HELIX Environmental Planning

Sunset Complex Project

Environmental Impact Report

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µg	micrograms
AAM	Annual Arithmetic Mean
AB	Assembly Bill
AC	air-conditioning
ACM	Asbestos Containing Materials
ADT	average daily traffic
AF	acre-feet
amsl	above mean sea level
APCD	air pollution control district
APN	Assessor's Parcel Number
APS	alternative planning strategy
AQMP	Air Quality Management Plan
AR4	Fourth Assessment Report
AR5	Fifth Assessment Report
AST	Aboveground Storage Tank
AWWA	American Water Works Association
BACM	best available control measure
BAT	best available technology
BMP	best management practice
BTU	British thermal unit
C&D	construction and demolition
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CadnaA	Computer Aided Noise Abatement
CAFE	Corporate Average Fuel Economy
CalARP	California Accidental Release Prevention Program
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
CalOSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CASQA	California Stormwater Quality Association
CBC	California Building Code
CBSC	California Building Standards Commission
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFCs	chlorofluorocarbons
CFR	Code of Federal Regulations
CH_4	methane
CHRIS	California Historical Resources Information System

CIP	Capital Improvement Project
City	City of Pasadena
CLG	Certified Local Government
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CRA	Colorado River Aqueduct
CRHR	California Register of Historical Resources
CSTMP	Construction Staging and Traffic Management Plan
CUPA	Certified Unified Program Agency
CY	cubic yards
dB	decibels
dBA	decibels with A-weighting
DDW	Division of Drinking Water
Delta	Sacramento-San Joaquin DeltaDPM diesel particulate matter
DPR	Department of Parks and Recreation
DTSC	California Department of Toxic Substances Control
EA	Environmental Assessment
EIR	Environmental Impact Report
EO	Executive Order
EV	electric vehicle
FHWA	Federal Highway Administration
GAC	granular activated carbon
GHG	greenhouse gas
gpm	gallons per minute
GWP	global warming potential
GWTP	groundwater treatment plant
HAER	Historic American Engineering Record
HAP	hazardous air pollutant
HAZWOPER	Hazardous Waste Operations and Emergency Response Standard
HFCs	hydrofluorocarbons
HGL	hydraulic grade line
HRA	health risk assessment
HRER	Historic Resources Evaluation Report
HRS	Hazard Ranking System
HVAC	heating, ventilation, and air conditioning
Hz	Hertz
I-	Interstate
IPCC	United Nations Intergovernmental Panel on Climate Change
IS	Initial Study
IX	ion exchange

kBtu	kilo-British thermal units
kHz	kilohertz
kWh	kilowatt hours
LACFD	Los Angeles County Fire Department
LACSD	Los Angeles County Sanitation Districts
LBP	Lead-Based Paint
LCFS	Low Carbon Fuel Standard
L_{EQ}	time-averaged noise levels
LID	Low Impact Development
LOS	Level of Service
LPGAC	liquid phase granular activated carbon vessels
LST	localized significance threshold
LUST	Leaking Underground Storage Tank
LVLWC	Lake Vineyard Land and Water Company
m^3	cubic meter
MG	million gallons
MGD	million gallons per day
MLD	Most Likely Descendant
MMcf	million cubic feet
mph	miles per hour
MPO	metropolitan planning organization
MT	metric tons
MTS	manual transfer switch
MUTCD	Manual of Uniform Traffic Control Devices
MWD	Metropolitan Water District of Southern California
MWh	megawatt-hours
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NASA	National Aeronautics and Space Administration
ND	Negative Declaration
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NIOSH	National Institute for Occupational Safety and Health
NOP	Notice of Preparation
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPS	National Parks Service
NRHP	National Register of Historic Places
NSLUs	noise-sensitive land uses

O_3	ozone
ODS	ozone-depleting substances
OEHHA	Office of Environmental Health Hazard Assessment
OHP	State Office of Historic Preservation
OSHA	Occupational Safety and Health Administration
Pb	lead
PFCs	perfluorocarbons
PFD	Pasadena Fire Department
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
PM_{10}	particulate matter less than or equal to 10 microns in diameter
PMC	Pasadena Municipal Code
ppb	parts per billion
ppm	parts per million
PRC	Public Resources Code
Project	Pasadena Sunset Complex Project
PS	Public and Semi-Public
PVC	polyvinyl chloride
PWP	Pasadena Water and Power
PZ	Pressure Zone
RCNM	Roadway Construction Noise Model
RCRA	Resources Conservation and Recovery Act
ROG	reactive organic gas
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
SAR	Second Assessment Report
SARA	Superfund Amendments and Reauthorization Act
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
SF_6	sulfur hexafluoride
SIP	State Implementation Plan
SLCPs	short-lived climate pollutants
SLF	Sacred Lands File
SO_2	sulfur
SoCalGas	Southern California Gas Company
SPL	Sound Pressure Level
SR	State Route
SRA	source receptor area
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan

TAC	toxic air contaminant
TCP	Trichloropropane
TCR	Tribal Cultural Resource
TNM	Traffic Noise Model
TSCA	Toxic Substances Control Act
UNFCCC	United Nations Framework Convention on Climate Change
URF	unit risk factor
USDOT	U.S. Department of Transportation
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
UWMP	Urban Water Management Plan
VOC	Volatile Organic Compound
WSRP	Water System and Resources Plan

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EXECUTIVE SUMMARY

In accordance with the California Environmental Quality Act (CEQA) Guidelines Section 15123, this section provides a summary of the Environmental Impact Report (EIR) for the proposed Pasadena Sunset Complex Project (Project or proposed Project) and its environmental effects. Included in this summary are areas of known controversy and issues to be resolved, a summary of Project alternatives, a summary of all Project impacts and associated mitigation measures, and a statement of the ultimate level of significance after mitigation is applied.

ES.1 Document Purpose

This EIR was prepared by the City of Pasadena (City), as lead agency, to inform decisionmakers and the public of the potential significant environmental effects associated with the Project. This EIR has been prepared in accordance with CEQA (California Public Resources Code, Section21000 et seq.) and the CEQA Guidelines for Implementation of the California Environmental Quality Act (CEQA Guidelines; 14 CCR 15000 et seq.) published by the Public Resources Agency of the State of California.

As described in Section 15121 (a) and 15362of the State CEQA Guidelines[1], an EIR is an informational document which will inform public agency decision-makers and the public of the potentially significant environmental effects of a project, identify possible ways to mitigate any significant environmental effects, and identify and evaluate a reasonable range of alternatives to the Project that have the potential to reduce or avoid the project's potential significant environmental effects, while feasibly accomplishing most of the Project's basic objectives.

ES.2 Project Location

The Project site is located in western Pasadena at the northwest corner of the intersection of Sunset Avenue and West Mountain Street (Assessor's Parcel Number 5728-021-916, 5728-021-911 and 5728-021-913). The Project site is bordered by residences to the north, Sunset Avenue to the east, West Mountain Street to the south, and City buildings to the west. Surrounding land uses also include Brenner Park to the south, Interstate 210 (I-210) to the west, and residential uses on all sides. All proposed Project components under the scope of the Project would be located within the boundary of the existing site, with the exception of pipeline, mechanical and street improvements and site enhancements that would occur within the public right-of-way on Sunset Avenue and West Mountain Street adjacent to the reservoir property. Additionally, the City's Maintenance Yard's existing parking lot south of West Hammond Street would be reconfigured to allow for additional employee parking. Employees would access and exit the lot via the main entrance off West Mountain Street and existing gates on Hammond Street.

The Project site can be accessed via I-210 by exiting on West Mountain Street immediately west of the Project site. The site can also be accessed via West Mountain Street and from the north along Sunset Avenue.

[1] California Code of Regulations Title 14, Chapter 3, Sections 15000-15387

ES.3 Background

Pasadena Water and Power (PWP) currently imports approximately 65 percent of its potable water from Metropolitan Water District of Southern California (MWD) of which the City is a member agency. MWD imports water from the Sacramento-San Joaquin Delta (Delta) via the State Water Project (SWP) and from the Colorado River Aqueduct (CRA). The remaining approximately 35 percent of the City's potable water is supplied from the Raymond Basin aquifer (PWP 2020). A minimal, varying portion of potable water is purchased from neighboring water agencies, which includes a combination of surface and groundwater. The overall intent of the Project is to replace aging and deficient water storage and treatment infrastructure to ensure that the City can continue to provide reliable and clean drinking water.

ES.4 Project Objectives

Section 15124 of the State CEQA Guidelines requires the Project Description of an EIR to include a statement of the objectives sought by the proposed Project, which is intended to help the Lead Agency to develop a reasonable range of alternatives to evaluate in the EIR and the preparation of Findings of Fact and a Statement of Overriding Considerations, if necessary. The statement of objectives may include the Project benefits. The objectives that have been established for the proposed project are listed below.

The overall intent of the Project is to replace aging and deficient water storage and incorporate treatment infrastructure to ensure that the City can continue to provide reliable and clean drinking water. More specifically, the Project includes the following objectives:

Objective 1: Provide safe drinking water and system reliability to PWP customers by:

a. Addressing existing water leaks and seismic safety concerns present in the existing deteriorating Sunset Reservoirs.

b. Constructing reservoirs that provide the volume necessary for operational and fire flow requirements.

c. Replacing the existing reservoirs onsite with a new reservoir or reservoirs that meet current engineering and seismic safety standards (2022 California Building Code or current code at the time permits are issued) for essential facilities as designated by California Building Code Section 1604.5.

d. Providing an on-site groundwater treatment system to remove perchlorates and volatile organic compounds at a rate of up to 4,500 gallons per minute (gpm), and provide space for nitrate removal at a rate of up to 800 gpm.

e. Installing emergency generators to provide emergency power in the event of a power failure.

f. Maintaining existing system hydraulics.

Objective 2: Improve the reliability of water service to existing PWP customers throughout implementation of the Project.

Objective 3: Maintain parking capacity for City employees currently parking at the site.

Objective 4: Maintain vehicular access to surrounding residences during construction activities, including pipeline connections and other improvements on adjacent public streets.

Objective 5: Enhance vehicular safety by providing a new traffic signal at the reconfigured truck access driveway along the Project's West Mountain Street frontage.

Objective 6: Improve the appearance of the facility by providing enhanced visual screening along the Project site's public street frontages.

Objective 7: Improve security at the facilities to minimize potential for tampering.

Objective 8: Provide opportunities for renewable energy generation at the Project site.

ES.5 Project Description Summary

The proposed Project would be composed of multiple structures, including existing, replaced, and newly constructed structures. Additionally, the Project involves the removal and installation of piping, as well as other site improvements related to parking, ingress/egress, etc. The Project would demolish the two existing reservoirs on site, Existing Reservoir 1 and Existing Reservoir 2, including A-Basin. These structures were built in 1888 and 1900, respectively, and provide storage for the City of Pasadena's water system. These structures would be removed in order to replace them with Proposed Reservoirs 1 and 2. There are several other structures that are being demolished as part of the proposed Project. The Sunset Well Building and Electrical Transformer Area would be removed in its entirety. The Disinfection Facility would be demolished and a new disinfection structure in a different area would be constructed utilizing some of the salvaged equipment, including the existing chemical storage tanks. The Project proposes improvements to several of the existing structures on the site, driveway entrances, fences, and landscaping. The Bangham Well Building will remain, but the well's existing retention pond, sump pump, valves, elbows, tees, air relief valve, well pump discharge head, column and motor, concrete, fence and assorted piping would be replaced. Architectural modifications to the façade of the Glorieta Booster Station building would occur as part of the Project. Additionally, the Electrical Equipment Enclosure associated with the Glorieta Booster Station would be modified to add an automatic transfer switch for connection to the new standby generator.

The Project would construct two new reservoirs at the 7.17-acre site, herein referred to as Proposed Reservoir 1 and Proposed Reservoir 2. Proposed Reservoir 1 would have an inside diameter of approximately 210 feet, a total footprint of 36,530 square feet, and a capacity of 4.9 million gallons (MG). Proposed Reservoir 2 would have an inside diameter of approximately 234 feet, a total footprint of 45,180 square feet, and a capacity of 6.1 MG. Collectively, the two reservoirs would provide a total capacity of 11.0 MG. The proposed reservoirs would be constructed at different sizes due to the geometry of the existing site, which narrows at the south end of the site. By installing the smaller reservoir (Proposed Reservoir 1) in the south end of the site, the Project would be able to preserve more space for the approximately 5,250-square-foot proposed groundwater treatment plant (GWTP) and parking at the north end of the site. Backfill would be placed around both reservoirs, as the reservoirs

would be partially buried. The depth of the backfill would be a minimum of 12 feet deep all around the tanks and of sufficient depth to resist the sliding forces of the empty tanks. The finished grade would provide drainage away from the new tanks. The main ingress/egress would be located at the northeast corner of the site. The existing employee entrance to the north along Sunset Avenue would be widened to allow for safety and ease of traffic flow. Additional proposed project components include two backup generators, a groundwater treatment plant consisting of an ion exchange for perchlorate removal and granular activated carbon for volatile organic compound (VOC) removal, an air gap structure, stormwater treatment improvement, solar canopies and rooftop panels, electric vehicle charging stations, a backwash tank, a disinfection facility, and overflow and drains. The current grading plan results in an approximate net export of 3,700 cubic yards (CY).

ES.6 Areas of Known Controversy

Section 15123(b) (2) of the CEQA Guidelines requires that areas of controversy known to the lead agency must be stated in the EIR summary. Issues of interest to the public and public agencies were identified during the 30-day public comment period of the Initial Study and Notice of Preparation (NOP), which began on April 7, 2022, and concluded on May 9, 2022. Comments were received from public agencies and interested parties in response to the circulated NOP. The City received eight comment letters in response to the Initial Study/NOP. Table 1-1, *Notice of Preparation and Scoping Comment Letter Summary* provides a brief overview of the NOP comments received by the City on environmental issues and identifies the appropriate section of the EIR that addresses the topic. In compliance with CEQA Guidelines, the City held a scoping meeting on Thursday, April 21, 2022, at Robinson Park Recreation Center (1081 North Fair Oaks Avenue, Pasadena) from 5:00 PM to 7:00 PM. Comments received during the public review period were considered during preparation of this EIR. The Initial Study/NOP is included as Appendix A and NOP comment letters are included as Appendix A-3 of this EIR. In summary, known areas of concern include, but are not limited to: impacts roadways and circulation, air quality and GHG impacts, the use of sustainable practices, possible perchlorate exposure, location of fencing, noise impacts, security, and safety.

ES.7 Summary of Project Alternatives

Section 15126.6 of the CEQA Guidelines identifies the parameters within which consideration and discussion of alternatives to the Project should occur. As stated in this section of the guidelines, alternatives must focus on those that are reasonably feasible and that attain most of the basic objectives of the Project. Each alternative should be capable of avoiding or substantially lessening any significant effects of the Project. The rationale for selecting the alternatives to be evaluated and a discussion of the No Project Alternative are also required, per Section 15126.6.

ES.7.1 Alternatives Considered and Eliminated

Three alternatives for the Project were considered, but ultimately rejected from further analysis in the EIR, consistent with Section 15126.6(c) of the CEQA Guidelines. A brief summary of the potential alternatives considered, but not carried forward, is provided below (see Section 6, Alternatives for additional details).

Off-Site Location Alternative

An Off-Site Location Alternative is not considered feasible as the existing Sunset Reservoirs are connected to the City's water system to serve certain pressure zones. A new facility at an alternative location would either need to be sited within the same pressure zones, limiting alternative locations, or would require a large of amount of additional pipe construction and other improvements to connect to existing infrastructure to serve the correct pressure zone. The use of an Off-Site Location Alternative would require the construction of additional facilities beyond those proposed for the Project, as existing infrastructure would not be utilized. The necessary additional construction of facilities and infrastructure that would be required for an Off-Site Location Alternative to continue to serve the correct pressure zones, whether located within the same pressure zones or outside of the pressure zones would likely result in additional significant impacts. As such, an Off-Site Location Alternative is dismissed from further consideration.

Relocation Alternative

A Relocation Alternative, which would relocate the existing facility and would require moving existing infrastructure from the Project site to a new location, is not considered feasible. Due to the age of existing facilities, such as the reservoirs, relocation and reuse of some components would likely be unachievable, requiring construction of components that would not survive relocation. Relocation of existing facilities would not leave the Sunset Reservoir Complex Historic District intact, and thus, would not reduce significant impacts of the Project. Additionally, a relocation alternative would not achieve the objective for updating facilities to meet current engineering and seismic safety standards, if existing components were relocated and reconstructed. As such, a Relocation Alternative is dismissed from further consideration.

Visual Preservation Alternative

The Visual Preservation Alternative would consist of the same components as the Project; however, the two new reservoirs constructed as part of the Visual Preservation Alternative on the Project site would preserve the existing reservoir roofs (i.e., reinstalling them over the new tanks after they are built) to retain the look of the current facility. Although this alternative would maintain the visual appearance of the existing reservoirs from off-site, this alternative would require the removal of the existing reservoirs and construction of new reservoirs. As this alternative would not substantially reduce significant impacts of the Project and the feasibility of such an alternative is undetermined, it is eliminated from further discussion.

ES.7.2 Alternatives Evaluated in this EIR

This EIR includes an evaluation of the following alternatives:

- Alternative 1 - No Project/No Action
- Alternative 2 - Partial Historic Preservation Alternative
- Alternative 3 - Historic Rehabilitation Alternative

Alternative 1 - No Project/No Action

The No Project Alternative assumes that the Project would not be adopted and no improvements to the Pasadena Water and Power Sunset Reservoir facility would occur. The existing conditions described in Section 2.0, *Environmental Setting*, of this EIR would remain at the Project site.

Alternative 2 - Partial Historic Preservation Alternative

The Partial Historic Preservation Alternative would retain a larger number of the Sunset Reservoir Complex Historic District features than the Project but would also implement Project components that would enhance the functionality of the facility. The Partial Historic Preservation Alternative would include the removal of Existing Reservoir 2 (a primary contributor to the Sunset Reservoir Complex Historic District). Existing Reservoir 1, Well No. 20 (Sunset Well)[2], and A-basin would be retained in their existing condition and location. The Partial Historic Preservation Alternative would construct a new reservoir in place of the Existing Reservoir 2, similar in size to the Project, with minor modifications due to its overlap in location with Existing Reservoir 1, which would remain in place. Additionally, the Partial Historic Preservation Alternative would construct a number of improvements at the site that are identical to the Project, including a GWTP, emergency generators, air gap structures, stormwater treatment structures, a new traffic signal at the reconfigured truck access driveway along the property's West Mountain Street frontage, a surface parking lot, and new perimeter fencing and landscape screening (landscape screening under this alternative would be reduced as compared to the Project, as some portions of the west perimeter to Existing Reservoir 1 do not have adequate space to provide landscaping screening). The Partial Historic Preservation Alternative would also relocate the Disinfection Facility and two chemical tanks, similar to the Project. This alternative would also retain the Glorieta Booster Station (which is not a contributing structure to the Sunset Reservoir Complex Historic District), the Sheldon Booster House (Sunset Booster Station; a secondary contributor to the Sunset Reservoir Complex Historic District)[3], and the stream-rock retaining wall (a primary contributor to the Sunset Reservoir Complex Historic District).

Alternative 3 - Historic Rehabilitation Alternative

The Historic Rehabilitation Alternative would nominally retain all contributors to the Sunset Reservoir Complex Historic District while completing necessary seismic upgrades and would also implement Project components that would enhance the functionality of the facility. This alternative would implement some of the Project components but would preserve the components of the Sunset Reservoir Complex Historic District in its current condition, with the exception of several proposed upgrades to address seismic design deficiencies for Existing Reservoir 1 and Existing Reservoir 2. The Historic Rehabilitation Alternative would retain Well No. 20 (Sunset Well) and A-basin in their existing condition and locations. This Alternative would physically retain Existing Reservoir 1 and Existing Reservoir 2 in place with seismic upgrades, some replacement of existing materials with the same or

[2] Well No. 20 is described elsewhere in this Draft EIR as Sunset Well; however, the Well No. 20 nomenclature has been retained in this discussion of the Partial Historic Preservation Alternative to be consistent with the naming conventions used in the Project Historic Resources Evaluation Report.

[3] The Sheldon Booster House is described elsewhere in this EIR as Sunset Booster Station; however, the Sheldon Booster House nomenclature has been retained in this discussion of the Partial Historic Preservation Alternative to be consistent with the naming conventions used in the Project Historical Resources Evaluation Report.

similar materials and some exterior changes that would alter the visual appearance of each reservoir. It would alter the stream-rock retaining wall, but would retain the Glorieta Booster Station.

Additionally, the Historic Rehabilitation Alternative would construct improvements at the site that are identical to the Project, including a GWTP, emergency generator, a new traffic signal at the reconfigured truck access driveway along the property's West Mountain Street frontage, and new perimeter fencing and landscape screening. Landscape screening under this alternative would be reduced as compared to the Project, as some portions of the east perimeter to the existing reservoirs do not have adequate space to provide landscaping screening. The existing parking lot would be reduced to accommodate the construction of the GWTP, and no additional parking spaces would be provided on-site. The Historic Rehabilitation Alternative would also relocate the Disinfection Facility and two chemical tanks, similar to the Project. Similar to the Project, this alternative would also intend to retain the Sheldon Booster House (Sunset Booster Station; a secondary contributor to the Sunset Reservoir Complex Historic District). Multiple, staggered shear wall panels would be added to the exteriors of Reservoir 1 and Reservoir 2 for necessary seismic strengthening, as well as circular gravity columns around the perimeter of Reservoir 2. It is anticipated that a portion of the external shear wall panels would extend into the right-of-way where Existing Reservoir 1 is nearest the property line and require the removal of approximately 100 feet of the stream-rock retaining wall (a primary contributor to the Sunset Reservoir Complex Historic District). The seismic strengthening would also require modifications to the shape of Reservoir 1, new roof diaphragms over the existing roof structure of each reservoir, and replacement of interior materials at each reservoir.

ES.7.3 Environmentally Superior Alternative

The State CEQA Guidelines require the identification of an environmentally superior alternative among the alternatives analyzed in an EIR, which is typically selected based on an ability to avoid or substantially reduce significant environmental effects associated with the Project. Pursuant to CEQA Guidelines Section 15126.6(e)(2), "if the environmentally superior alternative is the 'No Project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."

Based on the summary and the analyses provided in Chapter 6, *Alternatives*, the No Project Alternative is the environmentally superior alternative. However, consistent with CEQA Guidelines Section 15126.6(e)(2), the environmental superior alternative among the other alternatives is the Partial Historic Preservation Alternative, which would reduce the Project's significant and unmitigable impacts to historical resources. Specifically, the Partial Historic Preservation Alternative would retain five of the six Sunset Reservoir Complex Historic District primary and secondary contributing resources, but would require removal of one of the six contributing resources. Mitigation would be required, but similar to the Project, would not reduce the significant historical resource impacts to a less than significant level. Additionally, environmental impacts associated with air quality, energy, and GHG emissions for the Partial Historic Preservation Alternative would be similar to the Project, although slightly reduced in terms of construction emissions and slightly increased in terms of operational air quality emissions, energy usage, and GHG emissions. Impacts associated with aesthetics, hazards and hazardous materials, and noise would be similar to those identified for the Project. Impacts associated with tribal cultural resources would be similar, although slightly reduced due to a reduced grading area.

ES.8 Discretionary Action

The City of Pasadena, as lead agency, must consider the following discretionary actions:

- Project Approval and Certification of the Environmental Impact Report
- Approval of a Conditional Use Permit
- Approval of an Occupancy Permit to Permit installation of backwash connection pipelines and water main in Sunset Avenue.
- Approval for the removal of trees on site.

The following additional permits, approvals, and discretionary actions may be necessary as part of Project approval:

- State Water Resources Control Board, Division of Drinking Water (DDW) Permit Amendment Application to allow for reservoir and treatment system for public drinking water systems.
- Los Angeles County Sanitation Districts (LACSD) – Sewerage System Connection Fee application and a modification of the existing permit for Industrial Wastewater Discharge for the Disinfection Facility waste stream.
- Regional Water Quality Control Board – NPDES Permit No, CAS004001 to approve discharge of overflow, underdrain, and collected stormwater flow to storm sewer system.
- South Coast Air Quality Management District – Permit to Construct/Operate the emergency generator.

ES.9 Summary of Environmental Impacts and Mitigation Measures

Table ES-1, Summary of Environmental Impacts and Mitigation Measures, provides a summary of the impact analysis related to the proposed Project and identifies the significant environmental impacts resulting from the Project pursuant to the CEQA Guidelines Section 15123(b)(1). For more detailed discussion, please see Sections 4.1 through 4.8 of this EIR.

Table ES-1 also lists the applicable mitigation measures related to identified significant impacts, as well as the level of significance after mitigation is incorporated. As stated in Section 3, Project Description, of this EIR, the Initial Study (IS) prepared and circulated with the NOP for public review on the Project (see Appendix A, Notice of Preparation and Initial Study) concluded that the Project would not result in significant impacts to Agricultural Resources, Biological Resources, Geology and Soils, Land Use and Planning, Hydrology and Water Quality, Mineral Resources, Population and Housing, Recreation, Public Services, Transportation, Utilities and Service Systems, and Wildfire. Additionally, the analysis in the IS/NOP concluded that the Project would not result in significant impacts to the following thresholds: Aesthetics 4.1a, 4.1c, and 4.1d, Air Quality 4.2d, Cultural resources 4.3b and 4.3c, Hazards and Hazardous materials 4.6c, 4.6d, 4.6e, 4.6g, and Noise 4.7b and 4.7c. Therefore, these topics are not addressed in this EIR and not summarized in Table ES-1.

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

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance after Mitigation
Aesthetics			
4.1b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	Less Than Significant	None	Not Applicable
4.1d. Would the project create a new source of substantial glare which would affect daytime views in the area?	Less Than Significant	None	Not Applicable
Air Quality			
4.2a. Would the project conflict with or obstruct implementation of the applicable air quality plan?	No Impact	None	Not Applicable
4.2b. 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?	Less Than Significant	None	Not Applicable
4.2c. Would the project expose sensitive receptors to substantial pollutant concentrations?	Less Than Significant	None	Not Applicable

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance after Mitigation
Cultural Resources			
4.3a. Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	Potentially Significant	**CUL-1 Documentation Program.** A documentation program shall be undertaken prior to commencement of the project to document the Sunset Reservoir to the standards of the Historic American Engineering Record (HAER). The documentation program would include all of the following components for all six contributing resources (Existing Reservoir 1, Existing Reservoir 2, the stream-rock retaining wall, A-Basin, Well No. 20 [Sunset Well], and Sheldon Booster House [Sunset Booster Station]): 1. Produce large format black-and-white, film photographs, with the original negatives having a minimum size of 4 inches by 5 inches, of all six contributing resources (Existing Reservoir 1, Existing Reservoir 2, the stream-rock retaining wall, A-Basin, Well No. 20 [Sunset Well], and Sheldon Booster House [Sunset Booster Station]) to include aerial and context views of the site, views of significant elements and interior spaces, and detail views of specific character-defining features. Include a photo index and photo key-maps. A draft laser copy (or digital PDF) of the finished survey formatted to the photo index is required for City review prior to final archival printing.	Significant and Unavoidable

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance after Mitigation
		2. Reproduce original drawings (plans, drawings, blueprints, and other structural data) full scale on vellum that meets Federal Vellum Specification UU-P-561H, Type IV and prepared to HAER drawing guidelines per Recording Historic Structures & Sites for the Historic American Engineering Record (revised 2020). If original drawings are not available, then an architect or engineer meeting the Secretary of the Interior's Professional Qualification Standards shall produce full-size scaled drawings of the resource's plan, elevations, sections, and details to the same HAER standards. 3. Assemble historical background information, and the produced drawings, large format and historic photographs relevant to the Sunset Reservoir and its setting, into a format meeting HAER history guidelines per the Historic American Engineering Record Guidelines for Historical Reports (2008, updated December 2017) (contact info updated December 2021).	

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance after Mitigation
		4. Donate one copy of the final historic report, drawings, photographs, and negatives to the HABS/HAER/HALS division of the National Park Service for transmittal to the Library of Congress. Duplicate archival laser-copies, or other media as directed by the recipient, of the report, drawings and photographs shall be kept on file with the City of Pasadena Design & Historic Preservation archives and filed with the Pasadena Museum of History and the Pasadena Public Library. **CUL-2 Interpretive Program.** An interpretive program shall be installed prior to filing the Notice of Completion for the construction project completion. The interpretive program shall be installed on or adjacent to the project site to provide a visual historical record for the general public. The interpretive program shall be designed, fabricated, and installed to visually interpret the history of the property including signage with descriptive narrative and reproductions of historic and recent images in an area that is publicly accessible. The interpretive program should be installed in the landscaped area to be located adjacent to the southernmost project boundary at the intersection of Mountain Street and Sunset Avenue, or a suitable alternative location as determined by the City of Pasadena.	

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance after Mitigation
Energy			
4.4a. Would the project result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Less Than Significant	None	Not Applicable
4.4b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Less Than Significant	None	Not Applicable
Greenhouse Gas Emissions			
4.5a. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?	Less Than Significant	None	Not Applicable
4.5b. Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?	Less Than Significant	None	Not Applicable
Hazards and Hazardous Materials			
4.6a. 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	None	Not Applicable

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance after Mitigation
4.6b. 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?	Potentially Significant	**HAZ-1 Pre-Demolition Surveys.** Prior to demolition and after the reservoirs have been drained, PWP shall retain a qualified professional to perform a pre-demolition survey to identify the potential for potentially hazardous materials to be present. The pre-demolition survey shall consist of a review of available reservoir construction information, and a visual inspection of the water reservoirs and any visible connecting appurtenances. The objective of the pre-demolition survey shall be to observe, locate, and evaluate the condition of suspected ACM, LBP, wood construction materials formerly treated with Creosote, and any other identifiable hazardous materials. Sampling and laboratory testing shall be required to confirm suspected hazardous materials. The survey shall provide information that shall be used to implement a removal program prior to initiating demolition activities. **HAZ-2 Removal and Disposal of Hazardous Materials.** If ACM, LBP, wood construction materials formerly treated with Creosote, or other identifiable hazardous materials are discovered during the pre-demolition survey, remediation shall be required to minimize specific relevant health and safety hazards (i.e., hazards or health risks associated with the presence of ACM, LBP, wood construction materials formerly treated with Creosote, or other identifiable hazards materials) at the site prior to demolition of these structures and the construction of the new structures. If the survey identifies hazardous materials, PWP shall retain a qualified professional to prepare and implement a work	Less Than Significant

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance after Mitigation
		plan that addresses the specific hazardous materials identified in the survey, and identifies the required removal and disposal activities associated with each material. The plan shall be submitted to the PWP for review and approval prior to the start of removal and disposal activities. The plan shall include the necessary steps for safe removal and disposal of any hazardous materials identified during the pre-demolition survey. The plan shall include recommendations for removal and disposal consistent with regulatory requirements specific to the materials being removed (i.e., LBP, ACM, or wood construction materials formerly treated with Creosote) and in accordance with applicable laws, including Occupational Safety and Health Administration (OSHA) guidelines, to ensure that no hazards to the demolition crew, adjacent residents, or others are created by exposure to hazardous building materials. Following completion of the required removal activities, the qualified professional shall prepare a Summary Report to document the removal activities performed and any variations from their work plan. The Summary Report shall be submitted to the PWP for review and approval prior to the issuance of demolition permits for the existing structures at the Project site. Demolition activities shall adhere to all applicable federal, state, and local requirements related to hazardous materials.	
4.6f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Less Than Significant	None	Not Applicable

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance after Mitigation
Noise			
4.7a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Less Than Significant	None	Not Applicable
Tribal Cultural Resources			
4.8a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as 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 section 5020.1(k)?	Potentially Significant	**TCR-1 Retain a Native American Monitor Prior to Commencement of Ground-Disturbing Activities** A. The project applicant/lead agency shall retain a Native American Monitor from or approved by the Gabrieleño Band of Mission Indians – Kizh Nation. The monitor shall be retained prior to the commencement of any "ground-disturbing activity" at the Sunset Reservoir Project site. "Ground-disturbing activity" shall include, but is not limited to, demolition, pavement removal, potholing, auguring, grubbing, tree removal, boring, grading, excavation, drilling, and trenching. B. A copy of the executed monitoring agreement shall be submitted to the lead agency prior to the earlier of the commencement of any ground-disturbing activity, or the issuance of any permit necessary to commence a ground-disturbing activity.	Less Than Significant

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance after Mitigation
		C. The monitor shall complete daily monitoring logs that will provide descriptions of the relevant ground-disturbing activities, the type of construction activities performed, locations of ground-disturbing activities, soil types, cultural-related materials, and any other facts, conditions, materials, or discoveries of significance to the Tribe. Monitor logs will identify and describe any discovered TCRs, including but not limited to, Native American cultural and historical artifacts, remains, places of significance, etc., (collectively, tribal cultural resources, or "TCR"), as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs will be provided to the project applicant/lead agency upon written request to the Tribe. D. On-site tribal monitoring shall conclude upon the latter of the following (1) written confirmation to the Kizh from a designated point of contact for the project applicant/lead agency that all ground-disturbing activities and phases that may involve ground-disturbing activities on the project site or in connection with the project are complete; or (2) a determination and written notification by the Kizh to the project applicant/lead agency that no future, planned construction activity and/or development/construction phase at the project site possesses the potential to impact Kizh TCRs.	

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance after Mitigation
		E. Upon discovery of any TCRs, all construction activities in the immediate vicinity of the discovery shall cease (i.e., not less than the surrounding 50 feet) and shall not resume until the discovered TCR has been fully assessed by the Kizh monitor and/or Kizh archaeologist. The Kizh will recover and retain all discovered TCRs in the form and/or manner the Tribe deems appropriate, in the Tribe's sole discretion, and for any purpose the Tribe deems appropriate, including for educational, cultural and/or historic purposes. **TCR-2 Unanticipated Discovery of Human Remains and Associated Funerary Objects** A. Native American human remains are defined in PRC 5097.98 (d)(1) as an inhumation or cremation, and in any state of decomposition or skeletal completeness. Funerary objects, called associated grave goods in Public Resources Code Section 5097.98, are also to be treated according to this statute. B. If Native American human remains and/or grave goods are discovered or recognized on the project site, then all construction activities shall immediately cease. Health and Safety Code Section 7050.5 dictates that any discoveries of human skeletal material shall be immediately reported to the County Coroner and all ground-	

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance after Mitigation
		disturbing activities shall immediately halt and shall remain halted until the coroner has determined the nature of the remains. If the coroner recognizes the human remains to be those of a Native American or has reason to believe they are Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission, and Public Resources Code Section 5097.98 shall be followed. C. Human remains and grave/burial goods shall be treated alike per California Public Resources Code section 5097.98(d)(1) and (2). D. Construction activities may resume in other parts of the Project site at a minimum of 200 feet away from discovered human remains and/or burial goods, if the Kizh determines in its sole discretion that resuming construction activities at that distance is acceptable and provides the project manager express consent of that determination (along with any other mitigation measures the Kizh monitor and/or archaeologist deems necessary). (CEQA Guidelines Section 15064.5(f).)	

