

1. The City shall continue to submit plans for proposed and as-built drawings for recycled water projects to and obtain approval from DHS or its delegated local health agency for each recycled water project. The American Water Works Association Guidelines for the Distribution of Non-Potable Water shall be followed, including installation of purple pipe, adequate signs, etc. As-built drawings shall show the final locations of the potable water, sewer, and recycled water pipelines; and indicate adequate separation between the recycled water and potable domestic water lines, which shall also be marked clearly or labeled using separate colors for identification. In addition, a copy of each application to DHS for a recycled water project shall be delivered to the RWQCB for inclusion in the administrative file with the following information:

    A. A description of each use area including, but not limited to, a description of what will be irrigated (e.g., landscape, specific food crop, etc.); method of irrigation (e.g., spray, flood, or drip); the location of domestic water supply facilities adjacent to the use areas; site containment measures; the party responsible for the distribution and use of the recycled water at the site; identification of other governmental entities which may have regulatory jurisdiction over the reuse site(s).

    B. A map showing specific areas of use, areas of public access, surrounding land uses, the location and construction details of wells in or near the use areas, location and type of signage, the degree of potential access by employee or the public, and any exclusionary measures (e.g. fencing).

    The City shall submit to the Regional Board a copy of the approved Recycled Water Project for the recycled water distribution system and the DHS approval within 30 days of approval.

2. For any extension or expansion of the recycled water system or use areas not covered by the Recycled Water Plan, the City shall submit a report detailing the extension or expansion plan for approval by the DHS or its delegated local health agency. The plan shall include, but not limited to, the information specified in sections

VI.1.A. and B. above. Following construction, as-built drawings shall be submitted to the DHS or its delegated local health agency for approval prior to delivery of recycled water.

The City shall submit to the Regional Board a copy of the approved expansion plan and the DHS approval within 30 days of approval.

3. If the recycled water system lateral pipelines are located on an easement contiguous to a homeowners private property and where there is a reasonable probability that an illegal or accidental connection to the recycled water line could be made, the City shall provide a buffer zone or other necessary measures between the recycled water lines and the easement to prevent any illegal or accidental connection to the recycled water lines. The City shall notify homeowners about the recycled water lateral and restrictions on usage of recycled water.

4. The City shall inspect the recycled water use areas on a periodic basis. The City shall propose an inspection schedule, based the type of use site, for approval by DHS within 90 days of the effective date of this permit. A report of findings of the inspection shall be submitted to the DHS, County Health Department, and the Regional Board on a quarterly basis.

5. The City shall submit to the Regional Board, under penalty of perjury, technical self-monitoring reports according to the specifications contained in the Monitoring and Reporting Program as directed by the Executive Officer.

6. The City shall notify this Regional Board and the DHS by telephone or electronic means within 24 hours of knowledge of any violations of recycled water use conditions or any adverse conditions as a result of the use of recycled water from this facility; written confirmation shall follow within 5 working days from date of notification.

7. The City shall notify this Regional Board and the DHS, immediately by telephone, of any confirmed coliform counts that could cause a violation of the requirements. This information shall be confirmed in the next monitoring report. For any actual coliform limit violation that occurred, the report shall also include the cause(s) of the high coliform counts, the corrective measures undertaken (including dates thereof), and the preventive measures undertaken to prevent a recurrence.

8. The direct use of Title 22 tertiary treated and disinfected recycled water for impoundments and irrigation could affect the public health, safety, or welfare; requirements for such uses are therefore necessary in accordance with Section 13523 of the Water Code.

9. Based on February 24, 2004 memorandum, recycled water ponds should follow the following:

    a. The recycled water pond is designed not to spill during wet months. Under this circumstance, spills that occur under extreme weather conditions or emergencies should not be considered for enforcement.

b. Recycled water ponds can be drained and refilled with potable water or flushed with potable water prior to the onset of the wet season. Flushing will not displace all of the recycled water but the water quality threat is minimal.

c. Recycled water ponds designed to spill recycled water during the wet season can be regulated under Phase 1 municipal storm water permits or under a general storm water permit. These permits require reduction of pollutants to the maximum extent practicable. The permits also incorporate receiving water limitations requiring the implementation of an iterative process for addressing any exceeding of water quality objectives.