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance after Mitigation
		E. Preservation in place (i.e., avoidance) is the preferred manner of treatment for discovered human remains and/or burial goods. Any historic archaeological material that is not Native American in origin (non-TCR) shall be curated at a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County or the Fowler Museum, if such an institution agrees to accept the material. If no institution accepts the archaeological material, it shall be offered to a local school or historical society in the area for educational purposes. F. Any discovery of human remains/burial goods shall be kept confidential to prevent further disturbance. **TCR-3 Procedures for Burials and Funerary Remains** A. The treatment of human remains or burials will be established with the Most Likely Descendant (MLD), as identified by the NAHC. The Burial Policy shall be implemented for all discovered Native American human remains and/or grave goods. Tribal Traditions include, but are not limited to, the preparation of the soil for burial, the burial of funerary objects and/or the deceased and the ceremonial burning of human remains.	

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance after Mitigation
		B. If the discovery of human remains includes four or more burials, the discovery location shall be treated as a cemetery and a separate treatment plan shall be created. C. The prepared soil and cremation soils are to be treated in the same manner as bone fragments that remain intact. Associated funerary objects are objects that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later; other items made exclusively for burial purposes or to contain human remains can also be considered as associated funerary objects. Cremations will either be removed in bulk or by means as necessary to ensure complete recovery of all sacred materials. D. In the case where discovered human remains cannot be fully documented and recovered on the same day, the remains will be covered with muslin cloth and a steel plate that can be moved by heavy equipment placed over the excavation opening to protect the remains. If this type of steel plate is not available, a 24-hour guard should be posted outside of working hours. The Tribe will make every effort to recommend diverting the project and keeping the remains in situ and protected. If the project cannot be diverted, it may be determined that burials will be removed.	

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance after Mitigation
		E. In the event preservation in place is not possible despite good faith efforts by the project, applicant/developer and/or landowner, before ground-disturbing activities may resume on the project site, the landowner shall arrange a designated site location within the footprint of the project for the respectful reburial of the human remains and/or ceremonial objects. F. Each occurrence of human remains and associated funerary objects will be stored using opaque cloth bags. All human remains, funerary objects, sacred objects and objects of cultural patrimony will be removed to a secure container on site if possible. These items should be retained and reburied within six months of recovery. The site of reburial/repatriation shall be on the project site but at a location agreed upon between the Tribe and the landowner at a site to be protected in perpetuity. There shall be no publicity regarding any cultural materials recovered.	

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance after Mitigation
		G. The Tribe will work closely with the project's qualified archaeologist to ensure that the excavation is treated carefully, ethically and respectfully. If data recovery is approved by the Tribe, documentation shall be prepared and shall include (at a minimum) detailed descriptive notes and sketches. All data recovery-related forms of documentation shall be approved in advance by the Tribe. If any data recovery is performed, once complete, a final report shall be submitted to the Tribe and the NAHC. The Tribe does NOT authorize any scientific study or the utilization of any invasive and/or destructive diagnostics on human remains.	
4.8b. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as 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	See Above Mitigation TCR-1 through TCR-3.	Less Than Significant

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance after Mitigation
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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.			

ES.10 References

California Public Resources Code, Sections 21000–21177. California Environmental Quality Act (CEQA), as amended.

Pasadena Department of Water and Power, City of (PWP). 2020 (September). Water System and Resources Plan—Draft Report. Available at: https://pwp.cityofpasadena.net/wsrp/.

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1.0 INTRODUCTION

The purpose of this Section is to introduce the Pasadena Sunset Complex Project (Project/proposed Project), the applicable environmental review procedures, and the organization of the Draft Environmental Impact Report (EIR).

1.1 Purpose and Scope

The purpose of this EIR is to evaluate and disclose the potential environmental consequences of the proposed Project. The proposed Project constitutes a "project" as defined in the California Environmental Quality Act (CEQA) Guidelines Section 15378. Pursuant to Section 15367 of the CEQA Guidelines, the City of Pasadena (City) is the Lead Agency for the Project. This Project is being implemented by the City's Water and Power (PWP). The City is serving as the Lead Agency, as it has the principal responsibility for carrying out the Project and has the authority for approving the Project and its accompanying environmental documentation.

By way of background, the following paragraphs provide a condensed synopsis of historical environmental conditions contributing to the Sunset Complex Project. During past operations at the nearby National Aeronautics and Space Administration (NASA) Jet Propulsion Laboratory (JPL), chemicals of concern (COCs) including, among others, volatile organic compounds (VOCs; such as carbon tetrachloride), perchlorate, and 1,2,3-trichloropropane (TCP) were used and disposed of beginning as early as 1936. These hazardous materials contaminated soil, surface water, and groundwater at the JPL. Concentrations of some of these chemicals (e.g. ,VOCs, perchlorate) at concentrations above regulatory maximum contaminant levels (MCLs) also migrated off-site in groundwater where they variously impacted drinking water supply wells owned and operated by PWP at the Monks Hill Wellfield and drinking water wells owned and operated by the Lincoln Avenue Water Company (LAWC).

In 1988, VOCs were first detected in samples from the drinking water wells at the Monks Hill Wellfield owned and operate by PWP and LAWC wells (JPL 2018). In 1992, the JPL was placed on the federal National Priorities List (NPL or Superfund), a list of sites subject to regulation under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and National Contingency Plan (NCP). In 1997, perchlorate was detected in samples from drinking water wells owned and operated by PWP and LAWC, with the advent of a more sensitive laboratory analytical methodology (JPL, 2018).

After being placed on the NPL, NASA/JPL embarked on a multi-decade series of investigative steps prescribed in CERCLA. These steps are designed to assess the nature and extent of the COCs associated with releases at JPL both on- and off-site and determine appropriate cleanup technologies. Overseeing this process as lead agency is the United States Environmental Protection Agency (USEPA). In the early 1990's, NASA/JPL funded time-sensitive drinking water treatment facilities (i.e., interim presumptive remedies) at the Monk Hill Wellfield and LAWC wells. The interim remedies for groundwater contamination were documented in an Interim Record of Decision (IROD) in June 2007.

In addition to the 1993 Remedial Investigation (RI) for contamination associated with releases at JPL, which collected and analyzed soil and groundwater samples to assess the nature and extent of COCs, two other important steps in the CERCLA process are the Final Feasibility Study (FS) and the Final Record of Decision (ROD). The FS identifies, among other things, remedial action objectives (RAOs), applicable or relevant and appropriate requirements (ARARs), screens potential remedial technologies against a set

of nine criteria established in the NCP, and develops a detailed analysis of remedial alternatives, including a "No Action" Alternative.

In 2014, a Final Focused FS was developed for JPL and was submitted for review and approval by the USEPA (JPL 2014). The subject Final Focused FS was reportedly prepared in accordance with the USEPA *Guidance on Accelerating CERCLA Environmental Restoration at Federal Facilities* (JPL 2018). The purpose of the USEPA guidance is to accelerate the development and implementation of streamlined approaches to clean up hazardous waste via, among others, the use of focused FS reports and presumptive remedies (JPL 2018). The JPL Final Focused FS report memorialized a streamlined analysis of remedial alternatives in which presumptive remedies were identified as the preferred remedial alternative (i.e., proven, readily available treatment technologies) for the cleanup of identified COCs associated with releases at the JPL (e.g., VOCs, perchlorate, etc.) in drinking water supplies.

In February 2018, a Final ROD was submitted by NASA/JPL to the USEPA. The JPL Final ROD covered both on-site groundwater contamination at the JPL and off-site groundwater contamination. The JPL Final ROD recommended the continuation of the current operational clean up technologies for groundwater at the Monks Hill Wellfield and LAWC wells that were first implemented by NASA/JPL as time sensitive interim remedies in the early 1990s. Thus, the original interim remedies were modified and selected as the presumptive remedies in the JPL Final Focused FS and JPL Final ROD. The on-site remediation activities and treatment systems at the Monks Hill Wellfield and LAWC wells continue to operate and are subject to USEPA required Five-Year Review Reports.

Given the impact of COCs associated with releases at the JPL at the Monks Hill Wellfield, PWP independently and contemporaneously reviewed the various CERCLA documents prepared for the JPL. This included reports related to the characterization and cleanup of JPL drinking water contamination, such as the 1993 RI, 2014 Final Focused FS, and 2018 Final ROD. As such, when a similar suite of COCs were detected in samples from drinking water wells owned and operated by PWP at the Sunset Wellfield[1] (e.g., VOCs, perchlorate), the PWP concluded some, if not all, of this contamination was likely associated with releases at the JPL.

To arrive at a feasible remedy for the Sunset Wellfield, PWP relied on documents prepared for JPL (e.g., 2014 Final Focused FS, 2018 Final ROD) that both JPL and USEPA considered compliant with CERCLA and the NCP. PWP also considered its professional expertise operating the USEPA-approved treatment technologies at Monks Hill Wellfield to inform its streamlined selection of similar appropriate presumptive drinking water treatment technologies and infrastructure to address the COCs at the Sunset Wellfield.

PWP currently imports approximately 65 percent of its potable water supply to serve the City and portions of unincorporated Los Angeles County from Metropolitan Water District of Southern California (MWD) as a member agency. MWD imports water from the Sacramento-San Joaquin Delta (Delta) via the State Water Project (SWP) and from the Colorado River via the Colorado River Aqueduct (CRA). The remaining approximately 35 percent of the City's potable water is supplied from Raymond Groundwater Basin aquifer (PWP 2020). A minimal, varying portion of potable water is purchased from neighboring water agencies, which includes a combination of surface and groundwater. The production, collection and distribution of these supplies requires a network of pipelines, storage facilities, groundwater wells,

[1] Sunset Wellfield, as referenced in the JPL Focused Feasibility Study (JPL 2014) refers to multiple PWP wells, including the Copelin, Villa, Garfield, and Bangham wells. Copelin and Villa wells have been abandoned. Garfield Well has been replaced by Parke Well. Bangham well is located on the Project site.

treatment facilities and other types of infrastructure. A critical component of the water system has been the Sunset Reservoir, which has served to store a blend of both imported water supplies and groundwater production. The overall intent of the Project is to replace this aging facility with new facilities that maximize water storage and includes treatment infrastructure to ensure the City can continue to provide reliable and clean drinking water. (See Section 3, Project Description, for additional details).

EIRs are informational documents "which will inform public agency decision-makers and the public generally of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project." (14 California Code of Regulations (CCR) 15121). The purpose of this EIR is to present the evaluation of the anticipated environmental effects of the proposed Project.

1.2 CEQA Requirements

CEQA requires the preparation of an EIR for any project that a lead agency determines may have a significant impact on the environment. According to Section 21002.1(a) of CEQA:

> *"The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided."*

CEQA also establishes mechanisms whereby the public and decision makers can be informed about the nature of the project being proposed and the extent and types of impacts that the project and its alternatives would have on the environment if they were to be implemented.

The basic purposes of CEQA are to:

1. Inform governmental decision makers and the public about the potential, significant environmental effects of proposed activities;

2. Identify the ways that impacts to the environment can be avoided or significantly reduced;

3. Prevent significant, avoidable impacts to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and

4. Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved (14 CCR 15002).

When applicable, the EIR recommends feasible mitigation measures that can reduce or avoid significant environmental impacts. This EIR was prepared in accordance with Section 15151 of the State CEQA Guidelines, which defines the standards for EIR adequacy as follows:

> "*An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does*

> *not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure."*

The EIR process typically consists of three parts: (1) the Initial Study and Notice of Preparation (NOP), (2) the Draft EIR, and (3) the Final EIR, which includes the comment letters and the responses to the public comments on the Draft EIR. The Initial Study/NOP is intended to encourage interagency communication concerning the proposed action and to provide sufficient background information about the proposed action so that agencies, organizations, and members of the public can respond with specific comments and questions on the scope and content of the EIR. The City prepared an Initial Study to determine which of those environmental considerations under CEQA the Project would either have no impact or a less than significant impact on and, as such, would not need to be further analyzed within this EIR. Conversely, those CEQA topics addressed in the Initial Study that could result in significant impacts to the environment as a result of Project implementation are further analyzed within this EIR.

An Initial Study/NOP was distributed on April 7, 2022 to federal, state, regional, and local agencies and interested parties for a 30-day review period to solicit comments and to inform agencies and the public of the proposed Project. The Initial Study/ NOP is available online at https://ww5.cityofpasadena.net/water-and-power/sunsetcomplex/ and/or https://www.cityofpasadena.net/planning/environmental-notices/. Hard copies of the Initial Study/NOP were made available for review at the following locations in Pasadena:

- PWP Office, 150 South Los Robles Avenue, Suite 200
- La Pintoresca Branch Library, 1355 North Raymond Avenue
- City of Pasadena Office of the City Clerk, 100 North Garfield Avenue, Room S228
- City of Pasadena Permit Center, 175 North Garfield Avenue

A scoping meeting was held on Thursday, April 21, 2022, at Robinson Park Recreation Center (1081 North Fair Oaks Avenue, Pasadena) from 5:00 PM to 7:00 PM. The purpose of this meeting was to seek input from public agencies and the general public regarding the environmental issues and concerns that may potentially result from the proposed Project. In compliance with Section 15201 of the State CEQA Guidelines, the City conducted outreach efforts for public participation in the environmental process, prior to the scoping meeting. Public outreach efforts included certified mailings to addresses listed on the environmental document distribution list from the City Planning Department; and postal service mailings to property owners within a 500-foot radius of the Project boundary.

The 30-day Initial Study/NOP public review period ended May 9, 2022. The City received eight comment letters in response to the Initial Study/NOP. Table 1-1, *Notice of Preparation and Scoping Comment Letter Summary* provides a summary of the NOP comments received by the City that address the environmental issues and identifies the appropriate section of the EIR that addresses the topic. These comments were considered during preparation of this EIR. The Initial Study/NOP is included as Appendix A, *Project Initial Study/NOP and NOP and Scoping Comments*, of this EIR. Copies of the Scoping comments are included as Appendix A-3.

Table 1-1
Notice of Preparation and Scoping Comment Letters Summary

Sender of Comments	Date Received	General Summary of Comments	Addressed In Section(s)
State Agency			
California Department of Transportation (Caltrans)	May 2, 2022	This letter requests an evaluation of impacts to state facilities (roadways) and the incorporation of a possible Transportation System Management. The letter encourages reduction of vehicle miles traveled generated by construction trucks and identifies the possible need for an oversized-transport vehicle permit and encroachment permit.	Section 5.0
Native American Heritage Commission (NAHC)	April 15, 2022	This letter provides details on compliance with Assembly Bill (AB) 52 and Senate Bill (SB) 18, as well as recommendations for the consultation process with applicable tribes, including incorporation of suggested mitigation measures.	Sections 4.3 and 4.8
Regional/ Local Agency			
Southern California Association of Governments (SCAG)	May 9, 2022	This letter provides input to ensure the document is consistent with SCAG's regional planning document Connect SoCal, including demographics and growth forecasts and applicable suggested mitigation measures.	Sections 4.2, 4.4, 4.5, and 5.0
South Coast Air Quality Management District (SCAQMD)	May 5, 2022	This letter provides guidance on possible air quality and greenhouse gas impacts and recommends utilization of SCAQMD's CEQA Air Quality Handbook as well as CalEEMod. Additionally, the letter provides input for quantifying air quality impacts, especially construction impacts, to compare to the SCAQMD's thresholds. A possible mitigation measure framework was also recommended.	Sections 4.2, 4.4, and 4.5
Los Angeles County Sanitation Districts (LACSD)	May 6, 2022	LACSD provided a correction on the location that Project-related wastewater discharges are anticipated to be treated. Additionally, this letter provides input on wastewater, conformance to Occupational Safety and Health Administration (OSHA) standards and the Clean Air Act (CAA), and the possibility for the need of a permit for Industrial Wastewater Discharge.	Section 5.0

Sender of Comments	Date Received	General Summary of Comments	Addressed In Section(s)
Individuals			
Renee Morgan-Hampton	April 21,2022	This letter addresses concern with the use of solar panels, as well as water conservation and recycling. The letter also raises questions about biogas increase and whether the Project is working with LACSD.	Sections 4.1 through 4.6 and Sections 5.0
Paul Chau, Project Manager for Kennedy Jenks, Consultant to the City. Mr. Chau took written notes on behalf of the City.	April 25, 2022	This email documents comments noted during the April 21, 2022 scoping meeting. It poses several questions regarding tribal consultation, traffic and transportation, air quality (dust control), possible perchlorate exposure, fencing, noise, water runoff, security, funding, and Project contact information.	Sections 4.2 through 4.8 and Sections 5.0
Anonymous	April 10, 2022	This email cites concerns regarding traffic and transportation, safety, noise, and Project contact information.	Sections 4.7 and 5.0

This EIR focuses on the environmental impacts identified as potentially significant during the Initial Study/NOP and scoping process. The following issues were determined to be potentially significant in the IS/NOP or were included in the scope of the EIR in response to comments received during the NOP and scoping process, and are therefore addressed in Section 4, *Environmental Analysis*, of this EIR:

4.1 Aesthetics
4.2 Air Quality
4.3 Cultural Resources
4.4 Energy
4.5 Greenhouse Gas Emissions
4.6 Hazards and Hazardous Materials
4.7 Noise
4.8 Tribal Cultural Resources

The Draft EIR will be made available for review to the public and public agencies for a minimum of 45 days to enable them to provide comments on the "sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated" (14 CCR 15204). The timeframe of the public review period is identified in the Notice of Availability for this Draft EIR. During this period, a hardcopy of the Draft EIR will be made available for review at the PWP office located at 150 South Los Robles Avenue, Suite 200, Pasadena, and electronic files will be available for viewing online at https://www.cityofpasadena.net/planning/environmental-notices/ and/or https://ww5.cityofpasadena.net/water-and-power/sunsetcomplex/.

During this period, comments from the general public, organizations, and agencies regarding environmental issues analyzed in the Draft EIR and the Draft EIR's accuracy and completeness may be submitted to the lead agency at the following address:

ATTN: Mr. Michael Lin, P.E.
City of Pasadena Department of Water and Power
150 South Los Robles Avenue, Suite 200
Pasadena, California 91101
E-mail: SunsetComplex@cityofpasadena.net

As the lead agency for the proposed Project, the City has assumed responsibility for preparing this document. The City's Planning Commission will act in an advisory role, and the City Council has final decision-making authority over the proposed Project and associated discretionary actions. The City will use the information included in this Draft EIR to consider potential impacts to the physical environment associated with the proposed Project when considering approval. As set forth in Section 15021 of the State CEQA Guidelines, the City, as lead agency, has the duty to avoid or minimize environmental damage where feasible. Specifically, 14 CCR 15021(d) states that:

> *"CEQA recognizes that in determining whether and how a project should be approved, a public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social factors and in particular the goal of providing a decent home and satisfying living environment for every Californian. An agency shall prepare a statement of overriding considerations as described in Section 15093 to reflect the ultimate balancing of competing public objectives when the agency decides to approve a project that will cause one or more significant effects on the environment."*

Prior to approval of the proposed Project or an alternative to the proposed Project, the City, as the lead agency and decision-making entity, is required to certify that the Final EIR has been completed in accordance with CEQA, that the proposed Project has been reviewed and the information in the Final EIR has been considered, and that the Final EIR reflects the independent judgment of the City. CEQA also requires the City to adopt "findings" with respect to each significant environmental effect identified in the Final EIR (California Public Resources Code, Section 21081; 14 CCR 15091). For each significant effect, CEQA requires the approving agency to make one or more of the following findings:

- The proposed project has been altered to avoid or substantially lessen significant impacts identified in the Final EIR.
- The responsibility to carry out such changes or alterations is under the jurisdiction of another agency.
- There are specific economic, legal, social, technological, or other considerations, which make infeasible the mitigation measures or alternatives identified in the Final EIR.

If the City concludes that the proposed Project will result in significant effects that cannot be substantially lessened or avoided by feasible mitigation measures and alternatives, the City must adopt a "statement of overriding considerations" prior to approval of the proposed Project (California Resources Code, Section 21081(b)). Such statements are intended under CEQA to provide a written means by which the lead agency balances in writing the benefits of the proposed Project and the

significant and unavoidable environmental impacts. Where the lead agency concludes that the economic, legal, social, technological, or other benefits outweigh the unavoidable environmental impacts, the lead agency may find such impacts "acceptable" and approve the proposed Project.

1.3 EIR Document Organization

This EIR is organized as follows:

Executive Summary - Outlines the conclusions of the environmental analysis and provides a summary of the proposed Project and the Project alternatives analyzed in the EIR. This section also includes a table summarizing all environmental impacts identified in the EIR along with the associated mitigation measures proposed to reduce or avoid each impact.

Section 1: Introduction - Serves as a forward to the EIR, introducing the Project, the applicable environmental review procedures, and the organization of the EIR.

Section 2: Environmental Setting - Describes the environmental setting of the Project and provides an overview of the Project history and planning context.

Section 3: Project Description - Provides a detailed description of the setting, objectives, characteristics, construction and operation of the proposed Project and required discretionary approvals. Additionally, this section describes the approach to the cumulative impacts analysis, and cumulative projects.

Section 4: Environmental Impact Analysis - Describes the potential environmental impacts of the proposed Project, as well as proposed mitigation measures to reduce or avoid any potentially significant impacts. The discussion in Section 4 is organized by the eight environmental issue areas as outlined above (Sections 4.1 through 4.8).

Section 5: Mandatory CEQA Topics – Provides a discussion of potential environmental impacts as a result of the proposed Project, including those that can be reduced to a less-than-significant level and those significant environmental effects that cannot be avoided if the Project is implemented. These include impacts that can be mitigated but cannot be reduced to a less than significant level. This section also includes a discussion on growth-inducing impacts.

Section 6: Alternatives - Discusses alternatives to the proposed Project, including a No Project Alternative. This section describes the rationale for selecting the range of alternatives discussed in the EIR and identifies the alternatives considered by the City that were rejected from further discussion as infeasible during the scoping process. Lastly, Section 6 includes a discussion of the environmental impacts of the alternatives that were carried forward for analysis and identifies the environmentally superior alternative.

Section 7: List of Preparers - Gives names and contact information of those responsible for writing this EIR.

Appendices include technical studies prepared for the proposed Project, as listed in the Table of Contents.

1.4 References

14 CCR 15000–15387 and Appendices A–N. Guidelines for Implementation of the California Environmental Quality Act, as amended.

California Public Resources Code, Sections 21000–21177. California Environmental Quality Act (CEQA), as amended.

Jet Propulsion Laboratory (JPL). 2014. Final Focused Feasibility Study for OU 1 and OU 3 National Aeronautics and Space Administration Jet Propulsion Laboratory Pasadena, California. June.

JPL. 2018. Final Record of Decision for the Operable Unit 1 On-Facility Groundwater and the Operable Unit 3 Off-Facility Groundwater National Aeronautics and Space Administration Jet Propulsion Laboratory Pasadena, California. February.

Pasadena Department of Water and Power, City of (PWP). 2020 (September). Water System and Resources Plan—Draft Report. Available at: https://pwp.cityofpasadena.net/wsrp/.

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2.0 ENVIRONMENTAL SETTING

This section provides a general overview of the Project environmental setting, including descriptions of the Project location, Project background, planning context, and environmental setting. This section also provides a summary of effects found not to be significant during the preparation of an Initial Study for the Project.

2.1 Project Location

The Project site is located in western Pasadena at the northwest corner of the intersection of Sunset Avenue and West Mountain Street (Assessor's Parcel Number 5728-021-916, 5728-021-911 and 5728-021-913), as shown on **Exhibit 2-1**, *Regional Location*, and **Exhibit 2-2**, *Project Vicinity Map*. All proposed Project components under the scope of the Project would be located within the boundary of the existing site, with the exception of pipeline, mechanical and street improvements and site enhancements that would occur within the public right-of-way on Sunset Avenue and Mountain Street adjacent to the reservoir property. Additionally, the City's Maintenance Yard's existing parking lot south of West Hammond Street would be reconfigured to allow for additional employee parking. Employees would access and exit the lot via the main entrance off West Mountain Street and existing gates on Hammond Street.

The Project site can be accessed via I-210 by exiting on Mountain Street immediately west of the Project site. The site can also be accessed via West Mountain Street and from the north along Sunset Avenue.

2.2 Project Background

Pasadena Water and Power (PWP) currently imports approximately 65 percent of its potable water from Metropolitan Water District of Southern California (MWD) of which the City is a member agency. MWD imports water from the Sacramento-San Joaquin Delta (Delta) via the State Water Project (SWP) and from the Colorado River Aqueduct (CRA). The remaining approximately 35 percent of the City's potable water is supplied from the Raymond Basin aquifer (PWP 2020). A minimal, varying portion of potable water is purchased from neighboring water agencies, which includes a combination of surface and groundwater. The overall intent of the Project is to replace aging and deficient water storage and treatment infrastructure to ensure that the City can continue to provide reliable and clean drinking water.

2.3 Environmental Setting Overview

2.3.1 Land Use

The Project site is zoned as Public and Semi-Public (PS) in the City's Zoning Map and designated as Institutional in the City's Land Use Plan diagram (City of Pasadena 2024, 2015). The site is owned, operated, and maintained by the City. The Project site is bordered by residences to the north, Sunset Avenue to the east, West Mountain Street to the south, and City of Pasadena buildings to the west. Surrounding land uses also include Brenner Park to the south, I-210 to the west, and residential uses on all sides.

2.3.2 Existing Facilities

As part of PWP's critical water supply infrastructure, PWP owns and operates Sunset Reservoir, located at the corner of Sunset Avenue and West Mountain Street. This facility consists of two partially buried, concrete lined reservoirs totaling 15.5 million gallons (MG) of storage (Existing Reservoir 1 was designed to store 5.6 MG, and Existing Reservoir 2 to store 9.9 MG), two well facilities (Bangham Well and Sunset Well) with a total capacity of approximately 4.0 MG per day (MGD), a Disinfection Facility, the Glorieta Booster Station, and the Sunset Booster Station, which houses electronic controls for the existing MWD point of interconnection (P-1). The reservoirs are fed a blend of local well supplies and MWD imported supplies to meet water quality standards due to key constituents found in the local well supplies. These constituents include perchlorate; volatile organic compounds (VOCs); and nitrate. The Glorieta Booster Station pumps from the Sunset pressure zone (including Existing Reservoirs 1 and 2) to the Calaveras and Sheldon pressure zones[1]. The combination of local groundwater and MWD-imported water that is delivered to the existing reservoirs is blended in an inlet structure referred to as the A-Basin. The layout of the existing facilities is shown on **Exhibit 2-3**, *Existing Sunset Reservoir Facilities*.

The original Sunset Reservoirs were open earth embankment structures first constructed in the late 1800s and early 1900s. The reservoirs were lined with concrete in the 1890s/1900s and were also covered with wood-framed roofs and corrugated steel deck. Four-foot-high concrete walls were constructed around the reservoirs in the 1930s to increase the storage capacity.

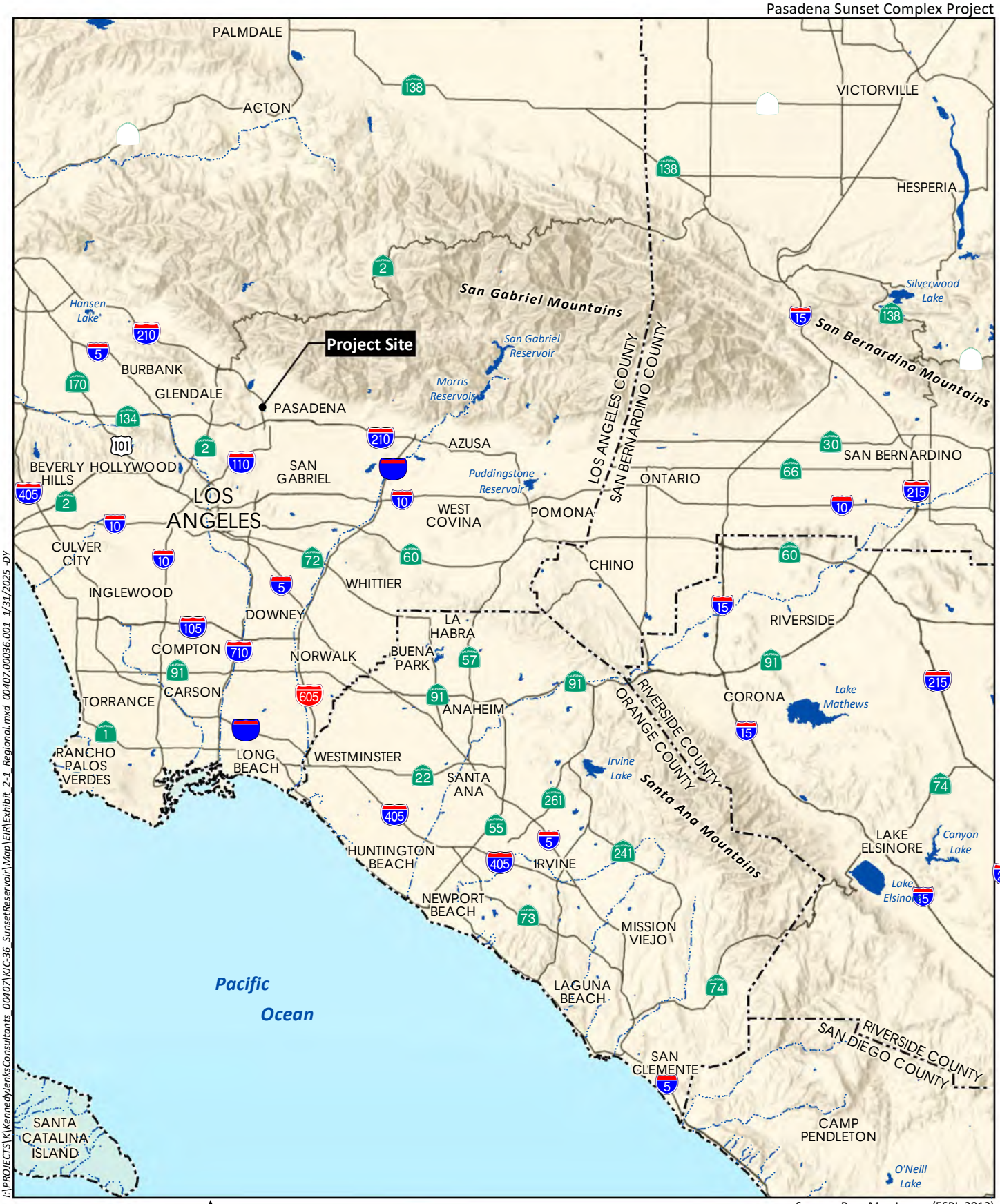
Dive inspections discovered the presence of several cracks in the walls of both Existing Reservoirs 1 and 2 that leak depending on water levels inside the reservoir. To minimize losses, PWP deliberately operates the reservoirs at a lower high-water level, reducing both Sunset Reservoir and PWP's overall storage capacity. Recent seismic evaluations also identified necessary seismic improvements for the reservoirs' roofing system. Therefore, due to the age and condition of the existing reservoirs, the reservoirs are in need of replacement.

2.4 Effects Found Not to be Significant

Per Section 15143 of the CEQA Guidelines, an EIR shall focus on the significant effects of a project on the environment, discussing the effects with emphasis in proportion to their severity and probability of occurrence. Effects dismissed in an Initial Study as clearly insignificant and unlikely to occur need not be discussed further in the EIR unless the Lead Agency subsequently receives information inconsistent with the finding in the Initial Study.

Section 21100(c) of the Public Resources Code (PRC) states that an EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were, therefore, not discussed in detail in the EIR (PRC, Section 21000 et seq.). Section 15128 of the CEQA Guidelines adds, "Such a statement may be contained in an attached copy of an

[1] A pressure zone is defined as the area bounded by both a lower and upper elevation, all of which receives water from a given hydraulic grade line (HGL) or pressure from a set water surface. The HGL is usually provided by one or more storage tanks located at the same elevations, so they share high and low water surfaces. Ideally, pressure zones contain the same pressures and, therefore, the infrastructure within each pressure zone can be designed with a uniform set of design criteria which stresses efficiency, reliability, and durability (U.S. Department of the Interior 2006).



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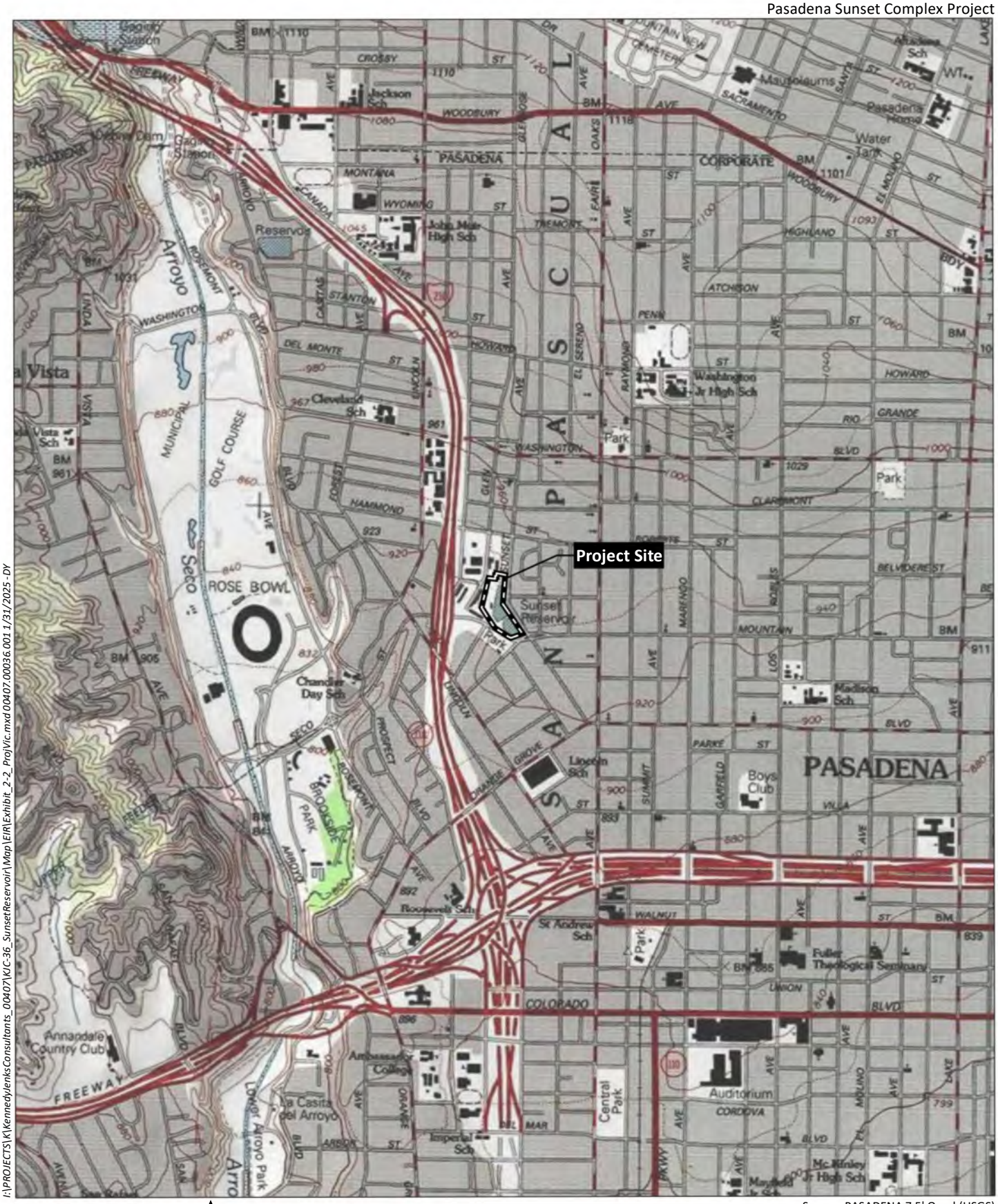
0 10 Miles

Source: Base Map Layers (ESRI, 2013)

HELIX Environmental Planning

Regional Location

Exhibit 2-1



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Source: PASADENA 7.5' Quad (USGS)

Project Vicinity Map

Exhibit 2-2



HELIX Environmental Planning

Existing Sunset Reservoir Facilities

Exhibit 2-3

Initial Study" (14 CCR 15000 et seq.). Appendix G to the CEQA Guidelines provides an environmental checklist form that may be used to satisfy the requirements for an Initial Study.

An Initial Study was prepared and circulated with the Notice of Preparation (NOP) for the proposed Project for public review on April 7, 2022. The IS/NOP are included in Appendix A-1 of this EIR. Comment letters received by the City during the NOP public review period are included in Appendix A-3 of this EIR. The Initial Study concluded that the Project would result in no impact or less than significant impacts for the individual issue areas listed below. Therefore, no further discussion of these individual topics are included in the EIR[2]:

- Aesthetics

    a) Have a substantial adverse effect on a scenic vista;

    c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings. (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality; and

    d) Create a new source of substantial light which would adversely affect nighttime views in the area.

- Agricultural and Forestry Resources

    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; and

    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.

- Air Quality

    d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

[2] Checklist questions that are not listed here were answered in the IS/NOP as issue areas requiring mitigation or potentially significant.

- Biological Resources

  a) Have a substantial adverse effect, either directly or through habitat modification, 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, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;

  c) Have a substantial adverse effect on state or federally protected wetlands (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; and

  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.

- Cultural Resources

  b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5; and

  c) Disturb any human remains, including those interred outside of dedicated cemeteries.

- Geology and Soils

  a) Directly or indirectly cause 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 onsite 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 direct or indirect 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; and

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

- Hazards and Hazardous Materials

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 or excessive noise for people residing or working in the project area;

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

- Hydrology and Water Quality

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) Result in substantial erosion or siltation onsite or offsite;

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

iii) 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; or

iv) Impede or redirect flood flows.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; and

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

- Land Use and Planning

  a) Physically divide an established community; and

  b) Cause a significant environmental impact due to conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

- Mineral Resources

  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; and

  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.

- Noise

  b) Generation of excessive groundborne vibration or groundborne noise levels; and

  c) For a project located within the vicinity of a private airstrip or 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.

- Population and Housing

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

  b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

- Public Services

  a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: Fire Protection; Police Protection; Schools; Parks; Other Public Facilities.

- Recreation

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

  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.

- Transportation

  a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit roadway, bicycle, and pedestrian facilities;

  b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b);

  c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); and

  d) Result in inadequate emergency access.

- Utilities and Service Systems

  a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;

  b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years;

  c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;

  d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; and

  e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

- Wildfire

  If located in or near State Responsibility Areas or lands classified as Very High Fire Hazard Severity Zones, would the project:

  a) Substantially impair an adopted emergency response plan or emergency evacuation plan;

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; and

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

2.5 References

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3.0 PROJECT DESCRIPTION

This section describes the proposed Project, including a detailed description of the Project components, Project purposes and objectives, Project construction, and Project operation. In addition, this section identifies the discretionary actions associated with the proposed Project and identifies the agencies responsible for each discretionary action. This section also identifies the proposed Project's approach to cumulative impacts and provides a list of cumulative projects that are considered in the cumulative impact analysis.

3.1 Project Component Summary

The proposed Project would be composed of multiple structures, including existing, replaced, and newly constructed structures on a 7.17-acre site. Additionally, the Project involves the removal and installation of piping, as well as other site improvements related to parking, ingress/egress, etc. A summary of the features and structures that would be demolished and/or removed, those that would remain in place on the site, those being relocated as part of the Project, those constructed as new, and those with proposed improvements is provided in Table 3-1, *Summary of Project Components*. Additionally, existing structures being demolished or removed are illustrated in **Exhibit 3-1**, *Structures to Be Demolished or Removed*, while the Project components that would remain in place, be relocated, or be newly constructed are shown in **Exhibit 3-2**, *Project Components*. **Exhibit 3-3**, *Site Plan*, provides an overview of proposed project components. The project site is zoned as Public and Semi-Public and is designated as Institutional in the City's General Plan.

Table 3-1
Summary of Project Components

Project Component/Structure	Purpose/ Description
Components Being Demolished and/or Removed	
Existing Reservoir 1	Water storage.
Existing Reservoir 2	Water storage.
Existing Disinfection Facility	Provides disinfection for groundwater. This includes groundwater running through the treatment plant (GWTP) treated groundwater and untreated groundwater. Some of the equipment would be salvaged and a new facility would be built to replace the existing with some of the salvaged components. Salvaged components would be the sodium hypochlorite tank and ammonia tank.
A-Basin	Inlet structure.
Sunset Well Building and Electrical Transformer Area	Water supply and associated infrastructure for the Sunset Well.
Trees	Approximately 31 existing trees on the Project site would be removed.
Components being Moved or Relocated within Project Site	
Parking Lot	Existing parking lot to be demolished and replaced with a different footprint within the Project site

Project Component/Structure	Purpose/ Description
Components Remaining in Place	
Sunset Booster Station Building	Existing facility, no changes in design
Storage shed associated with Bangham Well	Existing structure, no changes proposed
Oak trees on the west side of the site	Approximately 31 existing Trees to be preserved in place
New Components	
Proposed Reservoir 1	Water storage.
Proposed Reservoir 2	Water storage.
Emergency Generator 1	Provide backup electricity in case of a loss of power at the site. 1,000-kW diesel generator to power water treatment plant and Bangham Well.
Emergency Generator 2	Provide backup electricity in case of a loss of power at the site. 1,500-kW diesel generator to power Glorieta Booster Station.
Groundwater Treatment Plant	Water treatment. IX and GAC vessels and ancillary equipment.
Air Gap Structure	Per regulatory code to prevent cross-connection. 14-ft-deep, 12 ft by 8 ft concrete discharge basin diameter concrete manhole, 16.5-ft height.
Storm Water Treatment Structures	Three stormwater treatment structures (Three biofiltration basins located below grade per Low Impact Development requirements).
Solar Canopies and Rooftop Panels	Solar canopies would be installed above the replacement parking lot, located above the inner rows of parking spaces. Rooftop panels would be installed on the roofs of the two proposed reservoir structures. Additional equipment includes inverters and underground connections to existing utilities.
Electric Vehicle Charging Stations	50 level 2 EV charging stations and three Level 3 fast charging stations would be provided. Charging station pedestals would be provided along with connections to existing utilities.
Backwash Tank	Tank to hold backwash. 50,000-gal tank, 21 ft tall, 20 ft diameter.
Disinfection Facility	New disinfection facility will be constructed at a different on-site location using salvaged materials from previous disinfection facility.
Overflow and Drain	Overflow and drains for the proposed reservoirs.
Reservoir Seismic Isolation Valve System	Safety feature that prevents reservoirs from draining during seismic event.
Components with Proposed Improvements	
Bangham Well	Demolish existing retention pond, sump pump, valves, elbows, tees, air relief valve, well pump discharge head, column and motor, concrete, fence and assorted piping. The pump, motor, piping, and instruments would be replacements.

Project Component/Structure	Purpose/ Description
Glorieta Booster Pump Station	Architectural modifications would be made to the façade of the Glorieta Booster Station building.
Electrical Equipment Enclosure associated with the Glorieta Booster Station	Provides access to the electrical equipment for the Glorieta Booster Station. Modification to add automatic transfer switch for connection to the new standby generator.
Driveways	Provide ingress/egress to the site and allow for easier access and maneuverability of large chemical delivery trucks.
Signal Light and Pedestrian Crosswalk	Located at the Mountain Street driveway to enhance both vehicular and pedestrian safety.
Landscaping	New landscaping would consist mainly of trees and shrubs. Landscaping would be added along Mountain Street and Sunset Avenue to help screen the site facilities from the public's view. New landscaping and trees would also be provided in the parking lot.
Fencing	Fencing would be replaced to provide site boundaries and limit the public's access to the site.

3.1.1 Existing Structures

The existing structures on the Project site include the two reservoirs, the A-Basin structure (a small concrete basin that discharges into a flume with sluice gates that controls water flowing into the reservoirs), the Sunset Well Building and electrical transformer area, the Disinfection Facility, Bangham Well shed, and electrical transformer area, Sunset Booster Station Building, parking lot, and Glorieta Booster Station.

3.1.1.1 Reservoirs

The Project would demolish the two existing reservoirs on site, Existing Reservoir 1 and Existing Reservoir 2, including A-Basin. These structures were built in 1888 and 1900, respectively, and provide storage for the City of Pasadena's water system. These structures would be removed and replaced with Proposed Reservoirs 1 and 2.

3.1.1.2 Other Components Being Removed or Relocated

There are several other structures that are being demolished as part of the proposed Project. The Sunset Well Building and Electrical Transformer Area would be removed in its entirety. The Disinfection Facility would be demolished and a new disinfection structure in a different area would be constructed utilizing some of the salvaged equipment, including the existing chemical storage tanks. Please see **Exhibit 3-1** for a visual depiction of the structures that would be removed. In addition, the existing parking lot would be demolished and reconstructed, and on-site trees would be removed and new ones would be planted as part of the project.

3.1.1.3 Structures with Proposed Improvements

The Project proposes improvements to several of the existing structures on the site, driveway entrances, fences, and landscaping. The existing driveways to the Project site from Mountain Street and Sunset Avenue would be improved to allow for easier access and maneuverability of large chemical delivery trucks. A new signal light and pedestrian crosswalk would be added at the Mountain Street driveway to enhance both vehicular and pedestrian safety. See section 3.1.6 for more details regarding site ingress/egress. Existing site fencing would be replaced to fit and match the perimeter improvements, including for the new ingress and egress locations on Sunset Avenue. Security gates would be provided at ingress and egress locations to the site and the GWTP ingress and egress location. New landscaping, consisting of various shrubs and trees, would be provided along the perimeter of the Project site on Mountain Street and Sunset Avenue. The new landscaping is intended to help screen the site facilities from the public's view on Mountain Street and Sunset Avenue. New landscaping and trees would also be provided in the parking lot.

The Bangham Well Building would remain, but the well's existing retention pond, sump pump, valves, elbows, tees, air relief valve, well pump discharge head, column and motor, concrete, fence and assorted piping would be replaced. Architectural modifications to the façade of the Glorieta Booster Station building would occur as part of the Project. Additionally, the Electrical Equipment Enclosure associated with the Glorieta Booster Station would be modified to add an automatic transfer switch for connection to the new standby generator.

3.1.2 Replacement Reservoirs

3.1.2.1 Tanks

The Project would construct two new reservoirs at the Project site, herein referred to as Proposed Reservoir 1 and Proposed Reservoir 2 (**Exhibits 3-2 and 3-3**). The Project would make changes to a 6.21-acre area within the Project site. Proposed Reservoir 1 would have an inside diameter of approximately 210 feet, a total footprint of 36,530 square feet, and a capacity of 4.9 million gallons (MG). Proposed Reservoir 2 would have an inside diameter of approximately 234 feet, a total footprint of 45,180 square feet, and a capacity of 6.1 MG. Collectively, the two reservoirs would provide a total capacity of 11.0 MG.

The proposed reservoirs would be constructed at different sizes due to the geometry of the existing site, which narrows at the south end of the site. By installing the smaller reservoir (Proposed Reservoir 1) in the south end of the site, the Project would be able to preserve more space for the approximately 5,250 square feet proposed GWTP and parking lot at the north end of the site.

The two proposed reservoirs would be circular, prestressed concrete tanks which would be designed and constructed in accordance with applicable codes and standards, including those of the American Water Works Association (AWWA). The floor elevation of both reservoirs is about 928 feet above mean sea level (amsl) and their roof height at the perimeter is at 954.47 feet amsl. The finished grade around Proposed Reservoir 1 varies from 935 to 942 feet amsl; therefore, Proposed Reservoir 1 is partially buried and would project from 12.5 feet to 19.5 feet above the finished grade. The finished floor elevation of Reservoir 1 ranges from 935 feet to 942 feet. Proposed Reservoir No. 2 is partially buried and would project from 10.5 feet to 16.5 feet above the finished grade. The finished floor elevation of Reservoir 2 ranges from 938 feet to 943 feet. As the ground varies along Sunset Avenue from 937 to 941



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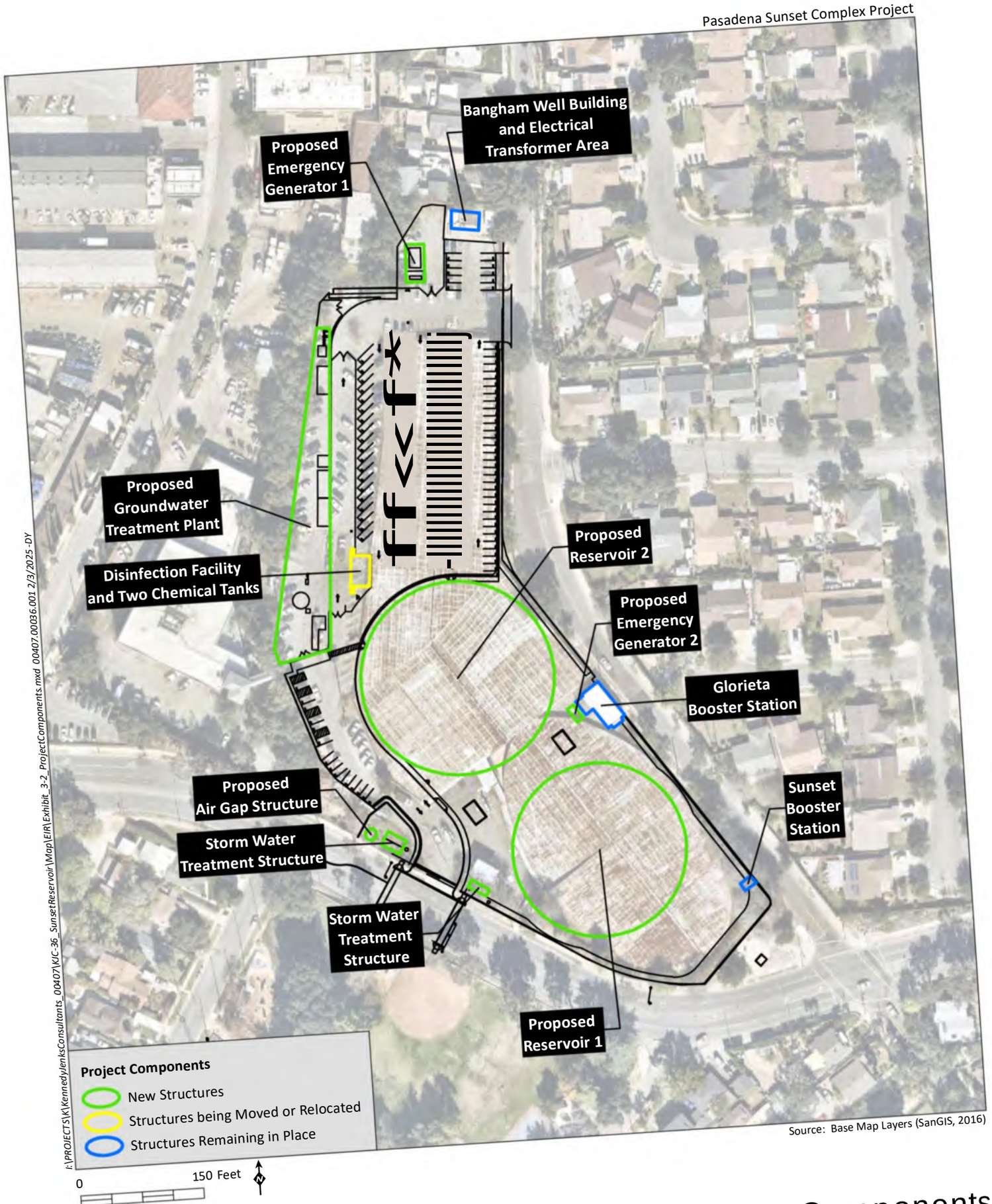
Structures Being Demolished and Removed

Exhibit 3-1



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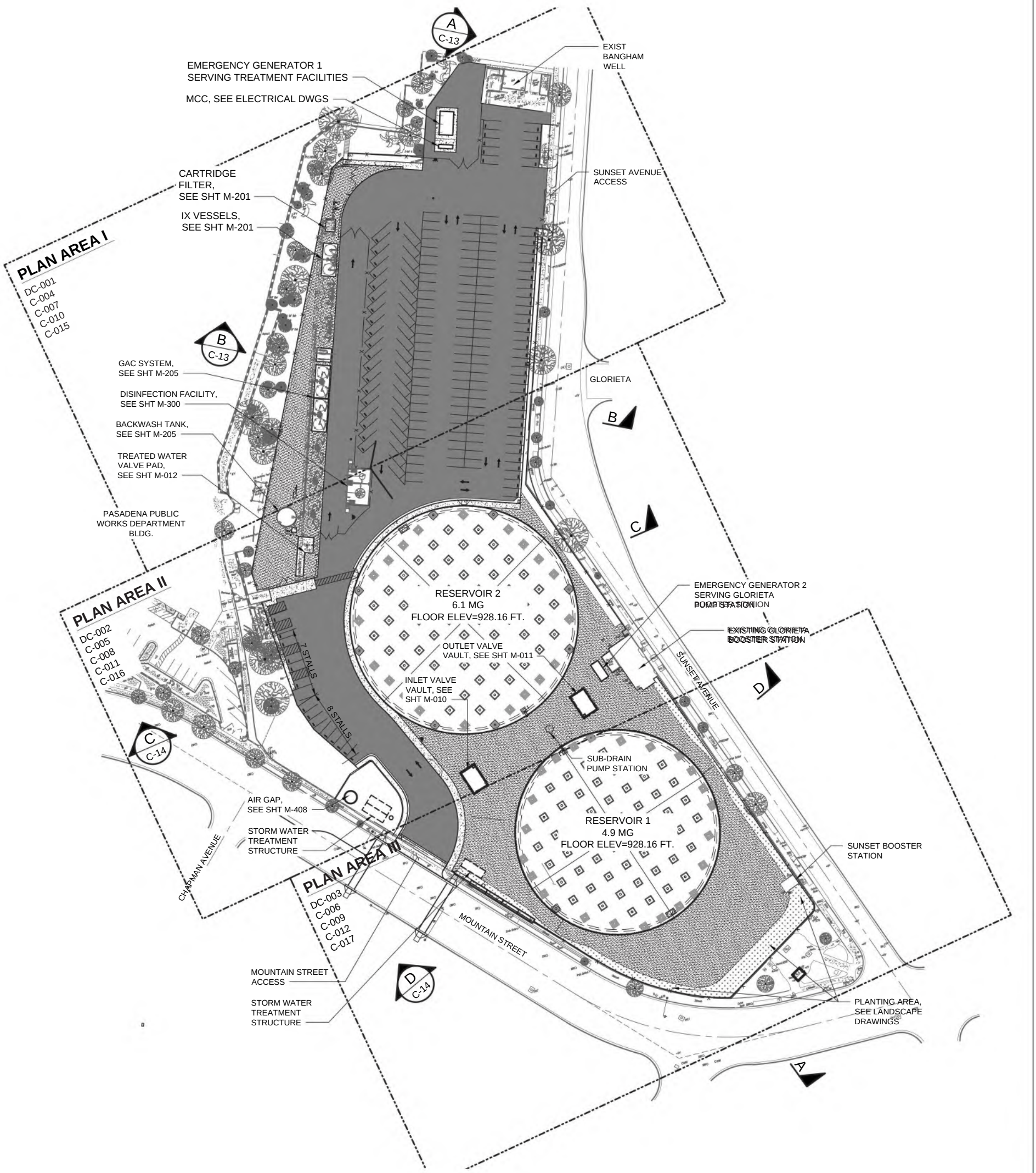
Project Components

Exhibit 3-2



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Source: Kennedy Jenks (2022)

feet amsl, the top of the reservoirs would be between 13.5 and 17.5 feet above the ground surface. The tanks would have Type I cast-in-place concrete core walls with vertical prestressed reinforcement and circumferential strand prestressing. The floors, wall footings, column footings, core walls, and two-way column supported flat slab roofs would be constructed of concrete. The joints between the wall footings and the core walls and the roof slabs would be anchored flexible joints with minimum restraint of radial movement. After circumferential prestressing strand is applied to the core walls, the strands would be covered with pneumatically applied concrete (shotcrete) as embedment and corrosion protection of the circumferential wall reinforcement. The circumferential strand and vertical tendons for prestressing would be galvanized for corrosion protection.

The two structures would have 6inchthick concrete floors, and concrete core walls between 10 and 14 inches thick. The roofs would consist of two-way spanning flat slab approximately 9 inches thick that are supported by concrete columns with square column footings above the membrane floor slab and square drop panels recessed beneath the underside of the roof slab. The 9-inch-thick roof would support photovoltaic solar panels mounted to the roofs of both reservoirs.

A waterproofing system would be incorporated into the roofs of the reservoirs to protect the drinking water from rainwater intrusion associated with potential future cracks in the roof. The roofs would be provided with roof scuppers and downspouts to direct rainwater from the roof to the site drainage facilities. The tanks would also include polyvinyl chloride (PVC) waterstops placed in joints and between the floors, walls, and roofs to prevent the passage of water through a construction of expansion joint between adjacent elements of concrete construction. The tank walls would receive a natural gun shotcrete finish in an earth tone color and the roof would receive a smooth trowel finish.

The perimeter and floor of the proposed tanks would contain drainage systems to limit hydrostatic pressures on the exterior face of the tank walls and floors. The automated circumferential prestressing and shotcrete for the tank wall would require 10 feet of outside clearance for the prestressing wrapping machinery.

Backfill would be placed around both reservoirs, as the reservoirs would be partially buried. The depth of the backfill would be a minimum of 12 feet deep all around the tanks and of sufficient depth to resist the sliding forces of the empty tanks. Finished grade would provide drainage away from the new tanks.

3.1.2.2 Piping

The inlet, outlet, and drain pipelines for each of the reservoirs would enter the tanks through their floors and would be completely encased in concrete beneath the tanks' footprints. Concrete encasement of all piping placed under the foundation and/or floor slab would provide for added corrosion protection. It also reduces the potential for leakage of the piping during the useful life of the structure. Concrete encasement provides a uniform, dense, stiff backfill around the pipes that eliminates potential problems with inadequate compaction of soil under and around the pipes. Flexible couplings would be provided outside the wall footings to accommodate movement caused by differential settlement or seismic activity on piping connections.

Inlet and Outlet

For the reservoirs, separate 36-inch diameter inlet and outlet pipes would penetrate the tank floor slab and pass beneath the perimeter footing. Both pipes would be oriented vertically and would extend above the floor a minimum of 6 inches to prevent sediment on the floor from entering the distribution

system. Isolation valves on the inlet and outlet pipes would be provided just outside the tank perimeter in separate vaults.

Reservoir Seismic Isolation Valve System

PWP would implement a seismic isolation valve system in the new reservoir design to prevent the reservoirs from excessively draining during a recorded seismic event coupled with an unusually large increase in downstream system demand (indicative of a water main break). The system used would be the FLOSAFE Flow Monitoring Safety System by FLOLOC, which only shuts valves when a break in the pipeline is detected in the minutes after a serious seismic event, eliminating the possibility of an unnecessary shutdown. The FLOSAFE system would be installed on the downstream isolation valve of one of the reservoirs so that the other is still available to the distribution system in case fire suppression is required following the seismic event and maintain minimum system pressure.

Reservoir Mixing

The design of the circular prestressed concrete reservoirs reduces the likelihood for creation of any mixing “dead zones” (areas where mixing would not occur) in the reservoirs. Given that these reservoirs serve PWP’s largest pressure zone, the reservoirs are expected to cycle regularly, reducing concerns for water age and residual management.

Overflow and Drain

The overflow pipe for each reservoir would be designed to accommodate the necessary flowrate. The overflow weir, reducing inlet, and vortex breaker would be sized to pass the design flow at the maximum static water surface permitted. The overflow discharge pipes would extend beneath the floor and perimeter wall footing and be piped to the drain vault structure where an air gap would be provided. The termination point of the overflow pipes would include reinforced elastomeric check valves or flap valves to prevent foreign objects from entering the tanks through the overflow pipe. The discharge point would include an air gap to prevent contamination between the tank and the discharge point.

A 6-inch diameter drain pipeline valve outside the tanks would be provided to facilitate draining each of the reservoirs and dispose of washdown water during inspection and cleaning. The drain pipeline would be separate from the outlet pipeline for each tank. The drain pipelines would typically be located on west sides of the tanks and discharge to the drain vault located west of the tanks where an air gap would be provided before discharge to the storm drain system in West Mountain Street.

Underdrain

A separate underdrain system would be provided for each reservoir to monitor each of the tanks for leakage from the tank floors, joints in the tank floors, and the joints between the tank foundations and walls. The underdrain systems would consist of a geomembrane liner placed beneath the aggregate base subgrade material underlying each of the tanks that would direct any leakage to a perimeter drain. The underdrain pipelines would discharge to a drain vault for observation and monitoring.

3.1.2.3 Roof Ventilators

A single roof vent 48-inches in diameter would be located near the center of each reservoir would be provided to admit air at a flow rate equal to the maximum tank outflow rate. The exhaust capacity of the ventilator would be designed to match the fill rate of the reservoirs. Ventilator screens would be protected from vandalism, but would also be accessible for inspection, screen replacement, and cleaning to remove insects or airborne lint, pollen, or dust. Vents would be designed to prevent the entry of rainwater, runoff, birds, insects, rodents, or other animals.

3.1.2.4 Roof Hatches

Two hatches would be provided on the roof of each reservoir: one 42-inch square hatch for personnel entry and a second 4-foot by 8-foot hatch for equipment. Roof hatches would be designed to prevent leakage into the tank and would be locked to resist unauthorized entry and vandalism.

3.1.2.5 Exterior and Interior Ladders and Guardrail

One exterior ladder and one interior ladder would be provided for access to each reservoir. Ladders would conform to Occupational Safety and Health Administration (OSHA) requirements and would be constructed of corrosion resistant materials. Ladders would be provided with OSHA-compliant stainless-steel fall prevention devices. A limited amount of guardrail would be provided on the roof of the tanks directly adjacent to the exterior ladders and access hatches. All guardrail posts, rails, and toe boards would be of aluminum construction in accordance with California Building Code (CBC) and OSHA requirements.

3.1.2.6 Rooftop Solar Panels

As described above, both reservoirs would be constructed with 9-inch thick roofs to support solar panels. The exact configuration and coverage of the rooftop panels are not known at this time but the panels would cover the majority of the rooftops of both proposed reservoirs. The panels would be angled to maximize sun exposure, but would otherwise be installed level with the rooftop. Conduits would be installed along the rooftops and down the outsides of the reservoirs to connect the panels to inverters and other electrical utilities.

3.1.3 Emergency Generators

The project includes the addition of two emergency generators to provide backup power to various components on the Project site. Emergency Generator 1 would be a 1,000-kW diesel generator to power the water treatment plant and Bangham Well. Emergency Generator 2 would be a 1,500-kW diesel generator to power Glorieta Booster Station. Both generators would be placed near the facilities that they would provide power to in the instance of an emergency, as shown on Figure 3-2.

3.1.4 Groundwater Treatment Plant

Untreated groundwater pumped from wells may contain contaminants that exceed state and federal maximum contaminant level standards. The proposed GWTP would provide treatment for the removal of perchlorate and volatile organic compounds (VOCs), with space reserved for a future biological nitrate treatment system. The initial phase, Phase 1, would consist of ion exchange for perchlorate removal and granular activated carbon for VOC removal, with a treatment capacity of up to 1,500 gpm, which

equates to the capacity of one well. Space would be reserved on-site for a future phase (Buildout) to increase the treatment capacity up to 4,500 gpm for VOC and perchlorate with a side stream nitrate treatment system capable of producing 800 gpm of nitrate treated effluent. Nitrate analyzers would be provided with Phase 1. The proposed GWTP would also require the installation of a new transformer and service meter.

3.1.4.1 Treatment Process

The treatment process would consist of ion exchange (IX) used for treating perchlorate, and liquid phase granular activated carbon vessels (LPGAC) used for VOCs removal. Each of these elements of the GWTP is explained below.

Ion Exchange Pre-Filtration Treatment System

The first step of the treatment process is pre-filtration which provides supplemental protection for the IX treatment system by minimizing fouling, clogging, or general damage caused by particulates and debris that may be present. The GWTP's pre-filtration system would filter raw groundwater from the wells upstream of the IX system using cartridge filters.

Cartridge filters are depth-type filters in which particles and contaminants are captured throughout the total thickness of the filter. Standard diameter cartridge filters can be manufactured as pleated, string wound, or melt-blown, with pleated cartridge filters offering the largest surface area and solids holding capacity. Large diameter cartridge filters are utilized for large flow applications as fewer elements are needed for treatment, reducing the labor effort required to perform a filter change out. As a result of the high system flows, large diameter filters would be required. The pre-filtration system would consist of a horizontal, carbon steel pressure vessel housing a bank of cylindrical wound depth polypropylene or string wound cartridge filter elements. Two cartridge filters would be required for the Phase 1 flow, and one additional filter would be required for Buildout flow.

Ion Exchange Treatment System

In drinking water treatment applications, IX is typically applied to selectively remove a specific contaminant ion (such as perchlorate, nitrate, or arsenate) and exchange it with a less harmful species (such as sodium or chlorine). The IX process utilizes a resin that has an affinity for the targeted contaminant ion, in this case, perchlorate.

Single-use IX is an adsorption treatment process in which the feed water (e.g., groundwater) is passed over a resin bed. After the resin capacity is exhausted, the resin is sent for disposal rather than being regenerated on-site. The resin is either placed in a landfill or thermally destroyed. Therefore, no waste brines are generated. This configuration is used at sites where brine disposal is expensive or prohibited for regulatory or other purposes. Single-use IX is commonly used to remove perchlorate with perchlorate-specific resins.

The Project's single-use IX system would consist of a fixed bed in a lead-lag configuration. In Phase 1, the IX system would consist of one pair of IX vessels (two total) each filled with perchlorate-specific resin. In Buildout, additional IX vessels would be added raising the total to three pairs. Each vessel would be 12 feet in diameter and approximately 16 feet in height. Each vessel in a pair would be joined by a series of pipes and valves (header) and the treated water would be piped to a collector main.

During the production cycle, pumped groundwater would be passed through a resin bed in the lead vessel that selectively removes perchlorate and exchanges the constituent for chloride. The treated water would then flow into the lag vessel as a polishing step or as an additional protection barrier for perchlorate break through. Each vessel would contain approximately 424 cubic feet of resin. When the resin in the lead vessel is exhausted, the single pair would be taken offline and the exhausted resin would then be removed from the lead vessel and replaced with new resin. This pair would return to service but the prior vessel in the lag position would rotate to the lead position and the vessel with the new virgin resin would operate in the lag position. The exhausted resin would then be disposed of off-site.

Liquid Phase Granular Activated Carbon Vessel Treatment System

LPGAC treatment would be implemented for the removal of VOCs such as 1,2,3-Trichloropropane (TCP), a human-made chlorinated hydrocarbon typically used for cleaning and degreasing or as part of pesticide products. LPGAC treatment has been identified by the State Water Resources Control Board Division of Drinking Water (DDW) as the best available technology (BAT) for TCP removal. LPGAC treatment typically consists of a fixed-bed of granular activated carbon in steel vessels either in a parallel or lead-lag configuration. LPGAC removes contaminants through adsorption. When LPGAC media is no longer able to adsorb contaminant, the media must be replaced with new carbon.

The LPGAC treatment system would consist of two trains each with a pair of 12-foot diameter adsorber vessels in a lead-lag configuration. Each pair of vessels is equipped with a centrally located valve manifold and interconnecting piping. Each vessel would be approximately 24 feet in height. The centrally located valve manifold allows isolation of each pair of vessels for removing/filling of LPGAC or rinsing operations. Each vessel is sized to hold up to 40,000 pounds of LPGAC. The amount of LPGAC media per vessel would remain the same in Phase 1 and Buildout. For Buildout additional trains (up to six vessels) would be added. In a lead lag configuration, when the carbon in the lead vessel becomes exhausted the pair of vessels is removed from service. Similar to the IX system, the exhausted carbon is removed from the lead vessel and replaced with virgin or reactivated carbon and prepared for backwashing operation. When completed, the lead vessel is rotated into the lag position, and the former lag vessel is rotated into the lead position. The pair is returned to service. All valves are located at low elevations for ease of operation and maintenance. The water in this system is applied in a down flow mode.

Backwash Storage Tank

When the new LPGAC media is installed, a rinse would be required to remove any carbon fines. Potable water from the distribution system would be used to rinse the vessels.

After rinsing, the wastewater would be stored in the backwash waste tank and then gravity fed from a weighted floating suction strainer to disposal in the sanitary sewer or storm drain. Pulling water from the surface of the tank would reduce the solids loading on the sanitary sewer and promote settling of the fines at the bottom of the tank. The float would automatically shut off a few feet above the bottom of the tank to prevent suctioning fines. Cleanout would have a frequency of once per year or when the depths of solids reach one foot, whichever comes first. Fines would be periodically removed from the tank by a vacuum truck.