10. This Order does not exempt the City from compliance with any other laws, regulations, or ordinances which may be applicable; they do not legalize the recycling and use facilities; and they leave unaffected any further constraint on the use of recycled water at certain site(s) that may be contained in other statutes or required by other agencies.

11. This Order does not alleviate the responsibility of the City to obtain other necessary local, state, and federal permits to construct facilities necessary for compliance with this Order; nor does this Order prevent imposition of additional standards, requirements, or conditions by any other regulatory agency. Expansion of the recycled water distribution facility shall be contingent upon issuance of all necessary requirements and permits, including a conditional use permit.

12. After notice and opportunity for a hearing, this Order may be modified, revoked and reissued, or terminated for cause, that include, but is not limited to: failure to comply with any condition in this Order; endangerment of human health or environment resulting from the permitted activities in this Order; obtaining this Order by misrepresentation or failure to disclose all relevant facts; acquisition of new information which could have justified the application of different conditions if known at the time of Order adoption.

    The filing of a request by the City for modification, revocation and reissuance, or termination of the Order; or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

13. The City shall furnish, within a reasonable time, any information the Regional Board or the DHS may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order. The City shall also furnish the Regional Board, upon request, with copies of records required to be kept under this Order for at least three years.

14. In an enforcement action, it shall not be a defense for the City that it would have been necessary to halt or to reduce the permitted activity in order to maintain compliance with this Order. Upon reduction, loss, or failure of the treatment facility, the City shall, to the extent necessary to maintain compliance with this Order, control production or all discharges, or both, until the facility is restored or an alternative method of

treatment is provided. This provision applies, for example, when the primary source of power of the treatment facility fails, is reduced, or is lost.

15. This Order includes the Water Recycling Requirements (WRRs) and the attached Monitoring and Reporting Program (MRP, CI No. 9198). If there is any conflict between provisions stated in the MRP and these WRRs, those provisions stated herein before prevail.

VII. EFFECTIVE DATE OF THE ORDER

This Order takes effect upon its adoption.

I, Jonathan S. Bishop, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Los Angeles Region on January 11, 2007.

Jonathan S. Bishop
Executive Officer

/RMedina

Appendix J: Public Draft Comment Letters

Lauren Everett

From: Cyrous Gilani <cyrous.gilani@lacity.org>
Sent: Wednesday, November 8, 2017 10:29 AM
To: Joline Munoz; Lauren Everett
Subject: Fwd: Los Angeles-Glendale WRP Primary Effluent Equalization Storage and Personnel Building Project

Hi Joline and Lauren,

I believe this comments is for your project under TAF #17. Please contact the sender if you have question.

Thanks
Cyrous

Cyrous
---------- Forwarded message ----------
From: **Totton, Gayle@NAHC** <Gayle.Totton@nahc.ca.gov>
Date: Wed, Nov 8, 2017 at 10:20 AM
Subject: Los Angeles-Glendale WRP Primary Effluent Equalization Storage and Personnel Building Project
To: "cyrous.gilani@lacity.org" <cyrous.gilani@lacity.org>

Comment No. 1

Good morning Mr. Gilani,

I have finished reviewing the Mitigated Negative Declaration on the above referenced project. Since the document is substantially in compliance with the requirements of AB-52, I didn't want to send a formal comments letter but there is one correction/clarification I am requesting you make in the document. The narrative in the Cultural Resources and Tribal Cultural Resources section refer to the process for inadvertent finds of human remains without noting the specific requirements of Public Resources Code (PRC) section 5097.98. The description of that process in Appendix E is in error, stating that the Most Likely Descendent (MLD) has 48 hours from time of contact to make recommendations for disposition of the remains. The PRC states that the MLD has 48 hours from the time they access the site to make recommendations. Since the information in the Appendix is incorrect, I would request that you include the correct specific requirements for inadvertent finds of human remains as a mitigation measure in the Cultural Resources and Tribal Cultural Resources sections.