Backflow preventors would be installed along the disposal pipeline to prevent backflows from the sanitary sewer. In addition, an air gap would be installed prior to the backwash waste tanks to prevent

any rinse wastewater from coming back into the LPGAC vessels and to prevent a cross connection with the sanitary sewer.

Buildout Nitrate System

A future buildout phase would include biological treatment for nitrate removal by denitrification (the microbial process of reducing nitrate and nitrite to gaseous forms of nitrogen). Provisions are included in the Phase 1 design to ensure the buildout nitrate treatment system can be installed and integrated without major modifications to the main process. First, adequate space has been identified on the site for the system based on a nitrate system design flow of 800 gpm. Second, mechanical fittings would be installed for future connections and for balancing flow between the main treatment system and the future side stream system.

Waste Streams

Operation of the GWTP would produce several process residuals that would be collected and managed in accordance with state and local requirements. Well flush water would be directed to the nearby storm drain on West Mountain Street and LPGAC backwash waste and instrumentation waste would be directed to the sanitary sewer or storm drain, located along Sunset Avenue. Additionally, the Disinfection Facility would have needed discharges that would be controlled by the applicable regulations.

Product Water Storage

Water treated by the Project would be discharged to the two proposed reservoirs, and not directly to the distribution system. There would be no intermittent storage or product water pumps between the final treatment stage, including disinfection, and the reservoirs.

3.1.5 Disinfection Facility

Water supplied to PWP from Metropolitan Water District of Southern California (MWD) uses chloramines for disinfection. To match the MWD disinfection strategy, PWP currently produces chloramines through the combination of sodium hypochlorite and liquid ammonium sulfate to disinfect its groundwater production before storing the treated water in the existing reservoir. The water treatment facility would reduce perchlorate and 1,2,3-TCP levels below state and federal maximum contaminant level standards without the need for blending with another water supply source. The Disinfection Facility would provide the appropriate level of disinfection to meet state and federal standards.

The existing Disinfection Facility was sized to provide secondary disinfection for 7,780 gpm at a location just upstream of the reservoir. While disinfection continues to be necessary, the existing structure would need to be removed for the Project's proposed site layout. The new Disinfection Facility would be located in close proximity to the GWTP and would operate at a lower flow rate compared to the existing system, i.e., at a maximum flow rate of 4,500 gpm by Buildout. It is anticipated that some of the equipment from the existing facility, including the chemical storage tanks, would be salvaged and reused under the proposed project. However, much of the existing equipment is no longer suitable for use and would be replaced as part of this Project. The new Disinfection Facility would be located within an approximately 827-square-foot structure.

The new facility would use liquid ammonium sulfate instead of aqueous ammonia for chloramination. The chemicals used for disinfection are stored in tanks (a 2,430-gallon ammonium sulfate storage tank and a 6,150-gallon sodium hypochlorite storage tank). Due to the hazardous nature of sodium hypochlorite and ammonium sulfate, secondary containment would also be required for each material. The secondary storage for each tank would be concrete and would be sized to contain 110 percent of the storage tank volume. The containment would be equipped with a sump and level limit controls set to alarm at the detection of liquid in the sump. This would prevent the discharge of incompatible liquids into the same area and allow for rapid response in the case of leaks.

The structure would include a canopy to protect the equipment from direct sunlight and rainwater. Adequate safety provisions would be implemented including stairs in and out of the containment areas, eye wash stations in each containment area, and eye wash stations at the chemical fill connections. Additionally, a full height wall would be installed between the sodium hypochlorite and ammonium sulfate storage areas.

3.1.6 Civil/Site Improvements

3.1.6.1 Site Ingress/Egress

The main ingress/egress would be located at the northeast corner of the site. The existing employee entrance to the north along Sunset Avenue would be widened to allow for safety and ease of traffic flow. The existing site entrance along West Mountain Street would also be maintained but would be modified to meet the new finished grade of the proposed site. It would also include the construction of a new traffic signal to provide safe ingress and egress to vehicles accessing the site at this location. A site access road would run from the West Mountain Street entrance up to the GWTP. The expanded parking lot directly to the north would also be accessible from this access road. Delivery and service trucks would enter the site from the south via West Mountain Street, follow the service road along the GWTP at the northwest edge of the site, and exit the site to the north onto Sunset Avenue. The service road would be sized to accommodate large service and delivery vehicles entering and exiting the site and would maintain space for offloading. The entire facility would be accessible via key-actuated motorized gates.

The reservoirs would be sized and located such that a 10-foot minimum vehicle lane would be maintained around reservoirs to allow for regular inspections and maintenance activities. The 10-foot lane width would accommodate the vehicles planned for use on the site. During operation, the Project would not substantially increase the number of employees traveling to and from the site above existing conditions. The basic functions of the Sunset Reservoir facility would remain the same and, therefore, require a similar number of employees.

3.1.6.2 Site Grading, Drainage and Paving

To handle the load of the delivery and service trucks, the service roads would consist of a 4inch thick layer of asphalt over 6 inches of aggregate base. The parking area would be paved, and the new pavement thickness would be designed based on information from the geotechnical report. Any asphalt repairs would be done in accordance with PWP's most current Water Construction Standards.

With exception to the concrete equipment pads, the site would be graded to direct runoff from the high side of the site along Sunset Avenue to the southeast towards West Mountain Street. The design of the

grading plan is aimed to reduce as much required imported fill as possible and to provide adequate driveway grades for delivery and maintenance vehicle access. The current grading plan results in an approximate net export of 3,700 cubic yards (CY). The grading plan would be refined during Final Design and would aim to balance import and export of material to/from the site.

3.1.6.3 Site Stormwater Treatment

The site design would incorporate Low Impact Development (LID) features in accordance with the Los Angeles County stormwater requirements, including the 2014 LID Standards Manual, the MS4 Permit, and the Hydraulic Design Manual. The sizing of treatment would be based on the total area impacted by the Project (approximately 6.21 acres) and the 85th percentile 24-hour rainfall depth of 1.1 inches. Stormwater is planned to be treated by biofiltration because infiltration would likely be infeasible due to proximity to slopes, resulting in a required treatment volume 1.5 x Stormwater Design Volume that equates to approximately 0.9 acre-feet (AF). Treatment type would be confirmed during final design. The biofiltration facility would include an overflow and underdrain system, which would either discharge to the drain vault in the southwest corner of the site, or, if necessary, to the existing storm drain system(s) within West Mountain Street. Stormwater facilities would be kept as far away from existing wells as possible. When possible, self-treating areas would be used to decrease the required quantity of LID features, which would be coordinated with the landscape architect. Grading would be adjusted to accommodate Los Angeles County LID requirements.

The Project is exempt from Hydromodification Controls because it discharges to the existing storm drain system, which in turn discharges to Arroyo Seco and the Los Angeles River, both of which are armored channels not susceptible to the impacts of hydromodification.

3.1.6.4 On-Site Parking

The Project site currently provides parking for City employees who work at the adjacent City Yards. While several existing parking spaces at the south end of the site would be removed to accommodate the new reservoir configuration, space towards the north end of the site would be used to provide additional parking spaces. There would be no net loss of parking spaces compared to existing conditions. The project would provide 50 spaces for Level 2 electric vehicle (EV) charging stations and 3 Level 3 fast charging stations. Charging station pedestals would be provided along with connections to existing utilities. It should be noted that during construction, PWP employees that currently park on-site would be able to park at the City Maintenance Yard.

The Maintenance Yard's existing parking lot south of West Hammond Street would be reconfigured to allow for additional employee parking. Employees would access and exit the lot via the main entrance off West Mountain Street and existing gates on Hammond Street. The egress provided by the northwest gate on Hammond Street would be left turn only. The parking plan for the temporary conversion of the Maintenance Yard would include the following:

- Convert storage area to staff parking.
- Convert visitor and carpool parking stalls to general City staff parking.
- Convert assigned parking to first come first serve.
- A minimum of a 20-foot travel way would be maintained.

- The exiting bollards on site would be removed for traffic access.

The temporary parking plan for the City's Maintenance Yard would provide approximately 100 stalls for the City's use during construction of the proposed project.

3.1.6.5 Parking Lot Solar Canopies

In addition to the rooftop solar panels atop Proposed Reservoirs 1 and 2, solar canopies would be installed above parking spaces within the new parking lot. These canopies would be approximately 12 to 15 feet tall to allow clearance for vehicles. The canopies would contain multiple panels atop L-shaped, Y-shaped or T-shaped frames on pillars. Conduits would connect the panels to inverters and existing utilities.

3.2 Project Purpose and Objectives

The overall intent of the Project is to replace aging and deficient water storage and incorporate treatment infrastructure to ensure that the City can continue to provide reliable and clean drinking water. More specifically, the Project includes the following objectives:

1. Provide safe drinking water and system reliability to PWP customers by:

    a. Addressing existing water leaks and seismic safety concerns present in the existing deteriorating Sunset Reservoirs.

    b. Constructing reservoirs that provide the volume necessary for operational and fire flow requirements.

    c. Replacing the existing reservoirs onsite with a new reservoir or reservoirs that meet current engineering and seismic safety standards (2022 California Building Code or current code at the time permits are issued) for essential facilities as designated by California Building Code Section 1604.5.

    d. Providing an on-site groundwater treatment system to remove perchlorates and volatile organic compounds at a rate of up to 4,500 gpm, and provide space for nitrate removal at a rate of up to 800 gpm.

    e. Installing emergency generators to provide emergency power in the event of a power failure.

    f. Maintaining existing system hydraulics.

2. Improve the reliability of water service to existing PWP customers throughout implementation of the Project.

3. Maintain parking capacity for City employees currently parking at the site.

4. Maintain vehicular access to surrounding residences during construction activities, including pipeline connections and other improvements on adjacent public streets.

5. Enhance vehicular safety by providing a new traffic signal at the reconfigured truck access driveway along the Project's West Mountain Street frontage.

6. Improve the appearance of the facility by providing enhanced visual screening along the Project site's public street frontages.

7. Improve security at the facilities to minimize potential for tampering.

8. Provide opportunities for renewable energy generation at the Project site.

3.2.1 Consistency with City Objectives

The City's Water System and Resources Plan (WSRP) establishes targeted goals for the City to achieve. Each goal is supported by specific objectives that consider water safety and reliability. The WSRP's first goal is to develop and manage sustainable water supplies, with the objectives to improve groundwater levels, efficiently use water supplies, adapt to climate change, and enhance local supplies. The WSRP also sets out the goal to provide reliable water service, through improving the effectiveness of the water distribution system, ensuring water meets health and safety needs, optimizing efficiency, and enhancing the resilience to minimize impacts to customers during emergencies. As described above, the Project would be consistent with these goals and objectives because the improved water infrastructure would provide safe water storage and ensure a local reliable water supply.

3.3 Project Construction

3.3.1 Pre-Demolition Survey

Based on the age of the structures on the Project site and the historical usage of environmentally sensitive materials (i.e., Asbestos Containing Materials [ACM] and Lead-Based Paint [LBP]) in construction practices and supplied materials of the early 1900s, the contractor would perform a pre-demolition survey prior to demolition after the existing reservoirs have been drained to determine the potential presence and extent of potentially hazardous materials. The pre-demolition survey would consist of a review of available reservoir construction information, and a visual inspection of the water reservoirs and any visible connecting appurtenances.

The objective of the pre-demolition survey would be to observe, locate, and evaluate the condition of suspected ACM, LBP, wood construction materials formerly treated with Creosote, and any other identifiable materials. Sampling and laboratory testing would be required to confirm suspected hazardous materials. The survey would provide information that could be used to potentially implement a program of removal prior to initiating demolition activities, should specific conditions apply. The survey would also provide the demolition contractor with information so that measures, procedures, and unit costs may be agreed upon with PWP for the removal of environmentally sensitive materials as part of the demolition contract should materials be encountered during demolition work.

3.3.2 Hazardous Materials Work Plan

Should the survey result in findings of environmentally sensitive materials, based on the recommendations provided by the pre-demolition survey professional, PWP would retain a qualified professional to prepare and implement a work plan that addresses the specific hazardous materials

identified in the survey, and identifies the required removal and disposal activities associated with each material. The plan shall be submitted to the PWP for review and approval prior to the start of removal and disposal activities. The plan shall include the necessary steps for safe removal and disposal of any hazardous materials identified during the pre-demolition survey. The plan shall include recommendations for removal and disposal consistent with regulatory requirements specific to the materials being removed (i.e., LBP, ACM, or wood construction materials formerly treated with Creosote) and in accordance with applicable laws, including Occupational Safety and Health Administration (OSHA) guidelines, to ensure that no hazards to the demolition crew, adjacent residents, or others are created by exposure to hazardous building materials. Following completion of the required removal activities, the qualified professional would prepare a Summary Report to document the removal activities performed and any variations from their work plan. The Summary Report shall be submitted to the PWP for review and approval prior to the issuance of demolition permits for the existing structures at the Project site.

3.3.3 Construction Phasing

The estimated construction duration for the Project would be 24 months. Based on the proposed facility layout, Proposed Reservoir 1 would be constructed first. Proposed Reservoir 1 would be the southernmost facility on the site, which would allow the construction contractor to have access to the remaining contiguous site to construct the remaining facilities. Proposed Reservoir 1 would be constructed in 12 months, and Proposed Reservoir 2 would follow approximately 3 months behind Proposed Reservoir 1's construction schedule. The GWTP, Disinfection Facility and improvements to Bangham Well would be constructed simultaneously with the reservoirs.

3.4 Project Operation

3.4.1 Water Treatment and Storage

The proposed reservoirs would be hydraulically connected to one another on the inlet side via the valve vault between the reservoirs, as well as on the outlet side via their connection to the 36-inch main that runs along Sunset Avenue. Since the reservoirs would be directly connected to the Sunset Pressure Zone (PZ), water levels in the reservoirs would "float" with the PZ, meaning that it would operate at the same hydraulic grade line (HGL) at which the Sunset PZ currently operates.

Under normal operations (at full design capacity), raw water from the wells would flow to the pre-filters, followed by the GWTP for removal of perchlorate and VOC, followed by disinfection. After being treated and disinfected, the treated water would be conveyed to the reservoirs. Variable flow from P-1 (MWD imported water turnout) would enter through the inlet piping and combine with the treated product water as it moves up through the valve vault to Proposed Reservoir 1 and Proposed Reservoir 2.

In 2021, PWP began drilling of the Garfield Replacement Well (Parke Well) in Villa Park, which is located approximately 0.80-mile southeast of the Project site. The new well is to replace a 100-year-old well that has exceeded its useful life and was experiencing mechanical issues. The replacement well is anticipated to be completed in 2025. The existing discharge pipe from the Garfield Well would be utilized for the replacement well. The existing discharge pipe terminates near P-1.

The Project would extend the existing Garfield Well discharge pipe to the influent of the GWTP and combine with the discharge of Bangham Well. If the Parke Well does not require treatment, it would

bypass the GWTP and combine with treated water upstream of the disinfection system. Under this configuration, Phase 1 for the Project would treat approximately 1,500 gpm. Future phases may increase treatment capacity up to 4,500 gpm as new wells come online.

3.4.2 Maintenance Operations

If Proposed Reservoir 1 or Proposed Reservoir 2 need to be isolated for maintenance or repairs, each reservoir would be able to be individually separated from the system by closing the corresponding isolation valve in the inlet valve vault and closing the outlet isolation valve on the reservoir. The inlet/outlet piping would be sized so that each reservoir could operate independently at design flow rates without incurring excessive head loss (pressure loss in a fluid system).

Power would be provided by PWP. Emergency standby generator power would be provided at the site via a manual transfer switch (MTS). The generators and their accessories would be housed in a sound attenuated enclosure and would comply with air quality emission standards.

3.4.2.1 Routine Maintenance

Resources associated with operation of the Project would not be substantially different than existing operations, with the same number of PWP staff on-site and comparable maintenance activities. Similar to existing conditions, routine maintenance would include daily checks to ensure there are no issues that need to be immediately addressed and to take weekly water quality samples. The GWTP would be passively controlled, with inlet valves automated to determine flows without manual input. Each month, the Disinfection Facility would receive a chemical delivery. Every three to six months, staff would backwash new treatment media brought in for the GWTP vessels. The two new emergency generators would require monthly inspections. These inspections would consist of 15-minute tests of the diesel generators to ensure they remain functional in an emergency.

3.5 Discretionary Actions

Table 3-2, *Agency Approvals and Requirements*, lists all the agencies that are known or expected to have permit or approval authority over the Project. This EIR identifies all federal, state, local government, and quasi-government approvals that may be needed to construct, implement, or operate the Project.

Table 3-2
Agency Approvals and Requirements

Agency	Approval/Permit Required	Purpose
Lead Agency		
City of Pasadena	Conditional Use Permit	Project approval.
	Occupancy Permit	Permit installation of backwash connection pipelines and water main in Sunset Avenue.
	Tree Removal Approval	For the removal of trees.

Agency	Approval/Permit Required	Purpose
Responsible Agencies		
State Water Resources Control Board, Division of Drinking Water (DDW)	Permit Amendment Application	For reservoir and treatment system of public drinking water systems.
Los Angeles County Sanitation Districts (LACSD)	Sewerage System Connection Fee application and a modification of the existing permit for Industrial Wastewater Discharge	For the Disinfection Facility waste stream
Regional Water Quality Control Board	NPDES Permit No, CAS004001	Approve discharge of overflow, underdrain, and collected stormwater flow to storm sewer system.
South Coast Air Quality Management District	Permit to Construct/Operate	Allow construction and operation of the emergency generator.

The Project is proposed by and would be implemented under the direction of the City of Pasadena, and would be implemented by PWP. Although the Project is being initiated by the City, the Project would be subject to review and approval by City decision-makers, which would consider the need for and benefits of the Project in addition to the potential environmental effects of its construction and operation.

3.6 Cumulative Impacts

3.6.1 Cumulative Approach

The CEQA Guidelines require that an EIR discuss cumulative impacts of a project, taken together with other past, present, and probable future projects producing related impacts. The goal of this analysis is twofold: first, to determine whether the impacts of all such projects would be cumulatively significant; and, second, to determine whether the project would itself cause a "cumulatively considerable" (and thus significant) incremental contribution to any such cumulatively significant impacts. The definition of cumulatively considerable is provided in Section 15065(a)(3) of the CEQA Guidelines: "'Cumulatively considerable' means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects."

CEQA Guidelines Section 15130(b) provides the following parameters relative to cumulative impact analysis:

> The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified related projects contribute, rather than the attributes of other projects which do not contribute to the cumulative impact.

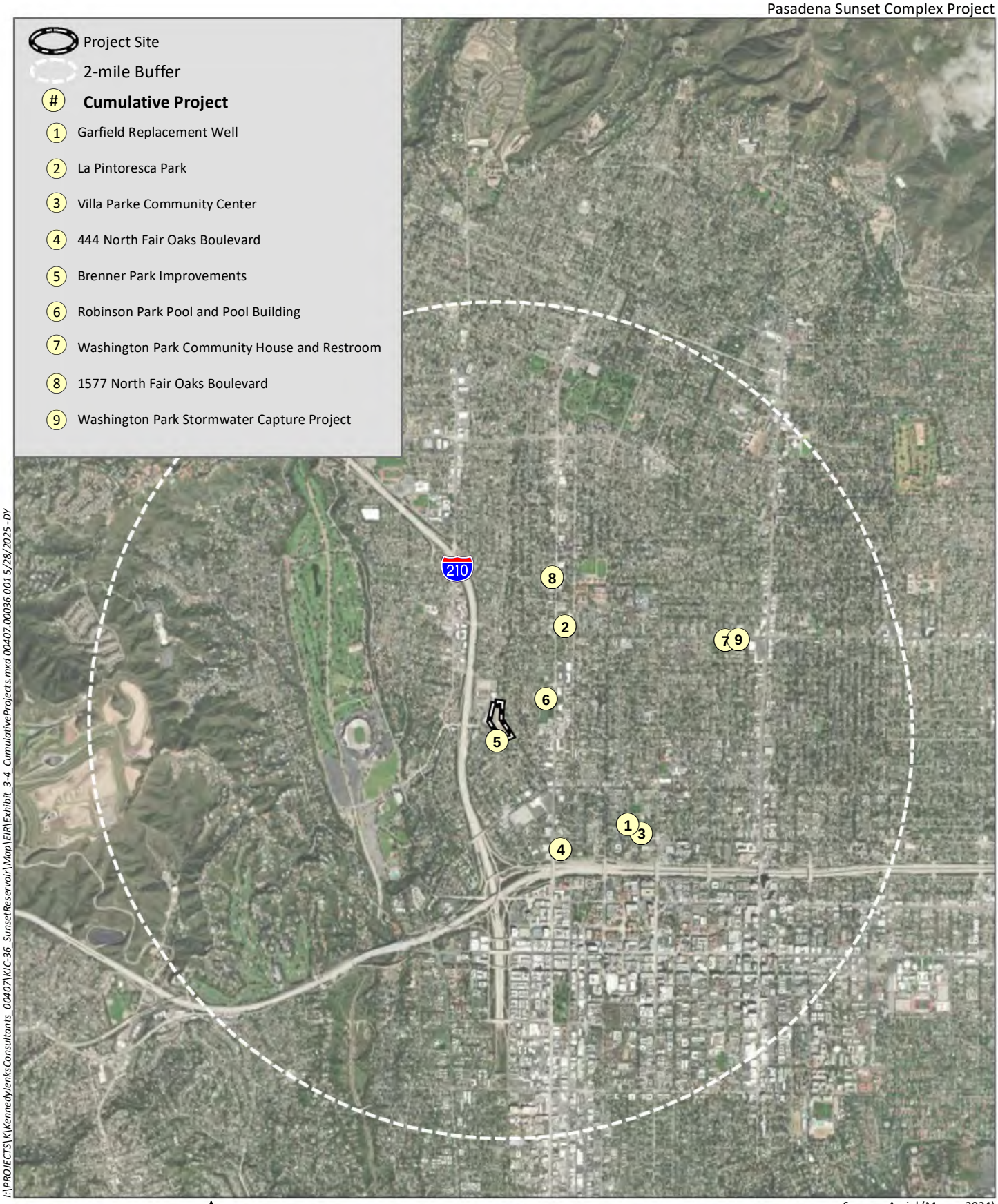
CEQA Guidelines Section 15130 allows for the use of two alternative methods to determine the scope of projects to analyze cumulative impacts. The list method includes a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency. The projection method includes a summary of projects contained in an adopted general plan or related planning document, or in a prior environmental document, that have been adopted or certified, which describe or evaluate regional or area-wide conditions contributing to the cumulative impact.

This Project proposes to use both the list method and the projection method, as applicable for each environmental topic as presented in this EIR. The geographic area that could be affected by implementation of a proposed project in combination with other projects also varies depending on the type of environmental resource being considered. For instance, cumulative noise impacts are more localized; whereas, cumulative air quality and greenhouse gas emissions impacts occur on a broader regional or global scale. Table 3-3, *Geographic Scope and Method of Evaluation for Cumulative Impacts*, describes the geographic scope of cumulative impact analysis for each environmental resource category analyzed in the EIR, as well as the method of evaluation for each category.

Table 3-3
Geographic Scope and Method of Evaluation for Cumulative Impacts

Environmental Resource		Geographic Area	Method of Evaluation
Aesthetics		Immediate vicinity	List
Air Quality	Toxic Air Contaminants	Immediate vicinity	List and Projections
	Construction/Operational Emissions	South Coast Air Basin	
Cultural Resources		Regional	List
Energy		Regional	Projections
Greenhouse Gas Emissions		South Coast Air Basin	Projections
Hazards and Hazardous Materials		Immediate vicinity	List
Noise		Immediate vicinity	List and Projections
Tribal Cultural Resources		Regional	List

Anticipated growth within the PWP service area is discussed in PWP's 2020 Urban Water Management Plan (UWMP) and is based on growth projections contained in the City's General Plan (City of Pasadena, 2015). As noted in the General Plan Land Use Element, in 2015 the development capacity within the City's various Specific Plan areas totaled a maximum of 6,979 housing units and up to 5,975,000 square feet of commercial development. However, as noted in the 2020 UWMP, recent population growth for the PWP water service area has been slow but steady as the City is largely built-out. Between 1990 and 2020, the service area population increased from 146,840 to 170,400, representing an annual average growth rate of 0.5 percent (PWP, 2021). In addition, the Southern California Association of Governments (SCAG)'s 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) also contains growth projections for cities within the region. Per the 2020-2045 SCAG RTP/SCS growth projections, which are based on the allowable development prescribed in the City's General Plan, between the years of 2016 and 2045 the City is anticipated to grow by 13,400 residents, 8,800 households, and 24,000 jobs (SCAG, 2020).



Source: Aerial (Maxar, 2024)

HELIX Environmental Planning

Cumulative Projects

Exhibit 3-4

For the purposes of this EIR, the proposed Project would have a significant cumulative effect if:

1. The cumulative effects of related projects (past, current, and probable future projects) are already significant and implementation of the proposed Project makes a considerable contribution to the effect; or

2. The cumulative effects of related projects (past, current, and probable future projects) are not significant but the incremental impact of implementing the proposed Project is substantial enough, when added to the cumulative effects of related projects, that a new cumulatively significant impact occurs.

The analysis in Sections 4.1 through 4.8 of this EIR addresses whether, after adoption of Project-specific mitigation, the residual impacts of the proposed Project would contribute considerably to an existing/anticipated (without the Project) cumulatively significant effect or cause a new cumulatively significant impact. A cumulative impact is not considered significant if the impact can be mitigated to below the level of significance through mitigation. The EIR must examine "reasonable options for mitigating or avoiding any significant cumulative effects of a proposed project" (14 CCR 15130(a)(3) and 15130(b)(5)).

3.6.2 List of Cumulative Projects

As noted above, the analysis of cumulative impacts for the Project utilizes a hybrid approach that is based both on projected growth within the City, PWP service area, or other specific geography germane to the issue being evaluated, as well as a list of related projects that have the potential to contribute to cumulative effects in conjunction with the Project. Because the proposed Project's reservoirs and associated facilities, once constructed, would result in operational environmental impacts that are comparable to those of the existing reservoir facilities, the analysis of cumulative impacts is focused on short-term construction effects. Accordingly, the related projects considered in the respective cumulative impact discussions presented in this EIR are those that would have the potential to contribute to additive effects in conjunction with the Project during its construction. To this end, the list of related projects includes City-initiated Capital Improvement Projects (CIPs) within the City, as well as private land development projects within one mile of the Project Site.

The cumulative project list below was developed for the purposes of this EIR analysis through consultation with planning and engineering staff from the City of Pasadena to include key projects in the City. The list of projects were chosen relative to publication of the Notice of Preparation, which was distributed on April 7, 2022. **Exhibit 3-4,** *Cumulative Projects*, shows geographically where the cumulative projects are located in comparison to the proposed Project. The cumulative projects listed below serve as the foundation on which the cumulative analysis approach has been based in Sections 4.1 through 4.8 of this EIR. The nine cumulative projects are summarized below:

1. ***Garfield Replacement Well***. The existing Garfield Well, located along Villa Parke near North Garfield Avenue, was drilled in 1921. The well reached the end of its useful service life and was removed from service in 2015. A replacement well was drilled in 2021, approximately 100 feet northwest of the existing well within the park and would be equipped with a submersible pump, which would effectively eliminate the noise and other above-ground impacts during operation. The piping and equipment for the well, including the pump and motor, are currently under design. Once equipped, the replacement well would be capable of producing up to 1,500 gallons

of water per minute which is comparable to the previous operational capacity of the abandoned well. The existing building and fenced perimeter would remain and be used to house the electrical equipment and controls. The project is located 0.75-mile southeast of the Project Site. Construction would be anticipated to be completed in 2025.

2. ***La Pintoresca Park.*** This project consists of improvements to La Pintoresca Park, located at 45 East Washington Boulevard, approximately 0.5-mile northeast of the Project site. The improvements include skateboard park replacement, basketball court resurfacing, court lighting upgrades, installation of a playground shade structure, water play area replacement, and restroom renovation. These improvements were completed in March 2022.

3. ***Villa Parke Community Center.*** The Villa Parke Community Center project consists of improvements to the existing community center at Villa Park, located at 363 East Villa Street, approximately 0.8-mile southeast of the Project site. Proposed improvements include enclosure and conversion of courtyard into new reception lobby for the boxing room and fitness gym; removal of flooring and installation of polished concrete floor in the main hallway; new flooring, ceiling tiles, and storage rooms for the auditorium; roof replacement and drainage repairs throughout the recreation center; replacement of pool deck and pool equipment, repair and replastering the pool, and installation of new shade structures and furnishings for the pool; replacement of ceilings and new paint in the locker room; and the conversion of asphalt lot into designated parking lot. Construction began in August 2021 and was completed in summer of 2022.

4. ***444 North Fair Oaks Boulevard.*** This Planned Development would allow the construction of 206 residential units. This project is located 0.7-mile south of the Project site. This project is currently in the construction phase.

5. ***Brenner Park Improvements.*** The project would include construction of a new concrete playing surface at the basketball court and other various park improvements such as replacement of light fixtures and drinking fountains. The project is located directly across West Mountain Street from the south side of the Project site. The project is currently in the design phase.

6. ***Robinson Park Pool and Pool Building.*** The project consists of the replacement of the pool, pool deck, and pool equipment, renovation of the pool building, as well as the construction of a new pool equipment storage building. This project is located approximately 0.3-mile northeast of the Project site. Construction began in Spring of 2022 and was completed in 2023.

7. ***Washington Park Community House and Restroom.*** The project consists of construction of new 1,500-square foot community house, including multipurpose space, small kitchenette, staff office and family restroom. Exterior space includes a small patio area and 1,000-square-foot outdoor learning space. The project also included construction of a restroom. This project is located approximately 1.2 miles northeast of the Project site. Construction began in Spring of 2022 and was completed in 2023.

8. ***1577 North Fair Oaks Boulevard.*** Predevelopment Plan Review for the conversion of an existing nursing home into a 15-unit apartment building with two affordable units (very low income) at ground level. This project is located 0.7-mile north of the Project site. The project is still in the building permit plan check phase. Once a permit is issued, they would have 36 months to complete the work.

9. **Washington Park Stormwater Capture Project**. This project would divert stormwater from the eastside storm drain for treatment and groundwater recharge and improvement of park amenities. This project is in the pre-design phase.

3.7 References

14 CCR 15000-15387 and Appendices A-N. Guidelines for Implementation of the California Environmental Quality Act, as amended.

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4.0 ENVIRONMENTAL IMPACT ANALYSIS

This Section provides an overview of the subsection format found in Section 4 of this Draft Environmental Impact Report (EIR) (Sections 4.1 through 4.8). For the purposes of this EIR, Appendix G within the California Environmental Quality Act (CEQA) Guidelines have been used as the basis for the environmental issue area analyses.

Impact Analysis Format

The purpose of this EIR is to evaluate the potential environmental effects of the proposed Project. Environmental topic areas outlined in Sections 4.1 through 4.8 of the EIR were determined to be the applicable and appropriate topics to analyze in the EIR, as identified through the Initial Study, which was prepared and circulated with the Notice of Preparation (NOP) and included in Appendix A of this EIR. Section 2.4 in Section 2 of this EIR, discusses the environmental effects found not to be significant as a result of the Project. The Initial Study for the Sunset Complex Project concluded that implementation of the proposed Project would result in no environmental impacts to the topics of Agriculture and Forest Resources, Land Use and Planning, Mineral Resources, Population and Housing, Public Services, Recreation, and Wildfire. Through compliance with existing regulations, the Project would have less than significant impacts on Biological Resources, Geology and Soils, Hydrology and Water Quality, Transportation, and Utilities and Service Systems. These environmental topics are analyzed as part of the Initial Study prepared for the Project and are not analyzed as part of this EIR.

Topics that are brought forth for analysis in this EIR include:

4.1 Aesthetics
4.2 Air Quality
4.3 Cultural Resources
4.4 Energy
4.5 Greenhouse Gas Emissions
4.6 Hazards and Hazardous Materials
4.7 Noise
4.8 Tribal Cultural Resources

The EIR assesses how the Project would impact each of these issue areas, and the mitigation required to reduce potential impacts as needed. Each environmental issue addressed in Sections 4.1 through 4.8 is presented in terms of the following subsections:

- **Methodology** – This subsection describes the methodology used in preparation of the impacts analysis, including existing resources, technical data, applicable laws and guidelines, or specific technical reports prepared for the Project.

- **Existing Conditions** – This subsection describes the physical environmental conditions in the vicinity of the proposed Project at the time of publication of the NOP. The existing conditions establishes the baseline conditions by which the City will determine whether specific Project-related impacts are significant.

- **Relevant Plans, Policies, and Ordinances** - This subsection describes the laws, regulations, ordinances, plans, and policies applicable to the environmental issue area and the proposed Project.

- **Thresholds of Significance** – This subsection identifies a set of thresholds by which the level of impact is determined.

- **Environmental Impacts Analysis** – This subsection provides a detailed analysis regarding the environmental effects of the proposed Project, and whether the impacts of the Project would meet or exceed the thresholds of significance.

- **Cumulative Impacts** – Provides an evaluation of the potential cumulative impacts of the Project in combination with identified related projects.

- **Mitigation Measures** – This subsection identifies potentially feasible mitigation measures that would avoid or substantially reduce significant adverse project impacts.

- **Level of Significance After Mitigation** – This subsection discusses whether Project-related impacts would be reduced to below a level of significance with implementation of the mitigation measures identified in the EIR. If applicable, this subsection also identifies any residual significant and unavoidable adverse impacts of the proposed Project that would result even with implementation of any feasible mitigation measures.

- **References** – This subsection outlines all references cited throughout the EIR Section.

4.1 Aesthetics

4.1.1 Methodology

This section of the EIR describes the existing visual setting of the Project site and vicinity within the context of the surrounding community, identifies applicable guidelines and regulations related to aesthetics, and evaluates potential aesthetic impacts related to implementation of the Project. Aesthetic impacts are evaluated based on a qualitative comparison of existing conditions to the proposed conditions. Visual simulations of the Project are utilized for providing an assessment of visual changes associated with the Project.

4.1.2 Existing Conditions

4.1.2.1 Visual Setting and Site Characteristics

Surrounding Land Uses

The Project site is located in an urbanized area and is surrounded by City buildings, a neighborhood park, and residential units. The Project site is situated west of the Fair Oaks neighborhood, which largely consists of single-family homes. The site is north of Orange Grove Boulevard, and areas to the immediate north of the Project site are residential. Brenner Park and another residential neighborhood are located south of the Project site. West of the Project site is the City of Pasadena Maintenance Yards, which includes various City-owned and operated buildings and structures.

Public Views of Scenic Resources

Distant views of the San Gabriel Mountains are partially available from the public locations around the site, including along existing rights-of-way in the Project vicinity and from Brenner Park to the south of the Project site. From Brenner Park, the San Gabriel Mountains are visible in the distance to the north. Tree canopies associated with frontage trees along West Mountain Street, tree canopies on the Project site, the higher elevation of the Project site in relation to Brenner Park, and the walls and the structures on the Project site result in partial obstruction of the San Gabriel Mountains from Brenner Park. Additionally, views of the San Gabriel Mountains from adjacent roadways surrounding the Project site are generally at least partially obstructed from intervening landscaping and tree canopies, roadway signage, street light poles, and intervening urbanized development.

The Project site is currently developed with the existing Sunset Reservoir facility and does not include any designated scenic resources; however, as discussed further in Chapter 4.3, *Cultural Resources*, the existing Sunset Reservoir facility is considered eligible for listing as a historic district and local historic landmark.

Public Views of the Project Site

The Sunset Reservoir facility sits above the grade of surrounding streets, with the site sloping down from north to south. Driveways located along West Mountain Street and Sunset Avenue provide access to the Project site. The City Yard is adjacent to the west of the Sunset Reservoir facility and includes a contemporary office building. This City Yard is on the same parcel as the Sunset Reservoir facility (APN 5728-021-916), but is outside of the Project site (the proposed area of disturbance for the project –

refer to Exhibit 2-3, in Chapter 2, *Environmental Setting*), and is situated substantially below the grade of the Project site.

Along West Mountain Street, views into the Project site are partially obstructed, since the Project site elevation is higher than the adjacent West Mountain Street roadway. The elevation difference is largest at the southwest corner of the Project site, and decreases along West Mountain Street towards its intersection with Sunset Avenue. In the southwest corner of the Project site, from West Mountain Street, views of the Project site consist of a small brick wall topped with a chain-link fence, with a slope leading up to the project site. The slope contains various scattered bushes and trees, with some portions of the slope devoid of vegetation.

Proceeding east along West Mountain Street, the small brick wall topped by a chain-link fence transitions to chain-link fence, a portion of which is covered with vegetation. An access to the facility is provided via a driveway off West Mountain Street. This access consists of an asphalt driveway, with a continuation of the existing chain link fence along the west side of the driveway, a chain link fence gate for access crossing the driveway, and a low brick wall topped by a chain link fence on the east side of the driveway. The chain link fence contains various small-size signage related to the facility. The existing Disinfection Facility is visible at this access driveway, directly inside of the chain-link fence on the east side of the access driveway. Views into the Project site are available at this location, as the elevation difference between the roadway and the Project site are reduced. Views into the Project site from the access driveway at West Mountain Street include views of the Disinfection Facility previously mentioned, as well as views of portions of the Existing Reservoir 1 and 2 structures, and the A-Basin. Proceeding east along West Mountain Street, site views continue. Views into the Project site are similar to those already described, with a smaller elevation difference between the roadway and the Project site. Views of the site consists of a continuation of low brick wall topped with chain-link fencing, transitioning to a taller concrete wall topped with chain link fencing. Slopes on the site are smaller along this portion of the road, with some trees and bushes providing partial visual screening of the facilities. Sunset Well is visible on the Project site from the adjacent West Mountain Street.

When viewed from the intersection of West Mountain Street and Sunset Avenue, views into the Project site are obstructed by a concrete retaining wall and landscaped area. A low, stream-rock retaining wall topped with a chain-link fence, borders the southeast corner of the property; this wall wraps the property's border along Sunset Avenue, transitioning into a low concrete retaining wall topped with a chain-link fence. Beyond the wall and fencing, a row of bushes obstructs views into the Project site. A small portion of the roofline for Existing Reservoir 1 is visible from the West Mountain Street/Sunset Avenue intersection.

Along the eastern boundary of the Project site, along Sunset Avenue, westerly views towards the Project site are available. Views are characterized by a continuation of the low, stream-rock retaining wall topped with a chain-link fence along the property line, for approximately 300 feet. The Sunset Booster Station is located at the property boundary, approximately 130 feet north of the West Mountain Street/Sunset Avenue intersection. Existing Reservoir 1 is adjacent to the chain link fencing and is visible along the southeastern portion of the boundary. The Glorieta Booster Station is approximately 380 feet north of the West Mountain Street/Sunset Avenue intersection. A break in fencing occurs along the frontage of the Glorieta Booster Station. The Glorieta Booster Station consists of board-formed concrete, clad in stucco, and rests on a concrete foundation.

North of the Glorieta Booster Station, a low concrete wall topped by chain-link fencing continues along the property line, west of Sunset Avenue. Existing Reservoir 2 is directly adjacent to the chain link fencing and visible from Sunset Avenue along the entire length (approximately 460 feet). Some trees are present along the Sunset Avenue roadway frontage, adjacent to the Project site, but due to their limited nature and height of canopies, such trees do not provide visual screening of the Project site or its associated facilities.

North of Existing Reservoir 2, an access driveway provides limited westerly views into the parking area. A chain link fence covered by vegetation provides screening of this portion of the Project site. A small portion of the roof and a vent associated with Bangham Well are visible from Sunset Avenue, above the chain link, vegetation-covered fence.

Brenner Park is a public park, located southwest of the Project site, on the south side of West Mountain Street. Views from Brenner Park towards the Project site are similar to those described from West Mountain Street, and include partially obstructed views of Sunset Well, the Disinfection Facility, and Existing Reservoir 1, along with the low concrete wall topped with chain-link fencing and existing landscape.

Public views towards the Project site are limited to those described above along West Mountain Street, Sunset Avenue, and Brenner Park. No other public views towards the Project site are available.

4.1.2.2 Scenic Highways and Corridors

The California Department of Transportation (Caltrans) manages the State Scenic Highway Program, which includes several freeways and highways as “Officially Designated Scenic Highways” or “Eligible State Scenic Highways” (refer to discussion of the State Scenic Highway Program in Section 4.1.3 below). The nearest Officially Designated Scenic Highway to the Project site is State Route 2 (SR-2), which runs through the San Gabriel Mountains from I-210 in La Cañada Flintridge to the San Bernardino County line (Caltrans 2022). SR-2 is located approximately 4.8 miles northwest of the Project site at its nearest point and does not have views of the Project site due to distance and intervening buildings, slopes, and vegetation.

The California Scenic Highway Program also designates I-210 as an Eligible Scenic Highway from I-5 to SR-134 (Caltrans 2022). I-210 is located approximately 700 feet (0.13-mile) west of the Project site at its nearest point but does not have direct views of the Project site due to intervening buildings, slopes, and vegetation.

There are no official City-designated Scenic Corridors. The Project site itself is an eligible historic district and local landmark (refer to Section 4.3, *Cultural Resources*).

4.1.3 Relevant Plans, Policies, and Ordinances

4.1.3.1 Federal

There are no federal regulations associated with aesthetics relevant to the Project.

4.1.3.2 State

The California Scenic Highway Program was created by legislature in 1963 (Streets and Highway Code Section 260 et seq.) and managed by Caltrans. Its purpose is to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. A state scenic highway is any designated freeway, highway, road, or other public right-of-way that traverses an area of exceptional scenic quality. A scenic designation is determined by the local jurisdiction after consideration and evaluation of how much of the natural landscape a passing motorist sees and the extent to which visual intrusions (e.g., buildings, unsightly land uses, noise barriers) impact the "scenic corridor."

4.1.3.3 Local

City of Pasadena General Plan Land Use Element

The City of Pasadena General Plan Land Use Element was adopted in 2015, and consists of a collection of objectives, policies, and implementation measures designed to define and implement the vision of the community. The General Plan Land Use Element includes a Guiding Principle preserving historic resources:

> Guiding Principle 2. Pasadena's historic resources will be preserved. Citywide, new development will be in harmony with and enhance Pasadena's unique character and sense of place. New construction that could affect the integrity of historic resources will be compatible with, and differentiated from, the existing resource.

While this principle focuses on historic preservation, new development in harmony with Pasadena's unique character and sense of place and compatibility with existing historic resources is relevant in the discussion of aesthetics.

The General Plan Land Use Element identifies goals associated with urban form and placemaking. According to the Land Use Element, "urban form" is the "general pattern of building height and development intensity" and the "structural elements" that define the City physically, such as natural features, transportation corridors, open space, public facilities, as well as activity centers and focal elements. Urban form focuses on how buildings are located on parcels, how buildings relate to one another, and how buildings relate to the street, including sidewalks and open spaces. The following goal and policies are applicable to the Project in the context of urban form:

> Goal 4. Elements Contributing to Urban Form. A safe, well-designed, accessible City with a diversity of uses and forms. These diverse forms include distinct, walkable districts, corridors, and transit and neighborhood villages and cohesive, unique single and multi-family residential neighborhoods and open spaces where people of all ages can live, work, shop and recreate.
>
> - **4.10:** Architecture that Enhances. Locate and design buildings to relate to and frame major public streets, open spaces, and cityscape. New development at intersections should consider any number of corner treatments, and should balance safety and accessibility concerns with the vision of the area and the need for buildings to engage the street and create a distinct urban edge.

- **4.11:** Development that is Compatible. Require that development demonstrates a contextual relationship with neighboring structures and sites addressing such elements as building scale, massing, orientation, setbacks, buffering, the arrangement of shared and private open spaces, visibility, privacy, automobile and truck access, impacts of noise and lighting, landscape quality, infrastructure, and aesthetics.

In addition, the following Land Use Element goal and supporting polices are intended to preserve and enrich Pasadena's sense of place and unique character and ensure that new development is designed to respect these contextual elements.

Goal 6. Character and Scale of Pasadena. A built environment that evolves while maintaining Pasadena's unique sense of place, character, and the urban fabric.

- **6.1:** Sense of Place and History. Require new development and changes to existing development to be located and designed to respect the defining elements of Pasadena's character and history such as its grid street pattern, block scale, public realm, courtyards, paseos, alleys, neighborhoods and districts, building massing and heights, significant architecture, and relationship to the mountains and Arroyo Seco.

- **6.2**: Established Neighborhoods. Preserve, protect, and enhance established residential neighborhoods by providing appropriate transitions between these and adjoining areas. Require new development to complement and respond to the existing physical characteristics that contribute to the overall character and livability of the neighborhood.

Additionally, Goal 7 of the Land Use Element and its supporting policies focus on architectural design and quality in the City.

Goal 7. Architectural Design and Quality. Encourage an architecturally distinguished city with a diversity of building styles. New development will recognize this by supporting a variety of materials, forms, and construction techniques while demonstrating contextual relationship to its surroundings through traditional physical concepts (orientation, scale, materials) and non-physical concepts (cultural, climactic, economic).

- **7.1**: Architectural Quality. Design each building as a high-quality, long term addition to the City's urban fabric; exterior design and buildings material shall exhibit permanence and quality, minimize maintenance concerns, and extend the life of the building.

- **7.3**: Compatibility. Require that new and adaptively re-used buildings are designed to respect and complement the defining built form, massing, scale, modulation, and architectural detailing of their contextual setting.

Goal 8, Historic Preservation, was designed to preserve and enhance Pasadena's cultural and historic resources. In the context of aesthetics, the policies associated with Goal 8 listed below are applicable to the Project.

> **Goal 8. Historic Preservation**. Preservation and enhancement of Pasadena's cultural and historic buildings, landscapes, streets and districts as valued assets and important representations of its past and a source of community identity, and social, ecological, and economic vitality.
>
> - **8.5**: Scale and Character of New Construction in a Designated Landmark and Historic Districts. Promote an architecturally sensitive approach to new construction in Landmark and Historic districts. Demonstrate the proposed project's contextual relationship with land uses and patterns, spatial organization, visual relationships, cultural and historic values, and relationships in height, massing, modulation, and materials.
>
> - **8.6:** Infrastructure and Street Design Compatibility. Encourage street design, public improvements, and utility infrastructure that preserves and is compatible with historic resources.
>
> - **8.7:** Preservation of Historic Landscapes. Identify, protect, and maintain cultural and natural resources associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.

4.1.4 Thresholds of Significance

The significance criteria used to evaluate the Project impacts related to aesthetics are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to aesthetics would occur if the project would:

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) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality.

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

Through the analysis in the IS/NOP (see Appendix A of this EIR), it was determined that the proposed Project would not result in impacts associated with scenic vistas (i.e., Threshold a), and would result in less than significant impacts associated with the existing visual character or quality of public views of the site or its surroundings (i.e., Threshold c) and with new sources of substantial light or glare (i.e., Threshold d). Thresholds a, c, and light impacts associated with Threshold d are not further analyzed in the EIR. Based on the addition of solar panels to the Project after publication of the IS/NOP, an analysis

of glare impacts (Threshold d) is included in the EIR. Based on the remaining thresholds, a significant impact related to aesthetics would occur if the project would:

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

d) Create a new source of substantial glare which would adversely affect daytime views in the area.

4.1.5 Environmental Impacts Analysis

Threshold 4.1b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

As described in Section 4.1.2.2 above, the Project site is not located within the viewsheds of SR-2 (an Officially Designated Scenic Highway) or I-210 (an Eligible Scenic Highway). As such, the proposed improvements at the Project site would not be visible from SR-2 or I-210 and the Project would not result in impacts to scenic resources along scenic highways.

There are no official City-designated Scenic Corridors. The Project site itself is an eligible historic district and local landmark, so changes to the site may affect unofficial scenic corridors or the City's traditional urban design form and historic character.

The Project would result in the demolition or removal of some existing structures at the Project site and the construction of new structures. The Project would include the demolition or removal of: Existing Reservoir 1, Existing Reservoir 2, the existing Disinfection Facility, the parking lot, A-Basin, Sunset Well building and electrical transformer area, and existing trees on site. The Project would then replace the demolished parking lot on-site. New components would include the two reservoirs, two emergency generators, a groundwater treatment plant (GWTP), an air gap structure, stormwater treatment structures, solar canopies and rooftop panels, electrical vehicle charging stations, backwash tank, a new Disinfection Facility, overflow and drain, and a reservoir seismic isolation valve system.

The two reservoirs, which are the largest components of the Project, would be constructed at different sizes, based on the geometry of the existing site, with a smaller reservoir (Proposed Reservoir 1) at the south end of the site, and Proposed Reservoir 2 located adjacent to and northwest of Proposed Reservoir 1 (**Exhibit 4.1-1a**, *Aerial Simulation View 1, from the South;* **Exhibit 4.1-1b**, *Aerial Simulation View 2, from Overhead*; and **Exhibit 4.1-1c**, *Aerial Simulation View 2, from the East*). Both reservoirs would be constructed with 9-inch thick roofs to support solar panels that would cover the majority of the reservoir rooftops. Conduits would be installed along the rooftops and down the outsides of the reservoirs to connect the panels to inverters and other electrical utilities. A GWTP and Disinfection Facility would be constructed along the western Project boundary, and the emergency generators would be placed in the northern portion of the Project site, near Bangham Well, and adjacent to the west of Glorieta Booster Station. An expanded surface parking lot would be constructed in the northern portion of the site, between the GWTP and the eastern Project boundary. Solar canopies would be installed above the parking spaces in the replacement parking lot. Glorieta Booster Station and Sunset Booster Station, along the Project's eastern boundary, and Bangham Well, along the northern Project boundary, would remain in place, but Bangham Well's pump and motor, above-ground piping and electrical equipment and controls would be removed and replaced. Additionally, architectural modifications would be made to the façade of the Glorieta Booster Station.

The proposed demolition of the existing reservoirs and the construction of two new reservoirs would result in visual changes at the Project site. The two proposed reservoirs would be circular, prestressed concrete tanks. The existing reservoirs have floor elevations that vary slightly, but are generally around 929 to 933 feet amsl for Existing Reservoir 1 and 930 to 931 feet amsl for Existing Reservoir 2. The existing reservoirs have a building height of approximately 957 feet amsl (Existing Reservoir 1) and 959 feet amsl (Existing Reservoir 2). Finished grades around the existing reservoirs also range slightly, but range from approximately 942 feet amsl to 947 feet amsl.

For the proposed reservoirs, the floor elevations would be approximately 928 feet amsl and with a roof height at the perimeter of approximately 954.5 feet amsl and pitched upwards towards the center at approximately 957 amsl for Proposed Reservoirs 1 and 2. The finished grade around Proposed Reservoir 1 would vary from 935 to 942 ft amsl; therefore, Proposed Reservoir 1 would be partially buried but would extend 12.5 to 19.5 feet above the finished grade. The finished grade around Proposed Reservoir 2 would vary from 938 to 944 feet amsl; therefore, Reservoir No. 2 would also be partially buried and would extend 10.5 to 16.5 feet above the finished grade. Along Sunset Avenue, the sidewalk elevations vary from 937 to 941 feet amsl so the top of the reservoirs would be between 13.5 and 17.5 feet above the ground surface. Table 4.1-1, *Elevations of Existing and Proposed Reservoirs*, summarizes the floor, height, and finished grade elevations of the existing and proposed reservoirs, as discussed in this paragraph and lists the height of each reservoir above finished grade.

Proposed Reservoir 1 would be constructed to have an internal diameter of approximately 210 feet and a capacity of 4.9 million gallons (MG). Proposed Reservoir 2 would be constructed to have an internal diameter of approximately 224 feet and a capacity of 6.1 MG. The tanks would be constructed of concrete. The reservoirs would be sized and located such that a 10-foot minimum clearance would be maintained around their perimeter. As shown in Table 4.1-1, the existing reservoirs are 24 to 28 feet in height, but the heights of the existing reservoirs above finished grade range from 10 to 15 feet for Existing Reservoir 1 and 12 to 17 feet for Reservoir 2. For the proposed reservoirs, the height of both reservoirs would be 26.5 feet, but the heights of Proposed Reservoir 1 would be 12.5 to 19.5 feet above finished grade, and Proposed Reservoir 2 would be 10.5 to 16.5 feet above existing grade. So, while the height of Proposed Reservoirs 1 and 2 would be within a few feet of the height of Existing Reservoirs 1 and 2, Proposed Reservoir 1 would appear to be taller when viewed from nearby public areas, due to the increased height above finished grade as compared to the existing condition (Existing Reservoir 1 is 10 to 15 feet above finished grade, while Proposed Reservoir 1 would be 12.5 to 19.5 feet above existing grade). Proposed Reservoir 2 would have a more similar height appearance to Existing Reservoir 2, as the Existing Reservoir 2 is 12 to 17 feet above finished grade and Proposed Reservoir 2 would be 10.5 to 16.5 feet above finished grade.

Table 4.1-1
Elevations of Existing and Proposed Reservoirs

Elevation	Existing Reservoir 1	Proposed Reservoir 1	Existing Reservoir 2	Proposed Reservoir 2
Floor Elevation of Reservoir (feet amsl)	929-933	928	930-931	928
Highest Elevation of Reservoir (feet amsl)	957	954.5	959	954.5
Height of Reservoir from Floor Elevation	24-28	26.5	28-29	26.5

Elevation	Existing Reservoir 1	Proposed Reservoir 1	Existing Reservoir 2	Proposed Reservoir 2
Finished Grade at Exterior of Reservoir (feet amsl)	942-947	935-942	942-947	938-944
Height of Reservoir Above Finished Grade (feet amsl)	10-15	12.5-19.5	12-17	10.5-16.5

amsl = above mean sea level

Visual changes at the Project site would also result from the construction of the GWTP, along the Project site's western boundary. The ion exchange treatment system portion of the Phase 1 construction of the GWTP would include one pair of vessels, also called a train, each vessel with a 12-foot diameter and a 16-foot height. Vessels would be in lead-lag configuration with each pair equipped with a centrally located valve manifold and interconnecting piping. Space for expansion would be provided to ultimately house six ion exchange vessels (three trains) for future GWTP expansion. Additionally, the LPGAC vessel treatment system portion of the GWTP would consist of two pairs of vessels, each with a 12-foot diameter and a 24-foot height. Each pair of vessels would be in lead-lag configuration equipped with a centrally located valve manifold and interconnecting piping. Space for expansion would be provided to ultimately house ten LPGAC vessels (five trains) for future GWTP expansion. A Disinfection Facility would also be constructed on the Project site, in the southwestern portion of the proposed surface parking lot, just east of the GWTP. The Disinfection Facility would consist of a canopy shade structure over the chemical storage and handling disinfection vessels. The canopy would be approximately 15 feet in height, and approximately 36 feet and 6 inches feet by 22 feet and 8 inches. The two vessels would be placed in a secondary containment area made up of a concrete structure used to contain chemicals in the event of accidental release. The GWTP and Disinfection Facility would be constructed near the western Project boundary, approximately 200 feet from the eastern Project boundary and adjacent Sunset Avenue. These facilities would be visible from the public right-of-way along Sunset Avenue.

While no structural or operational changes would occur at the Glorieta Booster Station, the Project would include upgrades to the façade of the structure, as shown in **Exhibit 4.1-2**, *Façade Modifications for Glorieta Booster Station*. The planned exterior improvements would include the removal of existing block glass and replacement with new windows; replacement of the existing entry door and the existing overhead coiling door; partial removal of existing architectural fenestration details; the provision of new fenestration and building architectural details at the public sides of the facility (the portion facing Sunset Avenue); new mansard roof[1] framing with architectural metal roofing to complement the new architectural details of the exterior walls; and new lighting. Façade changes to Glorieta Booster Station would also be visible from Sunset Avenue, as the building façade is located at the eastern Project boundary, facing Sunset Avenue. An emergency generator would be added to the west of the Glorieta Booster Station. This generator would be interior to the site and would not be visible from any off-site locations as it would be blocked from view by the Glorieta Booster Station.

Visual simulations for the Project were prepared to demonstrate the visual changes that would occur as a result of the Project. These simulations were prepared for multiple vantage points along public rights-of-way. **Exhibit 4.1-3**, *Visual Simulation Viewpoint Key* shows the location of three viewpoints for visual simulations along Sunset Avenue and one viewpoint along West Mountain Street. The first viewpoint is located along Sunset Avenue in front of the Glorieta Booster Station (View 1). Two of the Sunset Avenue viewpoints (Views 2 and 3) are located at the same location, near the Sunset Avenue/Glorieta Street

[1] A mansard roof is a roof which has four sloping sides, each of which becomes steeper halfway down.

intersection, looking at different directions into the Project site. View 4 is from Mountain Avenue, south of the Mountain Avenue/Project driveway signalized intersection, looking east from the south side of West Mountain Street towards the new traffic signal and Project access driveway into the Project site. Each of the viewpoints are discussed below, with exhibits showing the visual simulations for the Project.

In the current condition, views of Glorieta Booster Station along Sunset Avenue consists of the building façade flush with the property boundary. The building is placed between the existing low, stream-rock retaining wall topped with a chain-link fence to the southeast of the building, and the concrete retaining wall topped with a chain-link fence to the northwest of the building. The building consists of board-formed concrete, clad in stucco and resting on a concrete foundation. The building exhibits horizontal banding on either side of a centrally located metal roll-up garage door with rectangular glass block windows on the facade. The windows are covered by a metal mesh panel. A standard door for access and a spot previously containing signage for the structure are also present along the building façade fronting Sunset Avenue. **Exhibit 4.1-4a**, *View 1-Glorieta Booster Station* shows a photograph of the existing Glorieta Booster Station façade along Sunset Avenue. **Exhibit 4.1-4b**, *View 1 – Glorieta Booster Station with Façade Modifications*, shows a visual simulation of the proposed structure, with façade modifications completed. As shown in Exhibit 4.1-4b and discussed above, the proposed changes to the façade would modify the façade to provide new fenestration and architectural details at the side of the building facing Sunset Avenue, new mansard roof[2] framing with architectural metal roofing to complement the new architectural details of the exterior walls, new lighting, and new signage lettering.

Near the intersection of Sunset Avenue and Glorieta Street, visual simulations from two viewpoints were prepared for the Project – one looking west into the northern portion of the Project site (View 2) and one looking south into the Project site (View 3). In the current condition, views into the northern portion of the Project site from this location consist of Existing Reservoir 2, with a chain link fence around the Project site. **Exhibits 4.1-5a**, *View 2- Northern Portion of Project Site* and **4.1-5b**, *View 2- Northern Portion of Project Site, with Screening* illustrate post-project views in the northern portion of the Project site from the Sunset Avenue/Glorieta Street intersection, without and with proposed screening. As shown in Exhibit 4.1-5a, without visual screening, views into the Project site at this location would consist of the surface parking lot for employees, and views of the two vessels and adjoining pipes and valves associated with the ion exchange treatment system portion of the GWTP beyond the new surface parking lot. Solar panel canopies are visible above the surface parking lot. The emergency generator for the GWTP and Bangham Well and electrical switchboard would also be visible in this portion of the Project site. Existing street trees are present along Sunset Avenue; however, due to the canopy height of the existing trees, they provide limited obstruction of views into the Project site. As demonstrated in Exhibit 4.1-5b, which illustrates visual screening that would be accomplished as part of Project landscaping, partial visual obstruction of the Project elements would be provided by the landscaping along the Project perimeter and Project frontage. The landscaping proposed along this portion of the Project perimeter does not provide full coverage of the fencing, but provides intermittent blockage of views into the Project site due to plantings along the perimeter fence. Views into the Project site are still readily available and the surface parking and solar canopies remain largely visible. The vessels and adjoining pipes and valves associated with the ion exchange treatment system portion of the GWTP are partially obscured and blocked from view from the public right-of-way by landscaping interior to the Project site, perimeter landscaping, with the intervening solar canopies also obscuring parts of the vessels, piping, and valves. Further, when the Project is operational, employee vehicles would obscure parts of the vessels, piping, and valves. The landscaping does serve to largely block views further north

[2] A mansard roof is a roof which has four sloping sides, each of which becomes steeper halfway down.



Source: Pasadena Water and Power, 2022

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HELIX Environmental Planning

Aerial Simulation View 1, from the South

Exhibit 4.1-1a



Source: Pasadena Water and Power, 2022

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HELIX Environmental Planning

Aerial Simulation View 2, from Overhead

Exhibit 4.1-1b



Source: Pasadena Water and Power, 2022

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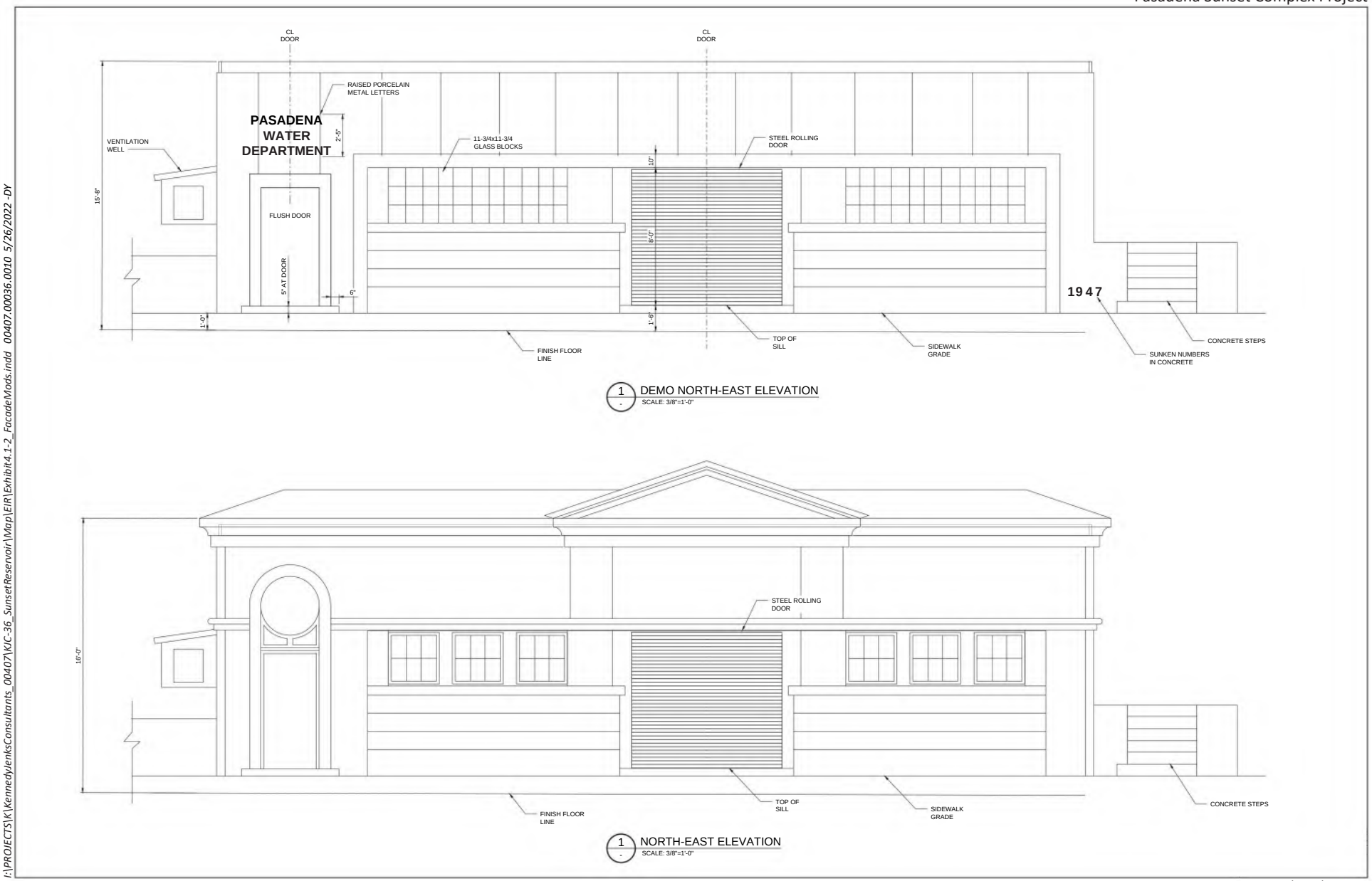
HELIX Environmental Planning

Aerial Simulation View 3, from the East

Exhibit 4.1-1c



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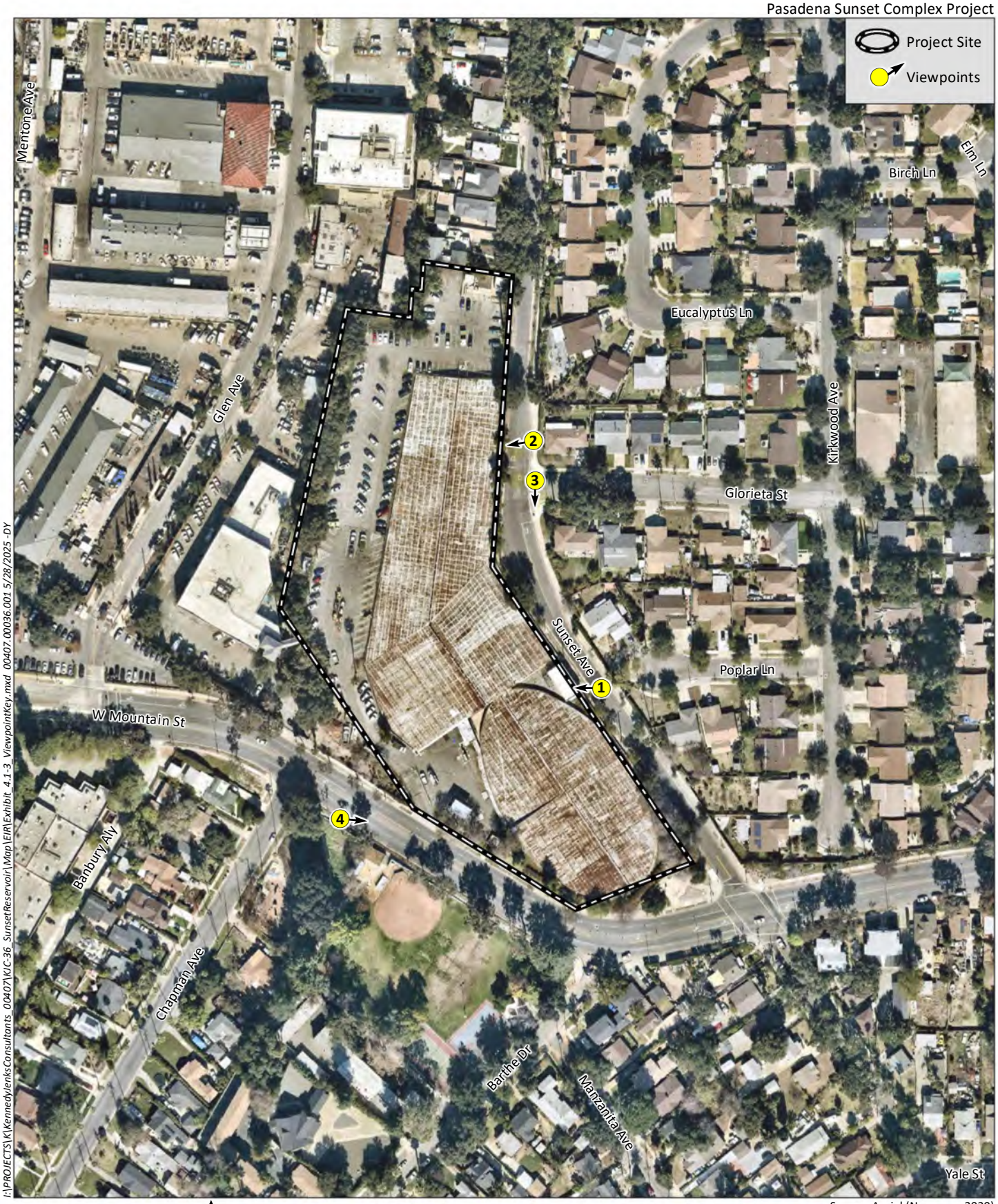
Source: Kennedy Jenks , 2023

HELIX Environmental Planning

Facade Modifications for Glorieta Booster Station

Exhibit 4.1-2

Pasadena Sunset Complex Project



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0 200 Feet

Source: Aerial (Nearmap, 2020)

HELIX Environmental Planning

Visual Simulation Viewpoint Key

Exhibit 4.1-3



Source: Pasadena Water and Power, 2022

HELIX Environmental Planning

View 1 - Glorieta Booster Station

Exhibit 4.1-4a

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Source: Pasadena Water and Power, 2022

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View 1 - Glorieta Booster Station with Façade Modifications

Exhibit 4.1-4b



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Source: Pasadena Water and Power, 2022

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View 2 - Northern Portion of Project Site

Exhibit 4.1-5a



Source: Pasadena Water and Power, 2022

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View 2 - Northern Portion of Project Site, with Screening

Exhibit 4.1-5b

I:\PROJECTS\K\KennedyJenksConsultants_00407\KJC-36_SunsetReservoir\Map\EIR\Exhibit_4.1-5b_View1NorthernScreening.indd 00407.00036.001 05/26/2022 - DY

into the site of the emergency generator for the GWTP and Bangham Well from this viewpoint; however; plantings along this portion of Sunset Avenue, near the Project driveway entrance are low scale to maintain visibility for drivers entering and leaving the parking lot via the driveway. The reduced height of landscaping in the areas surrounding the driveway/parking lot entrance leave views into the Project site more unobstructed than other areas around the perimeter of the Project site.