Please let me know if you have any questions or need additional information about this request.

Sincerely,

Gayle Totton, M.A., Ph.D.
Associate Governmental Program Analyst
Native American Heritage Commission
(916) 373-3714

--
Cyrous Gilani, P.E.
Wastewater Engineering Services Division | Odor Control Group Manager
LA Sanitation | Department of Public Works
2714 Media Center Drive

Los Angeles, CA 90065
O: (323)342-1580 | F: (323)342-6210



Lauren Everett

From: Jennifer Haddow <jhaddow@rinconconsultants.com>
Sent: Monday, November 27, 2017 9:34 AM
To: Lauren Everett
Subject: RE: LA-Glendale WRP Primary Effluent CEQA

If it helps, she says that "the Document [not sure if she means MND or BRA] is unclear as to the volume of increased storage being proposed by this Project (appears 5.64 MG), how long this water will be held, and if this water was historically released to the Los Angeles River will now be stored in a tank waiting for demand (customers) to purchase it instead of being released to the Los Angeles River." She is seeking clarification as to what reduction of current discharge (flow) to the Los Angeles River will occur as a result of the increased on-site storage proposed as part of this Project.

My understanding of the project is that there is no change in the amount of storage at the site since this is a redundancy project only and that there would be no change to any discharge to the River. I can let her know that but wanted to confirm with you and the City before sending the response since you may have a better way of describing it.

From: Lauren Everett [mailto:LaurenEverett@kennedyjenks.com]
Sent: Monday, November 27, 2017 9:30 AM
To: Jennifer Haddow <jhaddow@rinconconsultants.com>
Subject: Re: LA-Glendale WRP Primary Effluent CEQA

Hi Jennifer, I am not able to see the response from Kelly. I am on travel and won't be in the office until likely tomorrow afternoon. If you think it is something that can be answered quickly I would appreciate if you guys could take care of it, but understand if not if it is something specific to the project description which is more apt for me to take care of. Thanks, Lauren

Sent from my iPhone

On Nov 27, 2017, at 10:08 AM, Jennifer Haddow <jhaddow@rinconconsultants.com> wrote:

> Thank you for the clarification Kelly. We will coordinate with the City to get you a response shortly.
>
> Regards
>
> Jennifer
>
> ---
>
> **From:** Schmoker, Kelly@Wildlife [mailto:Kelly.Schmoker@wildlife.ca.gov]
> **Sent:** Monday, November 27, 2017 8:56 AM
> **To:** Steven Hongola <shongola@rinconconsultants.com>; Jennifer Haddow <jhaddow@rinconconsultants.com>; laureneverett@kennedyjenks.com; cyrous.gilani@lacity.org
> **Cc:** joline.munoz@lacity.org; Heather Imgrund <himgrund@rinconconsultants.com>; Birosik, Shirley@Waterboards <Shirley.Birosik@waterboards.ca.gov>
> **Subject:** RE: LA-Glendale WRP Primary Effluent CEQA
>
> Hi, Comment No. 2
>
> It would probably do more good to speak with the city. I am seeking clarification as to how this project will affect flow in the LA River.

The Document is unclear as to the volume of increased storage being proposed by this Project (appears 5.64 MG), how long this water will be held, and if this water was historically released to the Los Angeles River will now be stored in a tank waiting for demand (customers) to purchase it instead of being released to the Los Angeles River.

I am seeking clarification as to what reduction of current discharge (flow) to the Los Angeles River will occur as a result of the increased on-site storage proposed as part of this Project.

Thanks,
Kelly

Kelly Schmoker-Stanphill, M.S.
Senior Environmental Scientist (Specialist)
California Department of Fish and Wildlife
Habitat Conservation Planning
949-581-1015
Kelly.Schmoker@wildlife.ca.gov

The mission of the Habitat Conservation Planning Branch is to provide for the conservation, protection, restoration, and management of fish, wildlife, and native plants and to preserve and restore the ecosystems (including ecological processes) on which they depend for use and enjoyment by the public.