Views into the southern portion of the Project site from the Sunset Avenue/Glorieta Street intersection would consist of views of the Glorieta Booster Station, Proposed Reservoir 2, proposed surface parking lot and a small portion of the solar canopies in the parking lot, , as shown in **Exhibit 4.1-6a**, *View 3 - Southern Portion of Project Site*. The visual field is largely dominated by the scale of Proposed Reservoir 2, with the Glorieta Booster Station just in view beyond Proposed Reservoir 2, and the surface parking lot and a portion of the solar canopies visible in the foreground of the reservoir. Similar to the other viewpoint at the Sunset Avenue/Glorieta Street intersection, landscape screening would obstruct or partially obstruct Project components. As shown in **Exhibit 4.1-6b**, *View 3 – Southern Portion of Project Site, with Screening*, the roofline, solar panels on Reservoir 2, and portions of Proposed Reservoir 2 would remain visible above and between the landscape screening. As previously described, street trees along the roadway frontage would remain in place and would provide some additional partial screening of Project components.

Public views along West Mountain Street would be modified as a result of the Project, due to the removal of the A-Basin, Sunset Well, and the Disinfection Facility. These facilities are currently visible to the public along West Mountain Street. Additionally, portions of the existing Reservoirs 1 and 2 are visible from West Mountain Street. In the existing condition, views into the Project site from West Mountain Street are limited to slope views, due to elevation differences between the Project site and adjacent roadway. The Project would result in the on-site grade being lowered by approximately seven feet; thus, the Project would result in increased visibility into the Project site from West Mountain Street. **Exhibit 4.1-7**, *View 4 – West Mountain Street* shows visual simulations looking east from the south side of West Mountain Street towards the new traffic signal and Project access driveway into the Project site The Project would include the installation of a minimum of a 10-foot-wide landscape buffer to provide screening along the Project boundary at West Mountain Street, from the access driveway to Sunset Avenue. Where the reservoir is closest to the fence line, there would be a slight reduction in the proposed 10-foot-wide landscaping buffer in order to allow for sufficient vehicle access onsite. This perimeter landscaping would continue up the access driveway from the intersection of West Mountain Street and the Project access driveway to the gated access point on the Project driveway. Landscaping would also be installed along West Mountain Street west of the Project driveway and new signalized intersection, providing screening of the proposed air gap structure on West Mountain Street. West of the Project access driveway, views into the Project site from West Mountain Street are limited due to the elevational difference between the roadway and that portion of the Project. Along West Mountain Street, east of the new signalized intersection of West Mountain Street and the Project access driveway, views into the Project site are limited to views of Proposed Reservoir 1 and the perimeter landscaping and retaining wall/perimeter fencing. The retaining wall and proposed landscape screening would partially obstruct views of Proposed Reservoir 1; however, due to the height of the reservoir, the top portion remains visible and unobstructed. Small portions of the solar panels on the reservoir roof would be visible around the edges of the reservoir roof. The lower portion of the reservoir is partially shielded by landscaping, although portions of the reservoir are visible between trees.

The Project would include landscaping around the perimeter of the Project site to provide visual screening. Landscape screening would be placed along the Project boundary, adjacent to West

Mountain Street west of the Project access driveway and new signalized intersection, along the Project driveway from the intersection to the gated Project site access, and between the access driveway on West Mountain Street and the West Mountain Street/Sunset Avenue intersection. The landscape screening would continue around the southern corner of the Project site, at the West Mountain Street/Sunset Avenue intersection, and proceed north along the Project boundary adjacent to Sunset Avenue. Most of the existing on-site and off-site street trees would remain and be protected in place, however, some existing trees on the Project site would require removal to accommodate reservoir construction and one street tree along Sunset Avenue may require removal for the widened Project Site access driveway. Additional planter areas and landscape screening would be provided around the Glorieta Booster Station and between the proposed reservoirs and Sunset Avenue. Additionally, the Project landscape plan includes drought-tolerant parkway landscape with shrubs and ornamental grasses adjacent to the road right-of-way on Sunset Avenue and at the West Mountain Street/Sunset Avenue intersection.

The Project facilities have been designed and sited to minimize visual impacts to the community. While the location of the Proposed Reservoirs on the Project site is fixed, due to site geometry and area requirements for the reservoirs, the reservoirs would be in a similar location to the existing reservoirs and would be partially shielded from public view by landscape screening, similar to the existing condition. Solar panels on the reservoir roofs would be visible from some off-site locations; however, the panels would be installed level with the rooftop and would provide minimal visual intrusion based on the scale of the Project site and the Proposed Reservoirs. The vessels associated with the GWTP, which would be up to 24 feet in height, would be located adjacent to the western property boundary, set back from public views along Sunset Avenue. While these components would still be visible from Sunset Avenue, their placement on the Project site coupled with landscape screening would reduce the visual intrusion caused by the large vessels. Additionally, the Project includes the removal of the existing Disinfection Facility (which is currently adjacent to and visible from West Mountain Street), with construction of a new Disinfection Facility in the interior of the site, with perimeter screening which would largely shield the relocated Disinfection Facility from public view. The relocation of these facilities to a less publicly visible portion of the Project site would improve views of the facility from West Mountain Street. The proposed solar canopies in the parking lot would be approximately 12 to 15 feet tall and would visible to viewers on Sunset Avenue; however, perimeter landscaping would provide some obstruction of the structures, particularly for viewers such as pedestrians and motorists directly adjacent the Project site on Sunset Avenue.

In terms of affecting unofficial scenic corridors, aesthetic changes associated with the Project, as viewed from Sunset Avenue and West Mountain Street, are described above. In the current condition, views into the Project site from West Mountain Street consists of boundary fencing and walls; scattered landscaping; and views of Sunset Well, the existing Disinfection Facility, A-Basin, and portions of Reservoirs 1 and 2. From Sunset Avenue, views into the Project site consist of boundary fencing and walls (including the low, stream-rock retaining wall topped with a chain-link fence along a portion of the property line), Existing Reservoirs 1 and 2, Glorieta Booster Station, an access driveway, and a portion of the roof enclosure for Bangham Well. As discussed in Section 4.3, *Cultural Resources*, Existing Reservoirs 1 and 2, A-Basin, Sunset Well (Well No. 20)[3], Sunset Booster Station (Sheldon Booster House)[4], and the

[3] Well No. 20 is described throughout this EIR as Sunset Well; however, the Historic Resources Evaluation Report describes the well as Well No. 20.

[4] The Sheldon Booster House is described throughout this EIR as Sunset Booster Station; however, the Historic Resources Evaluation Report describes the well as Sheldon Booster House.



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Source: Pasadena Water and Power, 2022

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View 3 - Southern Portion of Project Site

Exhibit 4.1-6a



Source: Pasadena Water and Power, 2022

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View 3 - Southern Portion of Project Site, with Screening

Exhibit 4.1-6b

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Source: Pasadena Water and Power, 2022

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HELIX Environmental Planning

View 4 - West Mountain Street

Exhibit 4.1-7

historic stream-rock retaining wall along a portion of the Project boundary are the contributing resources within the Sunset Reservoir Complex Historic District. The Project would result in the removal of Existing Reservoirs 1 and 2, A-Basin, and Sunset Well. Sunset Booster Station, Glorieta Booster Station, and the stream-rock retaining wall would remain in place. Exterior façade modifications would occur for the Glorieta Booster Station, as discussed above (refer to Exhibits 4.1-2, 4.1-4a, and 4.1-4b). The removal of the identified facilities and their replacement with new facilities would be visible from West Mountain Street and Sunset Avenue. As discussed above, views into the Project site would be modified following construction activities because the Project would lower the existing grade at the Project site, and the elevation difference between the Project site and West Mountain Street would be reduced. While the Project would increase views into the Project site along West Mountain Street due to a reduced elevational difference and the portions of the Project discussed above would be visible from locations along West Mountain Avenue and Sunset Avenue, the proposed landscape screening would provide partial visual shielding of new Project elements that are interior to the site. The façade modifications to the Glorieta Booster Station would be visible from Sunset Avenue, as the building and front façade are at the eastern property boundary, adjacent to the sidewalk. The proposed façade modifications are architectural features intended to enhance the appearance of the facility. For these reasons, the Project would not result in a significant impact associated with unofficial scenic corridors. Impacts would be less than significant.

In regard to urban design form, the Project has been sited to reduce visual impacts to adjacent uses and incorporates components intended to be compatible with the historic structures that would remain at the site. The Project preserves the Sunset Booster Station and the stream-rock retaining wall that are contributing resources to the Sunset Reservoir Complex Historic District. While the GWTP includes placement of vessels of up to 24 feet in height at the Project site, the GWTP and Disinfection Facility are sited approximately 200 feet back from the Sunset Avenue Project frontage to minimize visual intrusion of the vessels. The Project design includes landscaping treatments around the Project boundary. This landscaping would provide visual screening to shield views into much of the Project site. The Project includes landscaping at the southeastern corner of the Project site. These features are consistent with the City's Land Use goal for elements contributing to urban form. The Project has been designed to respect the defining elements of the site's historic features to the extent feasible, by preserving the Sunset Booster Station and the stream-rock retaining wall, which are present along the Project's eastern boundary and directly viewable due to their location at the Project boundary. The Glorieta Booster Station would also be preserved, although façade modifications would occur which would alter its physical appearance. Since the Glorieta Booster Station is on the Project's eastern boundary, facing towards Sunset Avenue, these modifications would be visible to off-site viewers. City Planning Department review and approval of planned modifications would ensure that proposed changes are consistent with City guidelines for urban design form. The new reservoirs proposed for the Project would be located in a similar location to the existing facilities, and would be of similar scale to the existing facilities. For these reasons, the Project would not result in significant aesthetic impacts associated with scenic resources. Impacts would be less than significant.

Threshold 4.1d. Would the project create a new source of substantial glare which would adversely affect daytime views in the area?

The Project proposes the placement of solar panels on the reservoirs, and on solar canopies within the surface parking lot. To maximize the generation of solar energy, the proposed solar panels would be facing south, and sunlight reflecting on the panels would be projected upwards. Adjacent uses do not include tall buildings or elevational differences which would result in neighboring properties or

structures being exposed to glare from the solar panels' configuration. Additionally, solar photovoltaic modules are designed to absorb as much sunlight as possible and to reflect as little sunlight as possible to maximize electricity generation. Accordingly, the solar panels would be textured with indentations to reduce the amount of sunlight that is reflected off the surface and would be coated with anti-reflective materials that maximize light absorption and reduce glare as much as possible. The Federal Aviation Administration (FAA) *Technical Guidance for Evaluating Selected Solar Technologies on Airports* (2018) indicates that the amount of light reflected off a solar panel surface depends on the amount of sunlight hitting the surface, its surface reflectivity, geographic location, time of year, cloud cover, and solar panel orientation. Solar photovoltaic systems, such as those proposed by the Project, are designed to absorb sunlight rather than reflect it, thus minimizing potential impacts from glare. Since the solar panels would have low reflective intensity and would be covered with anti-reflective coating, any resulting glare effects would not be disruptive to aircraft operations in the area, nor adversely affect daytime views in the area. Impacts would be less than significant.

4.1.6 Cumulative Impacts

Cumulative impacts associated with aesthetics are generally limited to the immediate vicinity, or the viewshed, of a location. As shown on Exhibit 3-4, a number of cumulative projects are located in the vicinity of the Project site at distances ranging from approximately 0.3 to 1.2 miles from the Project site, with one project located directly across West Mountain Street from the Project site, approximately 100 feet from the Project site (i.e., Brenner Park Improvements Project). Aside from the Brenner Park Improvements Project, none of the other remaining related projects are visible from any point on or immediately surrounding the Project site (i.e., none are located within the same viewshed). Thus, these other related projects would have little to no potential to contribute to cumulative aesthetic effects in conjunction with the Project.

The Brenner Park Improvements Project, while located adjacent to the Project site across West Mountain Street, would involve very limited changes to the existing park facilities at this location, including construction of a new concrete playing surface at the basketball court and replacement of light fixtures and drinking fountains. Such improvements would not notably modify the existing visual character or quality of the park, but instead would likely enhance and improve the aesthetics of the facility given the nature of the proposed changes. In addition, as discussed above, the Project would not result in a significant impact associated with scenic resources, including unofficial scenic corridors or urban form. Additionally, the Project would not contribute to a cumulative glare impact. As no cumulative projects involving any adverse changes to the visual quality or character of the Project area would occur within the immediate vicinity of the Project site, the Project would not contribute to a cumulatively considerable significant impact to scenic resources.

4.1.7 Mitigation Measures

No mitigation measures related to aesthetics are required.

4.1.8 Level of Significance After Mitigation

The proposed Project would not result in potentially significant aesthetic impacts. Impacts associated with aesthetics would be less than significant and no mitigation is required.

4.1.9 References

California Department of Transportation (Caltrans). 2022. California State Scenic Highways Map. Accessed May 23, 2022. Available at: https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa.

Federal Aviation Administration. 2018. Technical Guidance for Evaluating Selected Solar Technologies on Airports. April 2018.

Kennedy Jenks. Sunset Complex 75% Design Submittal. August 15, 2022.

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4.2 Air Quality

This section describes the existing conditions of the proposed Project site and vicinity, identifies associated regulatory requirements, new and/or changed conditions resulting from Project implementation and an evaluation of potential impacts, and identifies mitigation related to implementation of the proposed Project if necessary. The analysis of the Project impacts related to air quality is based on data presented in **Appendix B**, *CalEEMod Data*, of this EIR.

4.2.1 Methodology

Criteria pollutant emissions were calculated using the California Emissions Estimator Model (CalEEMod), Version 2022.1. CalEEMod is a computer model used to estimate air emissions resulting from land development projects throughout the state of California. CalEEMod was developed by California Air Pollution Control Officers Association (CAPCOA) in collaboration with the California air quality management and pollution control districts, primarily the South Coast Air Quality Management District (SCAQMD). The calculation methodology, source of emission factors used, and default data is described in the CalEEMod User's Guide, and Appendices A, D, and E (CAPCOA 2022b).

In brief, CalEEMod is a computer model that estimates criteria air pollutant and greenhouse gas (GHG) emissions from mobile (i.e., vehicular) sources, area sources (fireplaces, woodstoves, and landscape maintenance equipment), energy use (electricity and natural gas used in space heating, ventilation, and cooling; lighting; and plug-in appliances), water use and wastewater generation, and solid waste disposal. Emissions are estimated based on land use information input to the model by the user.

In the first module, the user defines the specific land uses that will occur at the project site. The user also selects the appropriate land use setting (urban or rural), operational year, location, climate zone, and utility provider. The input land uses, size features, and population are used throughout CalEEMod in determining default parameters and calculations in each of the subsequent modules. The input land use information consists of land use subtypes (such as the residential subtypes of single-family residential and multi-family medium-rise residential) and their unit or square footage quantities.

Subsequent modules include construction (including off-road vehicle emissions), mobile (on-road vehicle emissions), area sources (architectural coatings [painting], consumer products [cleansers, aerosols, solvents]), water and wastewater, and solid waste. Each module comprises multiple components including an associated mitigation module to account for further reductions in the reported baseline calculations. Other inputs include trip generation rates, trip lengths, vehicle fleet mix (percentage autos, trucks, etc.), trip distribution (percent work to home, etc.), duration of construction phases, construction equipment usage, grading areas, season, and ambient temperature, as well as other parameters.

In various places the user can input additional information and/or override the default assumptions to account for project- or location-specific parameters. For this assessment, the default parameters were not changed unless otherwise noted in the discussion presented below.

4.2.1.1 Construction Emissions

CalEEMod has the capability to calculate reductions in construction emissions from the effects of dust control, diesel-engine classifications, and other selected emissions reduction measures. In compliance with SCAQMD Rule 403, fugitive dust emissions calculations assume application of water on exposed

surface a minimum of two times per day. Based on CalEEMod, Version 2022.1 defaults, the control efficiency, and corresponding reduction in PM_{10} and $PM_{2.5}$, for watering two times per day is 55 percent.

Construction Activities

Construction emissions were estimated based on the timeline provided by the Project engineers, which assumes construction would commence in May 2026 and occur over an approximately 24-month period. The quantity, duration, and intensity of construction activity influence the amount of construction emissions and related pollutant concentrations that occur at any one time. As such, the emission forecasts provided herein reflect a specific set of conservative assumptions based on the expected construction scenario wherein a relatively large amount of construction activity is occurring in a relatively intensive manner. Because of this conservative assumption, actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer time period, emissions could be reduced because of: (1) a more modern and cleaner-burning construction equipment fleet mix than assumed in CalEEMod; and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval).

Construction activities would include site preparation, demolition of existing facilities, grading, and construction of the new facilities. Construction is assumed to occur five days per week with equipment operating up to eight hours per day. The construction schedule assumed in the modeling is shown in Table 4.2-1, *Anticipated Construction Schedule*.

Table 4.2-1
Anticipated Construction Schedule[1]

Construction Activity	Construction Period Start	Construction Period End	Number of Working Days
Site Preparation	8/16/2026	5/31/2027	206
Demolition	5/15/2026	8/15/2026	66
Grading	6/1/2027	4/30/2028	239
Paving	5/1/2028	5/20/2028	15
Building Construction	5/15/2026	5/20/2028	526

Complete CalEEMod data is provided in Appendix B

[1] The dates shown are for EIR purposes and are based on the best available information at the time of analysis. The actual start of construction may vary.

Construction Off-Road Equipment

Construction would require the use of heavy off-road equipment. Construction equipment estimates are based on default values in CalEEMod. Table 4.2-2, *Construction Equipment Assumptions*, presents a summary of the assumed equipment that would be involved in each stage of construction.

Table 4.2-2
Construction Equipment Assumptions

Equipment	Horsepower	Number	Hours/Day
Site Preparation			
Rubber Tired Dozers	367	3	8
Tractors/Loaders/Backhoes	84	4	8
Demolition			
Concrete/Industrial Saws	33	1	8
Excavators	36	3	8
Rubber Tired Dozers	367	2	8
Grading			
Excavators	36	1	8
Graders	148	1	8
Rubber Tired Dozers	367	1	8
Tractors/Loaders/Backhoes	84	3	8
Paving			
Pavers	81	2	8
Paving Equipment	89	2	8
Rollers	36	2	8
Building Construction			
Cranes	367	1	7
Forklifts	82	3	8
Generator Sets	14	1	8
Tractors/Loaders/Backhoes	84	3	7
Welders	46	1	8

Source: CalEEMod (complete data is provided in Appendix B)

Construction On-Road Trips

Worker commute trips and vendor delivery trips were modeled based on CalEEMod defaults. Worker trips are anticipated to vary between 3 and 18 trips per day, depending on construction activity. Vendor delivery trips would be 1 per day during building construction. Based on the model default of 16 CY or 20 tons per load, export of soil would require 11 trips per day and removal of demolition debris would require 27 trips per day. The CalEEMod default worker, vendor and haul trip distances were used in the model.

4.2.1.2 Operation Emissions

The Project involves the replacement of several existing structures at the site (i.e., the existing two reservoirs and associated appurtenances), which would not generate criteria pollutants measurably greater than existing conditions with minimal changes, if any, to staff numbers and/or maintenance activities. The Project also involves the installation of two emergency backup generators and construction of a new GWTP at the site; as such the increase in operational emissions at the site is limited to those associated with testing of the backup generators and operation of the GWTP. Operational emissions for the GWTP and backup generators were estimated using CalEEMod. Area source emissions associated with the GWTP were modeled using CalEEMod defaults assuming a general

heavy industrial land use. GWTP energy consumption was provided by the Project engineers. The backup generators were modeled assuming an operating schedule for testing and maintenance of 15 minutes per day, once per month.

4.2.2 Existing Conditions

The Project site is located within the South Coast Air Basin (SCAB). SCAB is a 6,745-square-mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. SCAB includes Orange County, Los Angeles County (except the Antelope Valley portion), and the western, non-desert portions of San Bernardino and Riverside Counties.

4.2.2.1 Meteorological and Topographical Conditions

The primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted. Meteorological and topographical conditions, however, are also important. Factors such as wind speed and direction, air temperature gradients and sunlight, and precipitation and humidity interact with physical landscape features to determine the movement and dispersal of air pollutants. SCAB's air pollution problems are a consequence of the combination of emissions from the nation's second largest urban area, meteorological conditions discouraging dispersion of those emissions, and mountainous terrain surrounding SCAB that traps pollutants as they are pushed inland by the sea breeze (SCAQMD 2017). The meteorological and topographical factors affecting air quality in SCAB are described in the following subsections.

Climate

The distinctive climate of the SCAB is determined by its terrain and geographic location. The SCAB is a coastal plain with connecting broad valleys and low hills. It is bound by the Pacific Ocean to the southwest and high mountains around the rest of its perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light, average wind speeds.

The usually mild climatological pattern is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds. Winds in the Project area are usually driven by the dominant land/ sea breeze circulation system. Regional wind patterns are dominated by daytime onshore sea breezes. At night, the wind generally slows and reverses direction traveling toward the sea. Local canyons can also alter wind direction, with wind tending to flow parallel to the canyons. The vertical dispersion of air pollutants in the SCAB is hampered by the presence of persistent temperature inversions. High pressure systems, such as the semi-permanent high-pressure zone in which the SCAB is located, are characterized by an upper layer of dry air that warms as it descends, restricting the mobility of cooler marine-influenced air near the ground surface, and resulting in the formation of subsidence inversions. Such inversions restrict the vertical dispersion of air pollutants released into the marine layer and, together with strong sunlight, can produce worst-case conditions for the formation of photochemical smog. The basin-wide occurrence of inversions at 3,500 feet above mean sea level or less averages 191 days per year (SCAQMD 1993).

In Pasadena, the summers are short, hot, arid, and clear; and the winters are long, cool, wet, and partly cloudy (Weatherspark 2022). Over the course of the year, the temperature typically varies from 45°F to 88°F and is rarely below 38°F or above 97°F. Pasadena experiences mild seasonal variation over the

course of the year. The windier part of the year occurs in the winter and spring with average wind speeds of more than 6.9 miles per hour (mph). The windiest month of the year in Pasadena is December, with an average hourly wind speed of 8.3 mph. Summer and fall wind conditions tend to be lower. The calmest month of the year in Pasadena is August, with an average hourly wind speed of 5.3 mph. Summers may have average daily high temperature above 84°F. The hottest month of the year in Pasadena is August, with an average high of 88°F and low of 66°F. Winters may have an average daily high temperature below 70°F. The coldest month of the year in Pasadena is December, with an average low of 46°F and high of 66°F. The rainy period of the year occurs from November through March. The month with the most rain in Pasadena is February, with an average of 5.3 days with at least 0.04 inches of precipitation. The drier period of the year occurs from March to November. The month with the least rain in Pasadena is July, with an average of 0.1 days with at least 0.04 inches of precipitation.

Sunlight

The presence and intensity of sunlight are necessary prerequisites for the formation of photochemical smog. Under the influence of the ultraviolet radiation of sunlight, certain "primary" pollutants (mainly reactive hydrocarbons and oxides of nitrogen [NO_x]) react to form "secondary" pollutants (primarily oxidants). Since this process is time dependent, secondary pollutants can be formed many miles downwind of the emission sources. Southern California also has abundant sunshine, which drives the photochemical reactions that form pollutants such as ozone (O_3) and a substantial portion of fine particulate matter (particulate matter less than or equal to 2.5 microns in diameter [$PM_{2.5}$]). In SCAB, high concentrations of O_3 are normally recorded during the late spring, summer, and early autumn months, when more intense sunlight drives enhanced photochemical reactions. Due to the prevailing daytime winds and time-delayed nature of photochemical smog, oxidant concentrations are highest in the inland areas of Southern California.

Temperature Inversions

Under ideal meteorological conditions and irrespective of topography, pollutants emitted into the air mix and disperse into the upper atmosphere. However, the Southern California region frequently experiences temperature inversions in which pollutants are trapped and accumulate close to the ground. The inversion, a layer of warm, dry air overlaying cool, moist marine air, is a normal condition in coastal Southern California. The cool, damp, and hazy sea air capped by coastal clouds is heavier than the warm, clear air, which acts as a lid through which the cooler marine layer cannot rise. The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above mean sea level, the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet above mean sea level, the terrain prevents the pollutants from entering the upper atmosphere, resulting in the pollutants settling in the foothill communities. Below 1,200 feet above mean sea level, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the daylight hours.

Mixing heights for inversions are lower in the summer, and inversions are more persistent, being partly responsible for the high levels of O_3 observed during summer months in the SCAB. Smog in Southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods, allowing them to form secondary pollutants by reacting in the presence of sunlight. SCAB has a limited ability to disperse these pollutants due to typically low wind speeds and the surrounding mountain ranges.

As with other cities within SCAB, the city of Pasadena is susceptible to air inversions, which trap a layer of stagnant air near the ground where pollutants are further concentrated. These inversions produce haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources. Elevated PM_{10} (respirable particulate matter less than or equal to 10 microns in diameter) and $PM_{2.5}$ concentrations can occur in SCAB throughout the year, but occur most frequently in fall and winter. Although there are some changes in emissions by day-of-week and season, the observed variations in pollutant concentrations are primarily the result of seasonal differences in weather conditions.

4.2.2.2 Pollutants and Effects

Criteria Air Pollutants

Criteria pollutants are defined by state and federal law as a risk to the health and welfare of the general public. In general, criteria air pollutants include the following compounds:

- Ozone (O_3)
- Carbon monoxide (CO)
- Nitrogen dioxide (NO_2)
- Particulate matter (PM), which is further subdivided:
    - Coarse PM, 10 microns or less in diameter (PM_{10})
    - Fine PM, 2.5 microns or less in diameter ($PM_{2.5}$)
- Sulfur dioxide (SO_2)
- Lead (Pb)

Criteria pollutants can be emitted directly from primary pollutant sources (e.g., CO, SO_2, PM_{10}, $PM_{2.5}$, and lead), or they may be formed through chemical and photochemical reactions of precursor secondary pollutants in the atmosphere (e.g., ozone, NO_2, PM_{10}, and $PM_{2.5}$). PM_{10} and $PM_{2.5}$ can be both primary and secondary pollutants. The principal precursor pollutants of concern are reactive organic gases ([ROGs] also known as volatile organic compounds [VOCs])[1] and nitrogen oxides (NO_X).

The descriptions of sources and general health effects for each of the criteria air pollutants are shown in Table 4.2-3, *Summary of Common Sources and Human Health Effects of Criteria Air Pollutants*, based on information provided by the California Air Pollution Control Officers Association ([CAPCOA] 2022). Specific adverse health effects on individuals or population groups induced by criteria pollutant emissions are highly dependent on a multitude of interconnected variables such as cumulative concentrations, local meteorology and atmospheric conditions, and the number and characteristics of exposed individuals (e.g., age, gender). Criteria pollutant precursors (ROG and NO_X) affect air quality on

[1] CARB defines and uses the term ROGs while the USEPA defines and uses the term VOCs. The compounds included in the lists of ROGs and VOCs and the methods of calculation are slightly different. However, for the purposes of estimating criteria pollutant precursor emissions, the two terms are often used interchangeably.

a regional scale, typically after significant delay and distance from the pollutant source emissions. Health effects related to O_3 and NO_2 are, therefore, the product of emissions generated by numerous sources throughout a region. Emissions of criteria pollutants from vehicles traveling to or from the Project site (mobile emissions) are distributed nonuniformly in location and time throughout the region, wherever the vehicles may travel. As such, specific health effects from these criteria pollutant emissions cannot be meaningfully correlated to the incremental contribution from the Project.

Table 4.2-3
Summary of Common Sources and Human Health Effects of Criteria Air Pollutants

Pollutant	Major Human-Made Sources	Human Health Effects
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO_2)	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Sources include motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Contributes to climate change and nutrient overloading, which deteriorates water quality. Causes brown discoloration of the atmosphere.
Ozone (O_3)	Formed by a chemical reaction between reactive organic gases (ROGs) and nitrogen oxides (NO_X) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, gasoline storage and transport, solvents, paints, and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield. Damages rubber, some textiles, and dyes.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Produced by power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles, and other sources.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
Sulfur Dioxide (SO_2)	A colorless, nonflammable gas formed when fuel containing sulfur is burned, when gasoline is extracted from oil, or when metal is extracted from ore. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid, which can damage marble, iron, and steel. Damages crops and natural vegetation. Impairs visibility. Precursor to acid rain.

Pollutant	Major Human-Made Sources	Human Health Effects
Lead	Metallic element emitted from metal refineries, smelters, battery manufacturers, iron and steel producers, use of leaded fuels by racing and aircraft industries.	Anemia, high blood pressure, brain and kidney damage, neurological disorders, cancer, lowered IQ. Affects animals, plants, and aquatic ecosystems.

Source: CAPCOA 2022a

Toxic Air Contaminants

The Health and Safety Code (§39655, subd. (a).) defines a toxic air contaminant (TAC) as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the Federal Clean Air Act (CAA) (42 United States Code Section 7412[b]) is a TAC. Under state law, the California Environmental Protection Agency (CalEPA), acting through the California Air Resources Board (CARB), is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or that may pose a present or potential hazard to human health.

Diesel engines emit a complex mixture of air pollutants, including both gaseous and solid material. The solid material in diesel exhaust is referred to as diesel particulate matter (DPM). Almost all DPM is 10 microns or less in diameter, and 90 percent of DPM is less than 2.5 microns in diameter (CARB 2022b). Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung. In 1998, CARB identified DPM as a TAC based on published evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects. DPM has a notable effect on California's population—it is estimated that about 70 percent of total known cancer risk related to air toxics in California is attributable to DPM (CARB 2022b).

4.2.2.3 Odorous Compounds

Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

4.2.2.4 Sensitive Receptors

CARB and the Office of Environmental Health Hazard Assessment (OEHHA) have identified the following groups of individuals as the most likely to be affected by air pollution: adults over 65, children under 14, infants (including in utero in the third trimester of pregnancy), and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis (CARB 2005; OEHHA 2015).

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved and are referred to as sensitive receptor locations. Examples of these sensitive receptor locations are residences, schools, hospitals, and daycare centers. For health risk assessments, the health impacts are analyzed for individual residents assumed to be standing in their primary outdoor spaces closest to the source of TACs, for students assumed to be standing outside of the school buildings or in outdoor recreation areas closest to the source of TACs, and for individual off site workers assumed to be standing outside of a commercial or industrial building.

The closest existing sensitive receptor locations to the Project site are the single-family residences located approximately 14 feet from the northern project boundary. Other residences surround all sides of the Project site and Brenner Park is located to the south.

4.2.2.5 Local Ambient Air Quality

The SCAQMD maintains monitoring stations to measure ambient concentrations of pollutants in the SCAB. The nearest monitoring station, approximately 2.5 miles southeast of the Project site, is the Pasadena – South Wilson Avenue monitoring station. The closest monitoring station with data for PM_{10} is the Los Angeles – North Main Street monitoring station, approximately 7.8 miles southwest of the Project site. Table 4.2-4, *Air Quality Monitoring Data*, presents a summary of the ambient pollutant concentrations monitored at the two air quality monitoring stations during the most recent three years (2018 through 2020) for which the SCAQMD has reported data.

Table 4.2-4
Air Quality Monitoring Data

Pollutant Standard	2018	2019	2020
Ozone (O_3) – Pasadena Station			
Maximum concentration 1-hour period (ppm)	0.112	0.120	0.163
Maximum concentration 8-hour period (ppm)	0.090	0.098	0.115
Days above 1-hour state standard (>0.09 ppm)	8	11	41
Days above 8-hour state/federal standard (>0.070	19	24	60
Coarse Particulate Matter (PM_{10}) – L.A. N. Main Street			
Maximum 24-hour concentration (µg/m^3)	81.2	93.9	185.2
Measured Days above 24-hr state standard (>50	31	15	34
Measured Days above 24-hr federal standard (>150	0	0	0
Annual average (µg/m^3)	34.0	*	33.9
Exceed state annual standard (20 µg/m^3)	Yes	*	Yes
Fine Particulate Matter ($PM_{2.5}$) – Pasadena Station			
Maximum 24-hour concentration (µg/m^3)	32.5	41.8	67.7
Measured Days above 24-hour federal standard (>35	0	1	2
Annual average (µg/m^3)	10.2	9.1	11.9
Exceed state and federal annual standard (12 µg/m^3)	No	No	No
Nitrogen Dioxide (NO_2) – Pasadena Station			
Maximum 1-hour concentration (ppm)	0.068	0.059	0.061
Days above state 1-hour standard (0.18 ppm)	0	0	0
Days above federal 1-hour standard (0.100 ppm)	0	0	0

Pollutant Standard	2018	2019	2020
Annual average (ppm)	0.014	0.013	0.013
Exceed annual federal standard (0.053 ppm)	No	No	No
Exceed annual state standard (0.030 ppm)	No	No	No

Source: CARB 2022a

ppb = parts per billion; ppm = parts per million; µg/m^3 = micrograms per cubic meter, * = insufficient data available.

As shown in Table 4.2-4, the 1- and 8-hour ozone, and PM_{10} standards were exceeded numerous times in each of the sample years. Data for NO_2 and $PM_{2.5}$ showed no exceedances.

4.2.3 Relevant Plans, Policies, and Ordinances

4.2.3.1 Federal

Clean Air Act

Air quality is defined by ambient air concentrations of specific pollutants identified by the U.S. Environmental Protection Agency (USEPA) to be of concern with respect to health and welfare of the general public. The USEPA is responsible for enforcing the CAA of 1970 and its 1977 and 1990 Amendments. The CAA required the USEPA to establish National Ambient Air Quality Standards (NAAQS), which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated. In response, the USEPA established both primary and secondary standards for several criteria pollutants. Table 4.2-5, *Ambient Air Quality Standards*, shows the federal and state ambient air quality standards for these pollutants.

Table 4.2-5
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	Federal Standards Primary[1]	Federal Standards Secondary[2]
O_3	1 Hour	0.09 ppm (180 µg/m^3)	–	–
	8 Hour	0.070 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)	Same as Primary
PM_{10}	24 Hour	50 µg/m^3	150 µg/m^3	Same as Primary
	AAM	20 µg/m^3	–	Same as Primary
$PM_{2.5}$	24 Hour	–	35 µg/m^3	Same as Primary
	AAM	12 µg/m^3	12.0 µg/m^3	15.0 µg/m^3
CO	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	–
	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	–
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)	–	–
NO_2	1 Hour	0.18 ppm (339 µg/m^3)	0.100 ppm (188 µg/m^3)	–
	AAM	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary

Pollutant	Averaging Time	California Standards	Federal Standards Primary[1]	Federal Standards Secondary[2]
SO_2	1 Hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)	–
	3 Hour	–	–	0.5 ppm (1,300 µg/m^3)
	24 Hour	0.04 ppm (105 µg/m^3)	–	–
Lead	30-day Avg.	1.5 µg/m^3	–	–
	Calendar Quarter	–	1.5 µg/m^3	Same as Primary
	Rolling 3-month Avg.	–	0.15 µg/m^3	Same as Primary
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per km – visibility ≥ 10 miles (0.07 per km – ≥30 miles for Lake Tahoe)	No Federal Standards	No Federal Standards
Sulfates	24 Hour	25 µg/m^3	No Federal Standards	No Federal Standards
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	No Federal Standards	No Federal Standards
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m^3)	No Federal Standards	No Federal Standards

Source: CARB 2016

[1] National Primary Standards: The levels of air quality necessary, within an adequate margin of safety, to protect the public health.

[2] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

O_3 = ozone; ppm: parts per million; µg/m^3 = micrograms per cubic meter; PM_{10} = particulate matter with an aerodynamic diameter of 10 microns or less; AAM = Annual Arithmetic Mean; $PM_{2.5}$ = fine particulate matter; CO = carbon monoxide; mg/m^3 = milligrams per cubic meter; NO_2 = nitrogen dioxide; SO_2 = sulfur dioxide; km = kilometer; – = No Standard

The USEPA has classified air basins (or portions thereof) as being in "attainment," "nonattainment," "maintenance," or "unclassified" for each criteria air pollutant, based on whether or not the NAAQS have been achieved. Upon attainment of a standard for which an area was previously designated nonattainment, the area will be classified as a maintenance area. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation. The Project site is located within the Los Angeles County portion of the SCAB and, as such, is in an area designated as a nonattainment area for certain pollutants that are regulated under the CAA. Table 4.2-6, *South Coast Air Basin Attainment Status*, lists the federal and state attainment status of the SCAB for the criteria pollutants. With respect to federal air quality standards, the USEPA classifies the SCAB as in attainment for PM_{10}, CO, NO_2, and SO_2, and in nonattainment for 8-hour O_3, $PM_{2.5}$, and lead.

Table 4.2-6
South Coast Air Basin Attainment Status
(Los Angeles Portion)

Criteria Pollutant	State Designation	Federal Designation
O_3 (1-hour)	Nonattainment	(No federal standard)
O_3 (8-hour)	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Attainment/Maintenance
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO_2	Attainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Nonattainment
Visibility	Unclassified[1]	(No federal standard)
Sulfates	Attainment	(No federal standard)
Hydrogen Sulfide	Unclassified[1]	(No federal standard)

Source: CARB 2020, USEPA 2022

[1] "Unclassified" designation indicates that the air quality data for the area are incomplete and do not support a designation of attainment or nonattainment.

O_3: ozone; PM_{10}: respirable particulate matter with a diameter of 10 microns or less; $PM_{2.5}$: fine particulate matter with a diameter of 2.5 microns or less; CO: carbon monoxide; NO_2: nitrogen dioxide; SO_2: sulfur dioxide

4.2.3.2 State/Regional

California Clean Air Act

The federal CAA allows states to adopt ambient air quality standards and other regulations if they are at least as stringent as federal standards. CARB, a part of CalEPA, is responsible for the coordination and administration of both federal and state air pollution control programs within California, including setting the California Ambient Air Quality Standards (CAAQS). CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts. Table 4.2-6, above, lists the state attainment status of the SCAB for the criteria pollutants. Under state designation, the SCAB is currently in attainment for CO, NO_2, SO_2, lead, and sulfates; and in nonattainment for O_3, PM_{10}, and $PM_{2.5}$.

Toxic Air Contaminants

California's air toxics control program began in 1983 with the passage of the Toxic Air Contaminant Identification and Control Act, better known as AB 1807 or the Tanner Bill. When a compound becomes listed as a TAC under the Tanner process, CARB normally establishes minimum statewide emission control measures to be adopted by local air pollution control districts (APCDs). Later legislative amendments (AB 2728) required CARB to incorporate all 189 federal hazardous air pollutants (HAPs) into the state list of TACs.

Supplementing the Tanner process, AB 2588 (the Air Toxics "Hot Spots" Information and Assessment Act of 1987) currently regulates over 600 air compounds, including the Tanner-designated TACs. Under AB 2588, specified facilities must quantify emissions of regulated air pollutants and report them to the local APCD. If the APCD determines that a potentially significant public health risk is posed by a given facility, the facility is required to perform a health risk assessment (HRA) and notify the public in the affected area if the calculated risks exceed specified criteria.

On August 27, 1998, CARB formally identified DPM emitted by diesel-fueled engines as a TAC (CARB 2010). The particles emitted by diesel engines are coated with chemicals, many of which have been identified by the USEPA as HAPs and by CARB as TACs. CARB's Scientific Advisory Committee has recommended a unit risk factor (URF) of 300 in 1 million over a 70-year exposure period for diesel particulate. In September 2000, CARB approved the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (Diesel Risk Reduction Plan; CARB 2000). The Diesel Risk Reduction Plan outlined a comprehensive and ambitious program that included the development of numerous new control measures over the next several years aimed at substantially reducing emissions from new and existing on-road vehicles (e.g., heavy-duty trucks and buses), off-road equipment (e.g., graders, tractors, forklifts, sweepers, and boats), portable equipment (e.g., pumps), and stationary engines (e.g., stand-by power generators). These requirements are enforced on a statewide basis.

4.2.3.3 Local

South Coast Air Quality Management District

Air quality in the non-desert portion of Riverside County is regulated by the SCAQMD. As a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), County transportation commissions, and local governments and cooperates actively with all federal and state government agencies. The SCAQMD develops rules and regulations; establishes permitting requirements for stationary sources; inspects emissions sources; and enforces such measures through educational programs or fines, when necessary.

Air Quality Management Plan

The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a sequence of Air Quality Management Plans (AQMP).

On December 2, 2022, the SCAQMD adopted the 2022 AQMP, which is a regional and multi-agency effort (SCAQMD, CARB, SCAG, and USEPA). On January 26, 2023, CARB adopted the 2022 AQMP. The 2022 AQMP represents a comprehensive analysis of emissions, meteorology, atmospheric chemistry, regional growth projections, and the impact of existing control measures. The plan seeks to achieve multiple goals in partnership with other entities promoting reductions in criteria pollutant, GHGs, and toxic risk, as well as efficiencies in energy use, transportation, and goods movement (SCAQMD 2022).

The AQMP, in combination with those from all other California nonattainment areas with serious (or worse) air quality problems, is submitted to CARB, which develops the California SIP. The SIP relies on the same information from SCAG to develop emission inventories and emission reduction strategies that are included in the attainment demonstration for the SCAB. The current federal and state attainment status for the Los Angeles portion of the SCAB is presented above, in Table 4.2-6.

Rules and Regulations

The following rules promulgated by the SCAQMD would be applicable to construction and/or operation of the Project.

Rule 401 – Visible Emissions: Limits the allowable opacity of air contaminant emissions from any single source (SCAQMD 2001).

Rule 402 – Nuisance: Prohibits the discharge of air contaminants, including odors, which cause injury, detriment, nuisance, or annoyance to any considerable number of persons (SCAQMD 1976).

Rule 403 – Fugitive Dust: Requires actions to prevent, reduce or mitigate anthropogenic fugitive dust emissions, including emissions from construction activities. Project construction would be required to implement all applicable fugitive dust best available control measures specified in Table 1 in the rule (SCAQMD 2005).

Rule 1113 – Architectural Coating: Establishes VOC limits for architectural coatings (e.g., paints, stains, preservatives). Effective January 1, 2019, building interior and exterior paint is limited to a maximum VOC content of 50 grams per liter (SCAQMD 2016).

Regional Transportation Plan/Sustainable Communities Strategy

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial counties and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SCAG serves as the federally designated metropolitan planning organization for the Southern California region and is the largest metropolitan planning organization in the United States.

With respect to air quality planning and other regional issues, SCAG has prepared the Final 2008 Regional Comprehensive Plan: Helping Communities Achieve a Sustainable Future (2008 RCP) for the region (SCAG 2008). The 2008 RCP sets the policy context in which SCAG participates in and responds to the SCAQMD air quality plans and builds off the SCAQMD AQMP processes that are designed to meet health-based criteria pollutant standards in several ways (SCAG 2008). First, it complements AQMPs by providing guidance and incentives for public agencies to consider best practices that support the technology-based control measures in AQMPs. Second, the 2008 RCP emphasizes the need for local initiatives that can reduce the region's GHG emissions that contribute to climate change, an issue that is largely outside the focus of local attainment plans, which it assessed in Section 3 of the plan. Third, the 2008 RCP emphasizes the need for better coordination of land use and transportation planning, which heavily influences the emissions inventory from the transportation sectors of the economy. This also minimizes land use conflicts, such as residential development near freeways, industrial areas, or other sources of air pollution.

On April 7, 2016, SCAG's Regional Council adopted the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS). The 2016 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. The 2016 RTP/SCS charts a course for closely integrating land use and transportation so that the region can grow smartly and sustainably. The 2016 RTP/SCS was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, nonprofit organizations, businesses, and local stakeholders within the Counties of

Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. In June 2016, SCAG received its conformity determination from the Federal Highway Administration and the Federal Transit Administration indicating that all air quality conformity requirements for the 2016 RTP/SCS and associated 2015 Federal Transportation Improvement Program Consistency Amendment through Amendment 15-12 have been met (SCAG 2016). SCAQMD's 2016 AQMP applies the updated SCAG growth forecasts assumed in the newly adopted 2020 RTP/SCS.

On September 3, 2020, SCAG's Regional Council adopted the 2020-2045 RTP/SCS. The 2020-2045 RTP/SCS was determined to conform to the federally mandated state implementation plan (SIP), for the attainment and maintenance of NAAQS standards. On October 30, 2020, CARB also accepted SCAG's determination that the SCS met the applicable state greenhouse gas emissions targets. The 2020-2045 RTP/SCS have been incorporated into the 2022 AQMP.

4.2.4 Thresholds of Significance

The significance criteria used to evaluate the Project impacts related to air quality are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to air quality would occur if the project would:

a) Conflict with or obstruct implementation of the applicable air quality plan.

b) 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.

c) Expose sensitive receptors to substantial pollutant concentrations.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Through the analysis in the IS/NOP (see Appendix A-1), it was determined that the proposed Project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (i.e., Threshold d). Accordingly, this issue is not further analyzed in the EIR. Based on the remaining thresholds, a significant impact related to air quality would occur if the project would:

a) Conflict with or obstruct implementation of the applicable air quality plan.

b) 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.

c) Expose sensitive receptors to substantial pollutant concentrations.

Pursuant to the State CEQA Guidelines (Section 15064.7), a lead agency may consider using, when available, the significance criteria established by the applicable air quality management district or air pollution control district when making determinations of significance. Therefore, the applicable threshold for evaluating potential air quality impacts are the thresholds adopted by the SCAQMD in connection with its CEQA Air Quality Handbook, Air Quality Analysis Guidance Handbook, and subsequent SCAQMD guidance as discussed previously.

Threshold a: Consistency with Air Quality Management Plan. The applicable AQMP is the 2022 AQMP adopted by SCAQMD. The project would conflict with the 2022 AQMP if the pollutants emitted from the project would (1) exceed the SCAQMD CEQA air quality significance thresholds or (2) conflict with or exceed the assumptions in the AQMP.

Threshold b: Cumulative Impacts on Air Quality. The SCAQMD has adopted significance thresholds to assess the regional impact of air pollutant emissions in the SCAB. Table 4.2-7, *SCAQMD Regional Emissions Significance Thresholds*, summarizes the SCAQMD's mass emissions thresholds, which are presented for both short-term construction and long-term operational emissions. A project with emissions rates below these thresholds is considered to have a less than significant effect on air quality.

Table 4.2-7
SCAQMD Regional Pollutant Significance Thresholds
(lbs./day)

Criteria Pollutant	Construction	Operation
VOC	75	55
NO_X	100	55
CO	550	550
SO_X	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55

Source: SCAQMD 2023
SCAQMD: South Coast Air Quality Management District; lbs./day: pounds per day; VOC: volatile organic compounds; NO_X: oxides of nitrogen; CO: carbon monoxide; SO_X: oxides of sulfur; PM_{10}: respirable particulate matter with a diameter of 10 microns or less; $PM_{2.5}$: fine particulate matter with a diameter of 2.5 microns or less.

Threshold c: Sensitive Receptors. The project would expose sensitive receptors to substantial pollutant concentrations if it would create a CO hotspot, generate significant criteria pollutants from on-site construction, or generate significant TAC emissions during construction. A CO hotspot is caused by severe vehicle congestion of major roadways, typically near intersections; therefore, if a project substantially increases average delay at signalized intersections that are operating at Level of Service (LOS) E or F or causes an intersection that would operate at LOS D or better without the project to operate at LOS E or F with the Project, there is a potential for a CO hotspot.

SCAQMD has developed a localized significance threshold (LST) methodology and mass rate look-up tables by source receptor area (SRA) that can be used by public agencies to determine whether a project may generate significant adverse localized air quality impacts. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard; they are developed based on the ambient concentrations of that pollutant for each SRA (SCAQMD 2009). The LST methodology translates the concentration standards into emissions thresholds that are a function of project site area, source to receptor distance, and the location within the SCAB. The LST methodology is recommended to be limited to projects of 5 acres or less and to avoid the need for complex dispersion modeling. For projects that exceed 5 acres, such as the proposed Project, the 5-acre LST look-up values can be used as a screening tool to determine which pollutants require detailed analysis. This approach is conservative as it assumes that all on-site emissions would occur within a 5-acre area and over-predicts potential localized impacts (i.e., more

pollutant emissions occurring within a smaller area and within closer proximity to potential sensitive receptors). If a project exceeds the LST look up values, then the SCAQMD recommends that project-specific localized air quality modeling be performed. The proposed Project is within SRA 8, West San Gabriel Valley. The closest sensitive receptors are the single-family residences located approximately 14 feet from the northern project boundary. Therefore, the LST screening criteria in the SRA 8 for receptors located within 82 feet (25 meters) are used for project sites greater than 5 acres. The screening criteria include a maximum of 148 pounds per day NO_X, 1,540 pounds per day CO, 12 pounds per day PM_{10}, and 7 pounds per day $PM_{2.5}$.

Significant impacts related to TAC emissions would occur if the Project included the emission of diesel exhaust over a 30 to 70-year exposure period.

4.2.5 Environmental Impacts Analysis

Threshold 4.2a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

The SCAQMD develops rules and regulations; establishes permitting requirements for stationary sources; inspects emissions sources; and enforces such measures through educational programs or fines, when necessary. It is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources and has prepared an AQMP that establishes a program of rules and regulations directed at attaining the NAAQS and CAAQS.

The main purpose of an AQMP is to bring an area into compliance with the requirements of federal and State air quality standards. For a project to be consistent with the AQMP, the pollutants emitted from the project should not (1) exceed the SCAQMD CEQA air quality significance thresholds or (2) conflict with or exceed the assumptions in the AQMP. As shown in Threshold 4.2b below, pollutant emissions from the proposed Project would be less than the SCAQMD thresholds and would not result in a significant impact. The Project is consistent with the Zoning and General Plan Land Use designations for the site and is therefore consistent with the growth expectations for the region (City of Pasadena 2015). Further, the proposed Project would not directly result in population growth, development, or new land uses that have not been anticipated in the AQMP. No conflict with the 2022 AQMP would occur with the proposed Project. No impact is expected, and no mitigation is required.

Threshold 4.2b. 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?

The Project would generate criteria pollutants in short-term during construction and the long-term during operation. An analysis of the Project's construction and operation emissions in relation to the SCAQMD thresholds is provided below.

Construction

Construction of the Project would result in temporary increases in air pollutant emissions. Emissions were calculated using the California Emissions Estimator Model Version 2022.1 (CalEEMod) emissions inventory model (CAPCOA 2022b). CalEEMod is a computer program accepted by the SCAQMD that can be used to estimate anticipated emissions associated with land development projects in California. CalEEMod has separate databases for specific counties and air districts, and the Los Angeles County

database was used for the proposed Project. Construction activities must be conducted in compliance with the SCAQMD's Rule 403, Fugitive Dust, which requires the implementation of best available control measures (BACM) for any activity or human-made condition capable of generating fugitive dust including, but not limited to, earth-moving activities, construction/demolition activities, disturbed surface area, or heavy- and light-duty vehicular movement. Consistent with the requirements of SCAQMD Rule 403, watering for dust control is assumed in the emissions calculations. The full CalEEMod output data is provided in Appendix B. The results of the calculations for Project construction are shown in Table 4.2-8, *Construction Emissions*. The data are presented as the estimated maximum daily air pollutant emissions for comparison with the thresholds.

Table 4.2-8
Construction Emissions
(lbs./day)

Year	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
2026	4.3	39.2	43.1	0.1	9.6	5.5
2027	4.2	37.5	42.5	0.1	9.5	5.4
2028	2.6	23.7	31.6	0.1	4.1	2.3
Maximum	**4.3**	**39.2**	**43.1**	**0.1**	**9.6**	**5.5**
SCAQMD Daily Thresholds	***75***	***100***	***550***	***150***	***150***	***55***
Exceeds SCAQMD Thresholds?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod (output data is provided in Appendix B)
lbs./day: pounds per day; VOC: volatile organic compound(s); Nox: nitrogen oxides; CO: carbon monoxide; Sox: sulfur oxides; PM_{10}: respirable particulate matter with a diameter of 10 microns or less; $PM_{2.5}$: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District.
[1] The years shown is for EIR purposes and is not indicative of a start of construction.

As shown in Table 4.2-8, emissions of criteria pollutants and precursors related to Project construction would be below the significance thresholds. Therefore, impacts from criteria pollutants and precursors generated during construction would be less than significant and no mitigation would be required.

Operation

The Project involves the replacement of several existing components at the site (i.e., the parking lot, the existing two reservoirs, the Disinfection Facility, portions of Bangham Well and associated appurtenances), which would not generate criteria pollutants measurably greater than existing conditions with minimal changes, if any, to staff numbers and/or maintenance activities. The Project also involves the installation of two diesel emergency backup generators and construction of a new GWTP at the site; as such the increase in operational emissions at the site is limited to those associated with testing of the backup generators and operation of the GWTP. Modeling estimates the emergency generators would result in 1 pound per day of VOC, 4 pounds per day of NO_X, and 2 pounds per day of CO; emissions of all other pollutants would be less than one pound per day. Additionally, operation of the GWTP was estimated to result in negligible emissions (see CalEEMod output in Appendix B). The solar panels that would be placed on the proposed reservoir roofs and the parking lot solar canopies were not included in the emissions modeling for the Project; however, the solar panels would reduce operational air emissions beyond the levels identified in the Project air quality modeling. Thus, operational emissions modeling is conservative because it does not incorporate the reduced emissions

that would result from solar panel usage for the Project. Impacts from criteria pollutants generated during Project operation would be less than significant and no mitigation would be required.

Cumulative Impacts

The SCAQMD, in their White Paper on Regulatory Options for Addressing Cumulative Impacts from Air Pollution Emissions (presented to the Board on September 5, 2003), identifies that impacts that are less than significant on a Project level are also considered to be less than significant on a cumulative basis. The AQMD uses the same significance thresholds for project-specific and cumulative impacts analyzed in an Environmental Assessment (EA) or EIR, except for the Hazard Index for toxic air contaminant emissions (SCAQMD 2003). Any projects that are found to result in less than significant impacts on a project level are not considered to be cumulatively considerable and consequently would not result in a considerable contribution to cumulative impacts. Using this rationale, since the Project impacts were identified as less than significant, the cumulative impacts were also identified as less than significant, and no mitigation is required.

Threshold 4.2c. Would the project expose sensitive receptors to substantial pollutant concentrations?

Exposure of sensitive receptors is addressed for the following situations: CO hotspots; criteria pollutants from on-site construction; and TACs from on-site construction.

Carbon Monoxide Hotspot

A CO hotspot is an area of elevated CO concentrations that is caused by severe vehicle congestion on major roadways, typically near intersections. If a project substantially increases average delay at signalized intersections that are operating at LOS E or F or causes an intersection that would operate at LOS D or better without the project to operate at LOS E or F with the Project, there is a potential for a CO hotspot.

The proposed Project would generate vehicle traffic from daily worker trips during construction; however, such trips would be brief and temporary in nature. During operation, the Project would not substantially increase the number of employees traveling to and from the site above existing conditions. The basic functions of the Sunset Reservoir facilities (reservoirs, wells, disinfection plant) would remain the same, and therefore require a similar number of employees. The GWTP and emergency generators would be considered an addition to the site. Daily visits to the GWTP would coincide with daily monitoring and water sample collecting for testing at the reservoirs, well and Disinfection Facility and therefore would not substantially increase daily traffic. Approximately twice per month a semi-trailer truck would access the site for removal of spent treatment media and replacement with new media. Up to twice per month an approximately 70-foot-long truck would deliver sodium hypochlorite and/or liquid ammonium sulphate for the disinfection plant. This volume of Project-related vehicle trips would not have the potential to measurably change the average LOS at nearby intersections and consequently would not contribute to the potential for the formation of a CO hotspot.

Criteria Pollutants from On-Site Construction

Localized Significance Thresholds

As previously discussed, the proposed Project is within SRA 8, West San Gabriel Valley. The closest sensitive receptors are the single-family residences located adjacent to the northern boundary of the project site. Therefore, the LST screening criteria in the SRA 8 for receptors located with 82 feet (25 meters) are used for project sites greater than 5 acres. Table 4.2-9, *Maximum Localized Daily Construction Emissions*, shows the localized construction emissions for the proposed Project.

Table 4.2-9
Maximum Localized Daily Construction Emissions
(lbs./day)

Activity	NO_X	CO	PM_{10}	$PM_{2.5}$
Site Preparation	29.2	28.8	8.9	5.1
Demolition	20.65	19.0	1.3	1.0
Grading	14.2	17.3	3.3	1.9
Paving	6.6	9.9	0.3	0.2
Building Construction	8.9	12.9	0.3	0.3
Maximum Daily Emissions	**29.2**	**28.8**	**8.9**	**5.1**
SCAQMD LST Screening Criteria (25 meters)	*148*	*1,540*	*12*	*7*
Exceeds LST?	***No***	***No***	***No***	***No***

Source: CalEEMod (output data is provided in Appendix B)
lbs./day = pounds per day; NO_X = nitrogen oxides; CO = carbon monoxide; PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; SCAQMD: South Coast Air Quality Management District.

As shown in Table 4.2-9, localized emissions for all criteria pollutants would remain below their respective SCAQMD LST screening criteria at 82 feet (25 meters). Therefore, construction of the Project would not result in exposure of sensitive receptors to substantial localized concentrations of criteria pollutants and precursors. Impacts related to localized daily construction emissions would be below a level of significance.

Toxic Air Contaminants Impacts

The greatest potential for TAC emissions during construction would be related to diesel particulate emissions associated with heavy equipment operations during construction activities. The SCAQMD does not consider diesel-related cancer risks from construction equipment to be an issue due to the short-term nature of construction activities. Construction activities associated with the proposed Project would be short term (24 months). The assessment of cancer risk is typically based on a 30 to 70-year exposure period. Because exposure to diesel exhaust would be well below the 30 and 70-year exposure period, construction of the proposed Project is not anticipated to result in an elevated cancer risk to exposed persons. As such, Project-related TAC impacts during construction would be less than significant, and no mitigation is required.

4.2.6 Cumulative Impacts

Because of the cumulative nature of air quality impacts, cumulative impacts to air quality are addressed in Section 4.2.5 under Threshold 4.2b. As discussed in Threshold 4.2b, impacts resulting from the proposed Project air pollutant emissions would not be cumulatively considerable and no mitigation is required.

4.2.7 Mitigation Measures

No mitigation measures related to air quality are required.

4.2.8 Level of Significance After Mitigation

The proposed Project would not result in potentially significant impacts related to air quality. Impacts related to air quality would be less than significant with Project implementation.

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4.3 Cultural Resources

This section describes the existing conditions of the Project site and vicinity, identifies associated regulatory requirements, evaluates potential environmental impacts, and identifies mitigation measures related to implementation of the proposed Project. The analysis of the Project impacts related to cultural resources is based on a review of the existing resources and applicable laws, regulations, and guidelines, as well the Cultural Resources Assessment Report for the Pasadena Sunset Complex Project, dated June 2021, and the Historic Resources Evaluation Report (HRER; Appendix D) for the Pasadena Sunset Reservoir Complex Project, dated February 2025, both prepared by HELIX Environmental Planning and included in Appendix C and D, respectively, of this EIR.

4.3.1 Methodology

The Cultural Resources Assessment Report includes a review of the results of a South Central Coastal Information Center (SCCIC) records search and a search of the Native American Heritage Commission (NAHC) Sacred Lands File. The HRER was prepared based on a previous study, completed in 2017, by architectural historian Jenna Snow, as well as two site visits by HELIX architectural historians and review of relevant data provided by City of Pasadena Department of Water and Power. The Project HRER updates and expands the 2017 report and assesses six structures of historic age (50 years) associated with the historic district, the Sunset Reservoir Complex, within the Project site. The HRER also addresses a seventh structure of historic age, Glorieta Booster Station, which is not a contributor to the historic district. The structures are assessed in the HRER in accordance with the criteria of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), and the City of Pasadena Municipal Code. The evaluation includes an analysis of the historic integrity of the complex and its components, a consideration of the complex as a potential historic district, the establishment of a period of significance, the identification of primary and secondary contributors and a non-contributor, and recordation of the resource on the appropriate California Department of Parks and Recreation (DPR) Series 523 forms.

4.3.2 Existing Conditions

A complete discussion of the prehistoric, ethnographic, and historical background may be found in Appendices C and D of this EIR. The Sunset Reservoir Complex (i.e., proposed Project site) is an irregularly shaped property bounded by West Hammond Street to the north, Sunset Avenue to the east, West Mountain Street to the south, and Glen Avenue and the 210 Freeway to the west. The Sunset Reservoir Complex sits above the grade of surrounding streets, with the site sloping down from north to south. A tall brick wall and a low concrete wall with a chain-link fence above border the property along West Mountain Street. A low, stream-rock retaining wall capped with a chain-link fence, borders the southeast corner of the property; this wall wraps the property's border along Sunset Avenue, transitioning into a low concrete wall with a chain-link fence above. Driveways located along West Mountain Street and Sunset Avenue provide access to the Project site.

The Disinfection Facility, located at the south end of the Project site in between Well No. 20 (Sunset Well)[1] to the south and A-Basin to the north, and Bangham Well, located in the northern portion of the site, are contemporary structures and were not included in the historical evaluation for the Project.

The Project site is situated west of the Fair Oaks neighborhood and north of the Orange Grove neighborhood, which largely consists of residential uses. The area directly to the north of the project site also contains residential uses. Brenner Park and another residential neighborhood are located south of the subject property. To the west of the subject property is the City of Pasadena Maintenance Yards, which includes various City owned and operated buildings and structures, dating from the early twentieth century until the late twentieth century.

Project Site History

The Sunset Reservoir Complex started with Existing Reservoir 1, which was constructed by the Pasadena Lake Vineyard Land and Water Company (LVLWC) in circa 1888 in northwest Pasadena. Available archival sources indicate that the reservoir was constructed by Thomas Banbury, the owner of the property and a pioneering area contractor known as a "famous railroad grader, road maker and excavator". Among his many projects, sources suggest that Banbury led efforts to construct the concrete flume from Devil's Gate to Existing Reservoir 1, as well as other reservoirs in the City; he also graded Raymond Hill to make way for the famous Raymond Hotel in South Pasadena. The reservoir was originally lined with river stones and mortar, in a configuration resembling the historic stream-rock retaining wall along the southern and eastern border of the property and was lined with concrete circa 1900 by Banbury.

In 1888, when the reservoir initially opened, a 22-inch water main pipe was constructed, leading from Devil's Gate Dam on the Arroyo Seco to Existing Reservoir 1. The water was gravity fed to Existing Reservoir 1. A diversion box at Existing Reservoir 1 diverted water allocated to existing water rights holders. In 1892, two miles of four-inch pipe were laid from Existing Reservoir 1 direct to the Raymond Hotel for special use of the hotel and its grounds. Raymond Hotel was the first major resort hotel of the San Gabriel Valley when it was first constructed in 1886.

Prior to the construction of the Existing Reservoir 1 Addition (now known as Existing Reservoir 2), there was another reservoir owned and maintained by the Pasadena LVLWC called Reservoir No. 2. This Reservoir No. 2 was located south of the subject property on Villa Street, was the largest cemented reservoir in Southern California at the time, and is no longer extant.

In 1898, Existing Reservoir 1 was covered with a board roof, and in 1900 the Existing Reservoir 1 was lined with concrete. Also in 1900, a second reservoir (Reservoir 2) was constructed on this property and referred to as the Existing Reservoir 1 Addition. In 1923, the Sheldon Booster House (now known as the

[1] Well No. 20 is described elsewhere in this EIR as Sunset Well; however, the Well No. 20 nomenclature has been retained in this discussion of historical resources, consistent with the Project Historic Resources Evaluation Report, with each occurrence also identifying the resource by its current name.

Sunset Booster Station)[2] was constructed by the Pasadena Water Department. In 1925, Well No. 20 (Sunset Well) was constructed.

In 1929, eight inches of cement plaster was added to the lining of Existing Reservoir 1, and both Reservoirs No. 1 and No. 2 had new, galvanized corrugated iron roofs installed. Original redwood posts in the interior of Existing Reservoir 1 were cut and lap-sliced together with new extended post segments using steel bolts and bearing plates in 1934 to accommodate for a raised roof. Furthermore, additional changes were made in 1934 to accommodate water arriving from the newly built Morris Dam, as well as new water regulations, new infrastructure was constructed within the Sunset Reservoir Complex system. To increase storage capacity of the reservoirs, a four-foot-tall concrete perimeter wall was added to both Reservoirs No. 1 and No. 2. A portion of their lining was also repaired with gunite concrete, and asphalt was used to cover joints and cracks. A new corrugated metal roof was installed on Existing Reservoir 2, with Heart Structural Redwood used for the posts, and Douglas Fir (treated with creosote) used for girders, joists, bracing studs, plates, bridging, and sills. Creosote treated Douglas Fir was used for the roof superstructure to help combat wood rot due to dampness and to protect against termites.

A new Chlorine Disinfection Facility, Lime House, and an Aeration Plant with four distinct sections labeled “A”, “B”, “C”, and “D” were also constructed in 1934. Only a portion of A-Basin is extant; the rest of these buildings and structures have been demolished.

In 1941, Sunset Reservoir received water from the Colorado River Aqueduct (CRA) to supplement the local water supply. To increase the pumping capacity of the system, the Glorieta Pumping Plant (now known as Glorieta Booster Station)[3]was constructed in 1947 to house three pumps. The building was designed by local architect, Breo Freeman. The building design included modest Streamline Moderne elements with its flat roof, horizontal grooves, smooth stucco wall surface, asymmetrical primary façade (east elevation), and glass block windows (Refer to Figure 19 of the HRER).

California Historical Resources Information System Records Search

A search of the California Historical Resources Information System (CHRIS) from the SCCIC was conducted for the Project on May 10, 2021. The results of the records search identified six previous cultural resource studies within the half-mile record search limits, none of which occurred within the Project site. Five of the studies were archaeological surveys or site visits, one of which included a historic resources survey; the remaining report title does not indicate the type of study but appears to have been a site visit/survey as well. The SCCIC has a record of 84 previously recorded cultural resources within a 0.5-mile radius of the Project, but none have been recorded within the Project site. All the resources recorded within the 0.5-mile search radius consist of historic built environment resources, including historic buildings and structures, districts and their contributing elements, and a park. This includes the Bungalow Courts of Pasadena, a historic district, and 82 other historic buildings with

[2] The Sheldon Booster House is described elsewhere in this EIR as Sunset Booster Station; however, the Sheldon Booster House nomenclature has been retained in this discussion of historical resources, consistent with the Project Historical Resources Evaluation Report, with each occurrence also identifying the resource by its current name (Sunset Booster Station).

[3] The Glorieta Pumping Plant is described elsewhere in this EIR as Glorieta Booster Station; however, the Glorieta Pumping Plant nomenclature has been retained in this discussion of historical resources, consistent with the Project Historical Resources Evaluation Report, with each occurrence also identifying the resource by its current name (Glorieta Booster Station).

addresses on the State Office of Historic Preservation (OHP) Historic Property list. No previously documented historic resources within the Project site were on file with the SCCIC. The properties of the Sunset Reservoir Complex are not included in the California Built Environment Resources Directory/State Historic Resources Inventory, nor are they included on a register or inventory of designated or eligible landmarks in the City of Pasadena.

Previously Conducted Cultural Resource Studies

In 2017, a Historic Resource Assessment report was prepared for the Sunset Reservoir Complex by architectural historian Jenna Snow (Snow 2017). Based on the site inspection and available sources, the 2017 evaluation concluded that the Sunset Reservoir Complex as a whole appears eligible for listing in the CRHR and as a local landmark (and therefore qualifies as a historical resource pursuant to CEQA), as the oldest extant reservoir in Pasadena, with an original construction date of circa 1888. The Sunset Reservoir Complex served as an important water storage facility for the burgeoning city at the end of the nineteenth and beginning of the twentieth centuries, facilitating its rapid, sustained growth well into the twentieth century. As a result of the 2017 evaluation, the Sunset Reservoir Complex as a whole, consisting of seven structures over 50 years of age, was found eligible for listing in the CRHR and as a local City Landmark. The analysis of historical resource impacts included in this section focuses on the Complex's seven structures identified in the 2017 evaluation.

Architectural Description

The Sunset Reservoir Complex that was found eligible for listing in the CRHR and as a local City Landmark as a result of the 2017 evaluation includes the following seven structures over 50 years old, each described in further detail below:

- Existing Reservoir 1
- Existing Reservoir 2
- A-Basin
- Well No. 20 (Sunset Well)
- Sheldon Booster House (Sunset Booster Station)
- Glorieta Pumping Plant (Glorieta Booster Station)
- Historic stream-rock retaining wall

Existing Reservoir 1

The oldest property of the complex, Existing Reservoir 1, is oval in plan and measures 350 feet long by 200 feet high. The 57,300-square-foot basin sits below grade on the south end of the reservoir parcel. The basin is hopper-bottom shaped and is constructed of cobblestone and cement plaster sheathed in layers of concrete and gunite lining. A central berm capped with a cast-in-place curb traverses the longitudinal extent of the reservoir, dividing the south and north portions. A reinforced concrete wall and footing are extant around the above-grade perimeter of the reservoir. The pedestrian entrance to Existing Reservoir 1 is located on the west elevation, with metal stairs and a wood deck leading to a

corrugated metal door. The door leads to a timber catwalk above the reservoir basin, which extends east to the center of the reservoir. The walkway does not extend to the east side of the reservoir. On the interior, the roof superstructure consists of Oregon Pine (Douglas Fir).