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Please don't move firewood!

<image001.png>

Every Californian should conserve water. Find out how at:

<image002.jpg>
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From: Steven Hongola [mailto:shongola@rinconconsultants.com]
Sent: Monday, November 27, 2017 8:39 AM
To: Jennifer Haddow <jhaddow@rinconconsultants.com>; laureneverett@kennedyjenks.com
Cc: Schmoker, Kelly@Wildlife <Kelly.Schmoker@wildlife.ca.gov>; joline.munoz@lacity.org; Heather Imgrund <himgrund@rinconconsultants.com>
Subject: RE: LA-Glendale WRP Primary Effluent CEQA

Thank you, Jennifer.

Kelly – how is your schedule looking this afternoon for a call?

Best,
Steve

Steven J. Hongola
Principal / Senior Ecologist

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805 644 4455 EXT 41
805 712 6288 MOBILE
www.rinconconsultants.com
Environmental Scientists Planners Engineers

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From: Jennifer Haddow
Sent: Monday, November 27, 2017 8:34 AM
To: Lauren Everett
Cc: Kelly.Schmoker@wildlife.ca.gov; joline.munoz@lacity.org; Steven Hongola
Subject: RE: LA-Glendale WRP Primary Effluent CEQA

Thanks Lauren. I am going to ask the main author (Steve Hongola) of the Biological Resources Assessment to give Kelly a call so that he can answer her questions directly. Steve is cc'd on this email.

Regards,

Jennifer

From: Lauren Everett [mailto:LaurenEverett@kennedyjenks.com]
Sent: Monday, November 27, 2017 7:27 AM
To: Jennifer Haddow <jhaddow@rinconconsultants.com>
Cc: Kelly.Schmoker@wildlife.ca.gov; joline.munoz@lacity.org
Subject: Fwd: LA-Glendale WRP Primary Effluent CEQA

Hi Jennifer,

I hope you had a nice holiday. Would you please contact Kelly from the Fish and Wildlife Service regarding her questions on the LASAN CEQA project. Her contact info is cc'd and number below.

Thank you!
Lauren

Sent from my iPhone

Begin forwarded message:

> **From:** Cyrous Gilani <cyrous.gilani@lacity.org>
> **Date:** November 27, 2017 at 7:28:07 AM MST
> **To:** Lauren Everett <LaurenEverett@kennedyjenks.com>, Joline Munoz <joline.munoz@lacity.org>
> **Cc:** <Kelly.Schmoker@wildlife.ca.gov>
> **Subject: Fwd: LA-Glendale WRP Primary Effluent CEQA**
>
> Hi Lauren and Joline,
>
> Kelly Schmoker with California Department of Fish and Wild Life has some question regarding LAG WRP Primary Effluent CEQA. Please contact her to answer her questions.
>
> Thanks

Cyrous
---------- Forwarded message ----------
From: **Schmoker, Kelly@Wildlife** <Kelly.Schmoker@wildlife.ca.gov>
Date: Wed, Nov 22, 2017 at 12:45 PM
Subject: LA-Glendale WRP Primary Effluent CEQA
To: "cyrous.gilani@lacity.org" <cyrous.gilani@lacity.org>

Hello,

I am reviewing the above referenced document and have a few questions I was hoping you could answer. If you could return my call at 949-581-1015 I would appreciate it.

Thanks,

Kelly

Kelly Schmoker-Stanphill, M.S.

Senior Environmental Scientist (Specialist)

California Department of Fish and Wildlife

Habitat Conservation Planning

949-581-1015

Kelly.Schmoker@wildlife.ca.gov

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Prevent the spread of destructive tree pests!

Please don't move firewood!

<image001.png>

Every Californian should conserve water. Find out how at:

<image002.jpg>

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--

Cyrous Gilani, P.E.
Wastewater Engineering Services Division | Odor Control Group Manager
LA Sanitation | Department of Public Works
2714 Media Center Drive
Los Angeles, CA 90065
O: (323)342-1580 | F: (323)342-6210
<image005.jpg>

Lauren Everett

From: Schmoker, Kelly@Wildlife <Kelly.Schmoker@wildlife.ca.gov>
Sent: Wednesday, November 29, 2017 11:40 AM
To: Lauren Everett
Subject: Re: LA-Glendale WRP Primary Effluent CEQA

Hi Lauren,

No, that response was all we needed. Thanks.

Kelly Schmoker, M.S.
Senior Environmental Scientist (Specialist)
949-581-1015

From: Lauren Everett <LaurenEverett@kennedyjenks.com>
Sent: Wednesday, November 29, 2017 11:24:10 AM
To: Schmoker, Kelly@Wildlife
Subject: RE: LA-Glendale WRP Primary Effluent CEQA

Hi Kelly,

Just following up to see if you had any more questions or needed more info?

Please let me know if I can be of more help.

Thank you!!

Kindly,
Lauren

J. Lauren Everett | Water Resources Project Manager
Kennedy/Jenks Consultants
Direct: 805.973.5723

From: Lauren Everett
Sent: Tuesday, November 28, 2017 11:18 AM
To: 'Schmoker, Kelly@Wildlife' <Kelly.Schmoker@wildlife.ca.gov>
Cc: Joline Munoz <joline.munoz@lacity.org>; Cyrous Gilani <cyrous.gilani@lacity.org>
Subject: RE: LA-Glendale WRP Primary Effluent CEQA

Hi Kelly,

I thought it may be best to provide you with this initial response to your questions. But please feel free to contact me directly should you have any additional questions or concerns about the project.

I understand from your comments that the CEQA document is unclear as to the volume of increased storage being proposed by this Project (5.64 MG), how long this water will be held, and if this water historically released to the Los

Angeles River will now be stored in a tank waiting for demand (customers) to purchase it instead of being released to the Los Angeles River.

The proposed project is a redundancy project only and there would be no change of flows released to the Los Angeles River. The project is not proposing to increase the amount of wastewater treated nor change the amount provided as recycled water or discharged to the river. The Project rather provides for the addition of structures which will be utilized for *existing uses* in order to improve plant performance and provide temporary storage of raw influent/primary effluent during peak wet weather events only.

A summary of the proposed upgrades to be used for existing uses are as follows:

2 Primary Clarifiers: These two new clarifiers will improve plant performance. The 0.44 MG may be used for temporary storage during peak wet weather events only.

2.5 MG equalization tank: This new tank will improve process performance. The main function is to act as a buffer, to store/process the incoming raw influent that comes at widely fluctuating rates and provides to the biological nutrient removal at steady (average) flow rates. During the peak hours flow comes in at high levels, it is stored in the EQ tanks, and released back to the headworks at low flow hours.

3 Aeration Tanks: Each tank can hold approximately 0.9 MG, for a total of 2.7 MG. One tank will be retrofitted with biological nutrient removal equipment and will be used to improve operational availability and may be used for peak wet weather events. Two tanks will used only during peak wet weather events to prevent sewer overflows.

2 Secondary Clarifiers: These will provide for process improvements only.

Please let me know if you have further questions. I am available all day today, tomorrow until 1pm, and all day Thursday and Friday.
Kindly,
Lauren

J. Lauren Everett | Water Resources Project Manager
Kennedy/Jenks Consultants
Direct: 805.973.5723

From: Schmoker, Kelly@Wildlife [mailto:Kelly.Schmoker@wildlife.ca.gov]
Sent: Monday, November 27, 2017 2:42 PM
To: Lauren Everett <LaurenEverett@kennedyjenks.com>; Cyrous Gilani <cyrous.gilani@lacity.org>
Cc: Joline Munoz <joline.munoz@lacity.org>
Subject: Re: LA-Glendale WRP Primary Effluent CEQA

Hi Laura

I am still trying to get a hold of someone with the city to ask a few questions regarding this CEQA document. I will need to request an extension until Dec 5th as the deadline for our comments is 11/29.

Kelly Schmoker, M.S.
Senior Environmental Scientist (Specialist)
949-581-1015

From: Lauren Everett <LaurenEverett@kennedyjenks.com>
Sent: Monday, November 27, 2017 7:22:11 AM
To: Cyrous Gilani
Cc: Joline Munoz; Schmoker, Kelly@Wildlife
Subject: Re: LA-Glendale WRP Primary Effluent CEQA

Hi Cyrous,

Thank you for the notification.

Kelly, I will have our biological consultant contact you regarding this project.

Kindly,
Lauren

Sent from my iPhone

On Nov 27, 2017, at 7:29 AM, Cyrous Gilani <cyrous.gilani@lacity.org> wrote:

> Hi Lauren and Joline,
>
> Kelly Schmoker with California Department of Fish and Wild Life has some question regarding LAG WRP Primary Effluent CEQA. Please contact her to answer her questions.
>
> Thanks
> Cyrous
> ---------- Forwarded message ----------
> From: **Schmoker, Kelly@Wildlife** <Kelly.Schmoker@wildlife.ca.gov>
> Date: Wed, Nov 22, 2017 at 12:45 PM
> Subject: LA-Glendale WRP Primary Effluent CEQA
> To: "cyrous.gilani@lacity.org" <cyrous.gilani@lacity.org>
>
> Hello,
>
> I am reviewing the above referenced document and have a few questions I was hoping you could answer. If you could return my call at 949-581-1015 I would appreciate it.
>
> Thanks,
>
> Kelly
>
> Kelly Schmoker-Stanphill, M.S.
>
> Senior Environmental Scientist (Specialist)
>
> California Department of Fish and Wildlife

Habitat Conservation Planning

949-581-1015

Kelly.Schmoker@wildlife.ca.gov

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--
Cyrous Gilani, P.E.
Wastewater Engineering Services Division | Odor Control Group Manager
LA Sanitation | Department of Public Works
2714 Media Center Drive
Los Angeles, CA 90065
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STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

November 30, 2017

Cyrous Gilani
City of Los Angeles
2714 Media Center Dr
Los Angeles, CA 90065

Comment No. 3

Subject: Los Angeles-Glendale WRP Primary Effluent Equalization Storage and Personnel Building Project
SCH#: 2017101069

Dear Cyrous Gilani:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. The review period closed on November 29, 2017, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2017101069
Project Title Los Angeles-Glendale WRP Primary Effluent Equalization Storage and Personnel Building Project
Lead Agency Los Angeles, City of

Type **MND** Mitigated Negative Declaration

Description LA Sanitation, LASAN is proposing operational and physical administration upgrades for existing uses at the LA-Glendale Water Reclamation Plant. The proposed project includes three primary elements. Primary effluent equalization storage project; new personnel building; and rehabilitation of the existing administration building.

Lead Agency Contact

Name Cyrous Gilani
Agency City of Los Angeles
Phone 323-342-1580 **Fax**
email
Address 2714 Media Center Dr
City Los Angeles **State** CA **Zip** 90065

Project Location

County Los Angeles
City Los Angeles, City of
Region
Lat / Long 34° 8' 20.83" N / 118° 16' 26.08" W
Cross Streets 4600 Colorado Blvd
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways 134, 5
Airports
Railways SPRR
Waterways LA River
Schools
Land Use Z: R, C, and M series, public facilities and open space

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Cumulative Effects; Forest Land/Fire Hazard; Geologic/Seismic; Growth Inducing; Landuse; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Septic System; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian

Reviewing Agencies Resources Agency; Department of Fish and Wildlife, Region 5; Department of Parks and Recreation; Department of Water Resources; Caltrans, District 7; State Water Resources Control Board, Divison of Financial Assistance; State Water Resources Control Board, Division of Water Quality; Regional Water Quality Control Board, Region 4; Native American Heritage Commission; San Gabriel & Lower Los Angeles Rivers & Mountains Conservancy

Date Received 10/31/2017 **Start of Review** 10/31/2017 **End of Review** 11/29/2017

Note: Blanks in data fields result from insufficient information provided by lead agency.