The roof rests on a grid of redwood posts with spliced redwood extension posts. Sheathed in corrugated iron sheets, the roof slopes from a high point in the center of the reservoir. A central air-vent extends along the roof crest on the longitudinal axis (north-south).

Existing Reservoir 2

L-shaped in plan, Existing Reservoir 2 measures 525 feet long by 260 feet wide. The reservoir spans 97,000 square feet and sits below grade, north of Existing Reservoir 1. Existing Reservoir 2 is wider at the south end and narrower at the north end but overall, it is taller than Existing Reservoir 1. The basin is sloped downward and lined with gunite. The basin also displays a concrete staircase leading to the bottom of the reservoir on the north end and a sloped concrete ramp. The perimeter of the basin consists of a 6-foot-tall board-form concrete wall.

The reservoir interior is accessible on the north elevation via concrete stairs and a corrugated metal door. The south elevation exhibits a secondary entrance, accessed via metal stairs and a metal walkway extending from A-Basin around the south elevation of Existing Reservoir 2 to a corrugated metal door. Both entries lead to a timber catwalk spanning the longitudinal extent of the reservoir. The catwalk consists of Douglas Fir planks, and the roof superstructure displays creosote treated Douglas Fir. A grid of redwood posts supports the roof superstructure. An unused 30-inch pipeline, filled with a tree trunk, is extant on the west elevation of the basin. A flume opening is also extant on the south end of the reservoir, leading to the concrete flume spanning the western portion of Existing Reservoir 1. At the south end of Existing Reservoir 2, a concrete overflow weir is shared with Existing Reservoir 1. The floor of the Existing Reservoir 2 basin features a release gate on the south end, which leads to the local storm drain system. Sheathed in corrugated metal, the roof displays a front-gable configuration with low pitched eaves. A central air-vent traverses the crest of the roof on the longitudinal axis (north-south).

A-Basin

Separate from but adjacent to Existing Reservoirs No. 1 and 2, the A-Basin is a separate structure from the two reservoirs and is located on the west side of the reservoirs. The A-Basin consists of a board-formed concrete basin with a metal pipe and concrete weir (flow control barrier); this basin empties into a flume spanning the westside of Existing Reservoir 1. A sluice gate is extant on the north end of the flume, which controls the water released into Existing Reservoir 2 and/or to Existing Reservoir 1. The basin and flume are covered with a timber-framed corrugated metal roof, similar to the roof structures on the reservoirs.

Well No. 20 (Sunset Well)

To the southwest of Existing Reservoir 1, Well No. 20 (Sunset Well) houses a well pump for the reservoir complex. Square in plan and resting on a concrete foundation, Well No. 20 (Sunset Well) spans nearly 440 square feet. The exterior is clad in smooth stucco, and interior walls consist of board-formed concrete. Slightly below grade on the north elevation, the structure is located adjacent to Mountain Street and is visible from the public-right-of-way. A flat roof, punctuated with a wood-framed ventilation pop-up, caps the structure. A set of concrete stairs, along the west elevation, provide access from Mountain Street to the higher grade of the Sunset Reservoir Complex. The west elevation displays an arched air vent.

The primary (south) elevation displays a set of metal doors framed by a decorative accent of painted vertical bricks. A simple frieze molding wraps around the perimeter of the roof, with a small section missing at the center of the façade.

Glorieta Pumping Plant (Glorieta Booster Station)

Located on the east portion of the property, the Glorieta Pumping Plant (Glorieta Booster Station) is rectangular in plan and spans over 1,360 square feet. Adjacent to Sunset Avenue and visible from the public right-of-way, this building consists of board-formed concrete, clad in stucco and resting on a concrete foundation. The building exhibits several Streamline Moderne-inspired design elements, including its asymmetrical design composition on the façade (east elevation), horizontal banding on either side of the centrally located metal roll-up garage door, and rectangular glass block windows on the primary façade (east elevation). While obscured from the exterior by a metal mesh panel, original glass-block windows are extant and visible on the interior.

Original signage reading "Pasadena Water Department" has also been removed from the façade, above the entrance. On a concrete retaining wall north of the building, original signage/engraving indicating the building's construction date, 1947, is still visible and extant. The building interior is accessed via one door with simple unadorned surrounds on the southern portion of the façade. The interior consists of one large open room with three pumps and various machinery. The south elevation sits partially below grade and incorporates a rectangular "pop out" that provides ventilation to the interior. A roll-up garage door on the façade appears original.

Sheldon Booster House (Sunset Booster Station)

Utilitarian in design, the Sheldon Booster House (Sunset Booster Station) is located east of Existing Reservoir 1 along Sunset Avenue, at the southeast corner of the property. Square in plan, this structure is partially below grade, with the east elevation at grade with and visible from Sunset Avenue. This board-formed concrete structure is clad with smooth stucco and capped with a front gabled, low-pitched roof. A set of vertical wood-plank doors is located on the façade (east elevation). Fenestration consists of metal-framed casement windows on the north and south elevations.

Stream-Rock Retaining Wall

Sunset Reservoir's stream-rock retaining wall defines the complex boundaries along its eastern and southern perimeters. The wall spans approximately 370 linear feet and is 4 feet high. The wall is constructed of river stones from the Arroyo Seco, fastened with smooth mortar. A portion of the wall at the southernmost end was reinforced in 1974, with additional river rocks above the footing (PWP 1974). The original slope of the grade was also reduced during restoration efforts. In addition, the portions of the wall exceeding four feet along the southern span consist of new additions made in 1974. The wall includes drains spaced in intervals of 25 to 30 feet; six of these drains display the original terra cotta lining; nine have been upgraded to metal pipes.

Sacred Lands File Search and Tribal Outreach

The NAHC was contacted on April 6, 2021, for a Sacred Lands File search and a list of Native American contacts for the Project area. The NAHC indicated in a response dated April 21, 2021, that no known sacred lands or Native American cultural resources are within the Project area, but that the absence of specific site information in the Sacred Lands File does not indicate the absence of cultural resources in the Project area. Letters were sent on May 17, 2021, to the eight Native American representatives and interested parties identified by the NAHC. The only response received to date is from the Gabrieleno

Band of Mission Indians - Kizh Nation, requesting contact information for the lead agency. PWP has undertaken AB 52 notifications to those Tribes who have requested notification. AB 52 consultation is discussed in more detail in Section 4.8, *Tribal Cultural Resources*, of this EIR.

4.3.3 Relevant Plans, Policies, and Ordinances

4.3.3.1 Federal

National Historic Preservation Act

Federal regulations that would be applicable to the project if there is a federal nexus (e.g., permitting or funding from a federal agency) consist of the National Historic Preservation Act (NHPA) and its implementing regulations (16 United States Code 470 et seq., 36 Code of Federal Regulations [CFR] Part 800). Section 106 of the NHPA requires Federal agencies to take into account the effects of their undertakings on "historic properties", that is, properties (either historic or archaeological) that are eligible for the NRHP. To be eligible for the NRHP, a historic property must be significant at the local, state, or national level under one or more of the following four criteria:

A. associated with events that have made a significant contribution to the broad patterns of our history;

B. associated with the lives of persons significant in our past;

C. embodies the distinctive characteristics of a type, period, or method of construction, 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; and/or

D. has yielded or may be likely to yield, information important in prehistory or history.

Significant resources must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Resource integrity, which is the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance, is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. In an archaeological deposit, integrity is assessed with reference to the preservation of material constituents and their culturally and historically meaningful spatial relationships. A resource must also be judged with reference to the particular NRHP criteria under which it is proposed for eligibility.

Under Section 106 of the NHPA, actions that alter any of the characteristics that qualify a property for eligibility for listing in the NRHP "in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association" (36 CFR 800.5[a]) constitute an adverse effect to the historic property.

4.3.3.2 State/Regional

California Environmental Quality Act

CEQA, Public Resources Code (PRC) 21084.1, and California Code of Regulations (CCR) Title 14 Section 15064.5, address determining the significance of impacts to archaeological and historic resources and discuss significant cultural resources as "historical resources," which are defined as:

- resource(s) listed or determined eligible by the State Historical Resources Commission for listing in the CRHR (14 CCR Section 15064.5[a][1])
- resource(s) either listed in the National Register of Historic Places (NRHP) or in a "local register of historical resources" or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the PRC, unless "the preponderance of evidence demonstrates that it is not historically or culturally significant" (14 CCR Section 15064.5[a][2])
- resources determined by the Lead Agency to meet the criteria for listing on the CRHR (14 CCR Section 15064.5[a][3])

For listing in the CRHR, a historical resource must be significant at the local, state, or national level under one or more of the following four criteria:

(1) It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

(2) It is associated with the lives of persons important to local, California, or national history;

(3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values;

(4) It has yielded or has the potential to yield information important to the prehistory or history of the local area, California, or the nation.

Under 14 CCR Section 15064.5(a)(4), a resource may also be considered a "historical resource" for the purposes of CEQA at the discretion of the lead agency.

4.3.3.3 Local

Pasadena General Plan Land Use Element

Pasadena's General Plan Land Use Element was adopted in 2015, and consists of a collection of objectives, policies, and implementation measures designed to define and implement the vision of the community in narrative and graphic terms using established development criteria and standards that help guide land use actions. It describes the allowed intensities, types, configurations, and locations of land uses throughout the City, which include residential, commercial, mixed-use, industrial, open space, recreation, and public uses.

Identified as part of the General Plan, Pasadena's identity and character are significantly influenced by historic buildings, properties, districts, landscapes, and civic places. Guiding Principle 2 of the General Plan Land Use Element focuses on preserving historic resources:

> Guiding Principle 2. Pasadena's historic resources will be preserved. Citywide, new development will be in harmony with and enhance Pasadena's unique character and sense of place. New construction that could affect the integrity of historic resources will be compatible with, and differentiated from, the existing resource.

Goal 8, Historic Preservation, was designed in order to preserve and enhance Pasadena's cultural and historic resources, the policies of which are detailed below.

> Goal 8. Historic Preservation. Preservation and enhancement of Pasadena's cultural and historic buildings, landscapes, streets and districts as valued assets and important representations of its past and a source of community identity, and social, ecological, and economic vitality.
>
> - **8.1:** Identify and Protect Historic Resources. Identify and protect historic resources that represent significant examples of the City's history.
>
> - **8.2:** Historic Designation Support. Provide assistance and support for applicants applying for designation of a historic resource through a clear, thorough, and equitable process that identifies if monuments, individual or landmark districts, historic signs or landmark trees are eligible for designation based on adopted evaluation criteria.
>
> - **8.3:** Preservation Efforts. Support preservation and restoration efforts through education, facilitation, and incentive programs.
>
> - **8.4**: Adaptive Reuse. Encourage sensitive adaptive re-use including continuing the historic use of historic resources to achieve their preservation, sensitive rehabilitation, and continued economic and environmental value.
>
> - **8.5**: Scale and Character of New Construction in a Designated Landmark and Historic Districts. Promote an architecturally sensitive approach to new construction in Landmark and Historic districts. Demonstrate the proposed project's contextual relationship with land uses and patterns, spatial organization, visual relationships, cultural and historic values, and relationships in height, massing, modulation, and materials.
>
> - **8.6:** Infrastructure and Street Design Compatibility. Encourage street design, public improvements, and utility infrastructure that preserves and is compatible with historic resources.
>
> - **8.7:** Preservation of Historic Landscapes. Identify, protect, and maintain cultural and natural resources associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.

- **8.8:** Evolving Preservation Practices. Continue to implement practices for historic preservation consistent with community values and conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties, California Historical Building Code, State laws, and best practices.

- **8.9:** Maintenance. Support and encourage maintenance and upkeep of historic resources to avoid the need for major rehabilitation and to reduce the risk of demolition, loss through fire, deterioration by neglect, or impacts from natural disasters.

- **8.10:** Enforcement. Ensure that City enforcement procedures and activities comply with local, State, and Federal historic preservation requirements and fosters the preservation of historic resources.

City of Pasadena Historic Preservation Ordinance (Chapter 17.62)

Sections 17.62.010 et seq. of the Pasadena Municipal Code (PMC) specify significance criteria for the designation of historic resources, procedures for designation, and review procedures to encourage, enhance, and promote historic preservation. The historic preservation program establishes criteria for the designation of historic monuments, landmarks, historic signs, landmark trees, or landmark districts, consistent with NRHP for evaluating historic properties. These criteria are intended to promote the adaptive reuse of the City's historic resources, enhance and preserve historically significant structures, and stabilize and improve property values. These sections also serve to fulfill the City's responsibility as a Certified Local Government (CLG) under federal preservation laws and conducting Section 106 and CEQA reviews. They promote tourism and public awareness of conservation through rehabilitation, restoration, and maintenance of existing buildings.

The CLG Program is jointly administered by the National Park Service and State Historic Preservation Offices to certify local communities in becoming recognized as a CLG. Pasadena is a CLG, and as such, is committed to preserving, protecting, and increasing awareness of historic places. As a CLG, Pasadena must continually improve its preservation programs and is eligible for state and federal grants to support efforts such as preservation plans, historic resources surveys, and preservation education and outreach programs.

Any property in Pasadena that is found eligible for designation as a local landmark is considered to meet the definition of historical resource as defined by State CEQA Guidelines Section 15064.5. Pursuant to Municipal Code Section 17.62.040, a landmark meets one or more of the following criteria:

- It is associated with events that have made a significant contribution to the broad patterns of the history of the City.

- It is associated with the lives of persons who are significant in the history of the City.

- It embodies the distinctive characteristics of a type, architectural style, period, or method of construction, or represents the work of an architect, designer, engineer, or builder whose work is of significance to the City, or possesses artistic values of significance to the City.

- It has yielded or may be likely to yield, information important locally in prehistory or history.

Furthermore, the City may consider a group of properties or resources as a landmark district. A landmark district is defined in the PMC as "a grouping of contiguous properties that represents a significant and distinguishable entity of Citywide importance that is united historically by past events or aesthetically by plan or physical development and represents one or more of a defined historic, cultural, development and/or architectural context(s)..." Buildings, sites structures and objects that have characteristics and features that relate to the historic context and historic significance of the district are defined as contributing structures or resources. Contributing resources must have features that identify it with a historical period in the development of the district, and the resource must retain a majority of their original architectural features. Non-contributing resources are those that have been significantly altered, do not represent the historic context and historic significance of the district or were constructed after the period in which the majority of the historic buildings in the district were built. Landmark District eligibility criteria include a minimum of 60 percent contributing resources and representation of a significant and distinguishable entity of Citywide importance that is united historically by past events or aesthetically by plan or development and one or more of a defined historic, cultural, development and/or architectural context(s)

Publicly visible design changes to properties within a designated Landmark District must be approved by the City through a Certificate of Appropriateness. A Certificate of Appropriateness is a written approval, which confirms that the proposed change(s) to a historic resource complies with the Secretary of the Interior's Standards and the Design Guidelines for Historic Districts. Exterior alterations not visible from the street, interior alterations, paint colors, landscaping, installation of solar panels and routine maintenance are all exempt from review. Mechanical system upgrades are exempt if the work is not visible from the street.

4.3.4 Thresholds of Significance

The significance criteria used to evaluate Project impacts related to cultural resources are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to cultural resources would occur if the project would:

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

Through the analysis in the IS/NOP (see Appendix A of this EIR), it was determined that the proposed Project would not cause a substantial adverse change in the significance of an archaeological resource (i.e., Threshold b) and would not disturb any human remains, including those interred outside of formal cemeteries (i.e., Threshold c). Accordingly, these issues are not further analyzed in the EIR. Based on the remaining threshold, a significant impact related to cultural resources would occur if the project would:

a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5.

4.3.5 Environmental Impacts Analysis

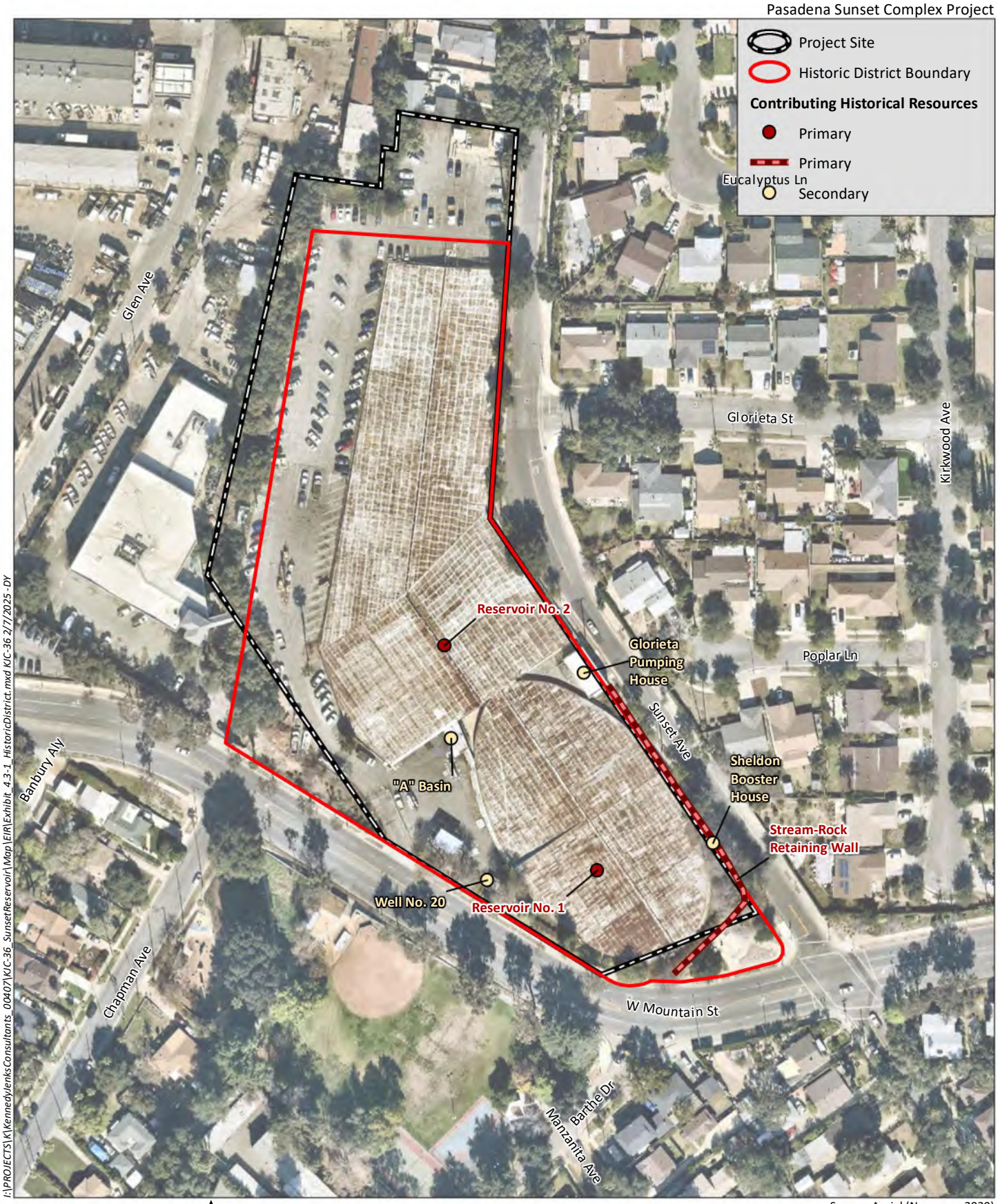
Threshold 4.3a. Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

As discussed above, the SCCIC records search conducted for the Project did not identify any previously documented historic resources within the Project site. However, a 2017 Historic Resource Assessment report prepared for the Sunset Reservoir facility concluded that the Complex as a whole was eligible for listing in the CRHR and as a local City landmark. Six of these structures were re-evaluated by HELIX (2023) as a historic district, the Sunset Reservoir Complex Historic District. HELIX assessed the seventh structure, Glorieta Pumping Plant, separately, as it is not a contributing element to the historic district.

The Sunset Reservoir Complex Historic District has been documented and evaluated by HELIX (2024) as an eligible historic district per National Park Service (NPS) guidelines (NPS 1985). The significance of the Sunset Reservoir Complex Historic District is derived from the interrelationship of its resources and how they have functioned together over time. A historic district can include features that lack individual distinction provided that the resources all together convey the identified historical significance. Table 4.3-1, *Sunset Reservoir Complex Historic District,* below, provides an overview and summary of each of the contributing primary (resources associated with the original construction) and secondary (resources that were added after the original construction, but still contribute to the period of significance) resources within the Sunset Reservoir Complex Historic District. The locations of these structures are illustrated in Exhibit 2-3 of this EIR. **Exhibit 4.3-1**, *Sunset Reservoir Complex Historic District Map*, outlines the district boundary along with contributing historical resources.

The period of significance for the historic district is circa 1888, the year Existing Reservoir 1 and the stream-rock retaining wall were constructed on the property, to 1941, until water arrived in Pasadena via the Metropolitan Water District and the Colorado River Aqueduct. Six of the seven structures identified in the 2017 Historic Resource Assessment Report contribute to the Sunset Reservoir Complex Historic District. The six contributing resources include Existing Reservoir 1; Existing Reservoir 2; A-Basin; Well No. 20 (Sunset Well); Sheldon Booster House (Sunset Booster Station); and the stream-rock retaining wall. The Sunset Reservoir Complex Historic District was evaluated as eligible as a historic district under NRHP Criterion A, CRHR Criterion 1, and as a City of Pasadena Landmark under Criterion a. As the oldest extant reservoir in Pasadena, the Sunset Reservoir Complex represents an intact, early municipal water facility that catalyzed the City's rapid growth and expansion from the late nineteenth through the twentieth centuries.

The Glorieta Booster Station is not a contributing resource to the Sunset Reservoir Complex Historic District because its 1947 construction date falls outside the period of significance. HELIX evaluated the Glorieta Booster Station separately in the HRER (2024) to determine if it is individually eligible as a historic resource, since it is greater than 50 years old. The Glorieta Booster Station was found to be not eligible for listing on the National or California Registers or as a local landmark, because it is not exemplary of Streamline Moderne as an architectural style, is not considered to be representative of the work of a significant architect, and does not possess high artistic values of significance to the City or the region. The Project intends to remove the existing glass block window to update the structure with energy-efficient, security windows, replace the existing entry door with an insulated, fire-rated security door, replace the existing overhead coiling door with an insulated, fire-rated security door, remove a portion of the existing architectural fenestration details to replace with new fenestration and building architectural details using integral-colored synthetic stucco at the public sides of the facility, install



HELIX Environmental Planning

Sunset Reservoir Complex Historic District Map

Exhibit 4.3-1

mansard roof framing with architectural metal roofing to complement the new architectural details of the exterior walls, and update lighting. Although many of the revisions intend to replace original features of the structure, the HRER concluded that Glorieta Booster Station is not a contributing resource to the Sunset Reservoir Complex, is not eligible for listing as an individual structure and, therefore, there would be no adverse historic resource impacts related to the Glorieta Booster Station.

Table 4.3-1
SUNSET RESERVOIR COMPLEX HISTORIC DISTRICT

Resource Name	Resource Type	Engineer/Architect	Built Date	NRHP/CRHR/City Landmark Eligibility Criteria	Primary or Secondary Contributor	Disposition of Resource
Existing Reservoir 1	Reservoir	Thomas Banbury	Circa 1888	Eligible as a contributor to the Sunset Reservoir Complex Historic District under Criteria A/1/a	Primary	To be demolished/ removed
Existing Reservoir 2	Reservoir	Possibly Thomas Banbury	Circa 1900	Eligible as a contributor to the Sunset Reservoir Complex Historic District, Criteria A/1/a	Primary	To be demolished/ removed
A-Basin	Aerator tank, weir, and flume	Pasadena Water Department	1934	Eligible as a contributor to the Sunset Reservoir Complex Historic District, Criteria A/1/a	Secondary	To be demolished/ removed
Well No. 20 (Sunset Well)	Well	Pasadena Water Department	Circa 1925	Eligible as a contributor to the Sunset Reservoir Complex Historic District, Criteria A/1/a	Secondary	To be demolished/ removed
Glorieta Pump Station	Pump House	Breo Freeman	1947	Not a contributing structure	Not a contributing structure	Remaining in place with façade modifications
Sheldon Booster House (Sunset Booster Station)	Booster House	Pasadena Water Department	1923	Eligible as a contributor to the Sunset Reservoir Complex Historic District, Criteria A/1/a	Secondary	Remaining in place
Stream-Rock Retaining Wall	Wall	Possibly Thomas Banbury	Circa 1888	Eligible as a contributor to the Sunset Reservoir Complex Historic District, Criteria A/1/a	Primary	Remaining in place

Source: HELIX 2024

Historic Evaluation

The Sunset Reservoir Complex Historic District, consisting of the six contributing resources and one non-contributing resource identified in Table 4.3-1 above, was evaluated for historical significance consistent with NRHP, CRHR, and local Pasadena criteria presented in Section 4.3.3. This analysis describes eligibility criteria, integrity considerations, character-defining features, and primary and secondary contributors of the complex. Although the Glorieta Pump Station is within the historic district, it is not a contributing element, as described below.

NRHP/CRHR Significance Criteria A/1

NRHP Criterion A: Is associated with events that have made a significant contribution to the broad patterns of our history

CRHR Criterion 1: It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage

Pasadena transitioned from a largely agricultural town to a developing City in the 1880s. It was a period of exponential growth requiring the development of new water infrastructure to meet unprecedented demands. Several syndicates in Pasadena had to work together to address the critical water issues of sustainable sources and the allocation of this resource. The Pasadena LVLWC invested in developing a new water conveyance system from Devil's Gate to Existing Reservoir 1, which was owned by the Pasadena LVLWC. Sunset Reservoir was the diversion point for this complex system and has continued to serve the City of Pasadena for over 130 years. A variety of water sources have filled this reservoir system, since circa 1888, including water from local wells pumping from the Raymond Basin, the Arroyo Seco, Morris Dam, the Colorado River, and Northern California.

The Sunset Reservoir Complex Historic District is a rare and intact exemplification of a pioneering water reservoir constructed during Pasadena's founding years, adapted and expanded over a century. It appears significant at the local level under NRHP/CRHR Criterion A/1. The applicable context for eligibility is Public Institutional Development/Government Infrastructure, and the applicable theme is Municipal Water and Power/Water Supply Infrastructure. The property type is a Reservoir/Water Supply Complex.

The period of significance is 1888, when Existing Reservoir 1 and the stream-rock retaining wall were constructed, to 1941, the historic active period of the complex.[4] For purposes of this evaluation, Existing Reservoir 1, Existing Reservoir 2, and the stream-rock retaining wall are primary contributors to the historic district. The remaining support buildings and structures are considered secondary contributors to the historic district because they were subsequently added after the original construction but also represent the historical significance and context of the district and were built during the district's period of significance. The Glorieta Booster Station is not a contributor to the district, since its 1947 construction date falls outside the period of significance. In addition, the Glorieta Booster Station does not appear individually eligible under the applicable criteria. The Pumping House has no significance on its own outside of its association with the Sunset Reservoir Complex and it has made no significant contribution to the broad patterns of the nation's, state's, or city's history and cultural heritage, and therefore does not appear individually eligible for listing in the NRHP, CRHR, or as a local landmark under Criteria A/1/a.

As described above, the Sunset Reservoir Complex Historic District appears eligible under Criteria A/1. The Sunset Reservoir facility is the oldest existing reservoir facility in Pasadena and represents an intact, early municipal water facility that facilitated the City's rapid growth and expansion from the late nineteenth through the twentieth centuries.

[4] According to NPS Guidelines, if the historic property is in continuous use, fifty years from the year of evaluation may be used as the closing date for the period of significance (NPS 1989:21).

NRHP/CRHR Significance Criteria B/2

NRHP Criterion B: Is associated with the lives of persons significant in our past

CRHR Criterion 2: It is associated with the lives of persons important in our past

Research conducted for the HRER did not suggest that the Sunset Reservoir Complex, either in whole or in part, is significant for an association with important individuals who made significant contributions at the local, state, or national level. Thomas Banbury was an active citizen in the City of Pasadena through his contracting work and municipal roles, but he does not appear to be a historically significant individual at the local level. While architect Breo Freeman designed the Glorieta Booster Station, the structure is not a contributor to the Sunset Reservoir Complex Historic District and is not individually significant as discussed under the next set of criteria.

Therefore, the Sunset Reservoir Complex Historic District does not appear eligible for listing in the NRHP, CRHR, or as a local landmark under Criteria B/2/b.

NRHP/CRHR Significance Criteria C/3

NRHP Criterion C: Embodies the distinctive characteristics of a type, period, or method of installation, or represents the work of a master, possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction

CRHR Criterion 3: It 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

The Sunset Reservoir Complex does not appear eligible under Criteria C/3. The Sunset Reservoir Complex, including its primary and secondary contributors, exhibits typical rather than distinctive characteristics of its building types and period. The complex does not reflect outstanding or distinctive design, the work of a master, or a method of construction or engineering. The complex, taken together and individually, does not possess high artistic values. The only structure associated with an architect is the Glorieta Booster Station designed by local architect Breo Freeman. However, as further detailed in the Appendix D, the Booster Station is not a contributor to the district and is not individually significant because it is not exemplary of Streamline Moderne as an architectural style, is not considered to be representative of the work of a significant architect, and does not possess high artistic values of significance to the City or the region.

Therefore, the Sunset Reservoir Complex appears ineligible under Criteria C/3.

Pasadena Landmark District Criteria:

The criteria for designation as a Pasadena Landmark District include a minimum of 60 percent contributing resources and representation of a significant and distinguishable entity of Citywide importance that is united historically by past events or aesthetically by plan or development and one or more of a defined historic, cultural, development and/or architectural context(s). As noted above, the eligible district includes six contributing resources and one non-contributing resource, therefore, 86 percent of the resources within the district boundaries are contributing to the district, which exceeds the 60 percent threshold. In addition, the HRER prepared for the project determined that the district represents a historic context for Public Institutional Development/Government Infrastructure, a theme

of Municipal Water and Power/Water Supply Infrastructure, and a significant property type of a Reservoir/Water Supply Complex. Based on that analysis, the district meets the criteria for designation as a Pasadena Landmark District.

Historic Integrity Analysis

"Integrity" is the ability of a historical resource to convey the reasons for its significance, through the retention of character-defining features, materials, and components. Historic integrity is weighed through a consideration of seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. This section provides an analysis of the historic integrity of the Sunset Reservoir Complex Historic District.

Location: The Sunset Reservoir Complex Historic District retains sufficient integrity of location. All contributing historic structures retain their original footprints within Project Site, and neither have any of the contributing structures been moved nor relocated.

Design: The Sunset Reservoir Complex Historic District retains integrity of design. Various maintenance and improvement projects have occurred within the complex over time, such as the addition of four-foot perimeter walls around the reservoirs in 1934 to increase storage capacity. Additions were required to retain the historic function of the reservoirs and to accommodate new technologies to meet new regulations and to serve the City's growing population. Therefore, changes made during the period of significance, 1888 to 1971, do not alter the design integrity of the historic district. The contributing structures within the Sunset Reservoir Complex retain most of their original design elements including their massing, spatial relationships, materials, utilitarian style, and technical function.

Setting: The setting of the Sunset Reservoir Complex Historic District has changed relatively little since its construction and expansion through the twentieth century. The historic district is adjacent to the City of Pasadena Maintenance Yards, which includes City owned and operated buildings dating from the early twentieth century until the late twentieth century. The historic district is also adjacent to the Fair Oaks/Orange Grove neighborhood, which has been extant since the early twentieth century. The Sunset Reservoir retains sufficient integrity of setting.

Materials: The Sunset Reservoir Complex Historic District retains sufficient integrity of materials. Most of the materials extant are original or were added during the historic district's period of significance. Prevalent materials include corrugated iron; reinforced concrete; board-formed concrete; stucco walls; Douglas Fir, and Redwood.

Workmanship: The Sunset Reservoir Complex Historic District retains sufficient integrity of workmanship. Vernacular craftsmanship is illustrated by the river stone retaining wall, and sophisticated carpentry work is illustrated by the reservoirs' timber framed roof superstructures.

Feeling: The Sunset Reservoir Complex Historic District retains sufficient integrity of feeling as a functioning reservoir system within the City of Pasadena dating to the late nineteenth century. The historical use of the reservoir complex has been maintained for over

130 years, and that long history, including the layers of water use history, is conveyed by the Historic District.

Association: The Sunset Reservoir Complex Historic District retains sufficient integrity of association as a functioning reservoir system within the City of Pasadena dating to the late nineteenth century. The historical use of the reservoir complex has been maintained for over 130 years, and that long history, including the layers of water use history, is conveyed by the Historic District.

The Sunset Reservoir Complex Historic District retains integrity to convey its significance under Criteria A/1, and is recommended eligible for listing in the NRHP, the CRHR, and as a local landmark district.

Conclusion

As noted previously, the Project proposes demolition of four of six contributing structures within the existing Sunset Reservoir facility and replacement with new reservoirs, along with a groundwater treatment plant (GWTP). Both reservoirs would be removed and replaced with new prestressed concrete reservoirs. Additionally, as part of the Project, the A-Basin (where water is presently blended) and Well No. 20 (Sunset Well) would be demolished. Additionally, a new GWTP would be developed, to treat for perchlorate and volatile organic compounds (VOCs). Replacement and construction of associated piping, inlet and outlet, valves, and hardscaping would also occur across the project area. Both the Sheldon Booster House (Sunset Booster Station) and the existing stream-rock retaining wall would be preserved in place. The project intends to remove a portion of the modern wall located in front of the Existing Reservoir 1, but these activities would not adversely affect the stream-rock retaining wall.

As a historic district eligible for the NRHP, CRHR, and as a local landmark district, the Sunset Reservoir Complex Historic District qualifies as a historical resource pursuant to CEQA. Demolition and replacement of four of its contributing features, including primary contributors Existing Reservoir 1 and Existing Reservoir 2, would constitute a significant adverse impact and material impairment to the resource. Furthermore, as discussed in the previous section, the Glorieta Booster Station is not individually significant under these criteria.

4.3.6 Cumulative Impacts

Cumulative impacts on cultural resources consider whether impacts of the proposed Project together with other related projects, when taken as a whole, substantially diminish the number of historical or archaeological resources within the same or similar context or property type. The cumulative projects were chosen based on direction from the City and generally include past, present, and reasonably foreseeable future projects. A summary of cumulative projects and a map depicting the locations of cumulative projects can be found in Chapter 3.0, *Project Description* and Exhibit 3-4, *Cumulative Projects*.

Implementation of the proposed Project, in combination with past, present, and potential future cumulative development in the area, could continue to alter the historic character of Pasadena. Therefore, cumulative development could result in impacts to designated and potential historical resources. The Pasadena Historic Preservation Ordinance specifies significance criteria for the designation of historical resources, procedures for designation, and review procedures to encourage, enhance, and promote historic preservation. If known historic resources would be impacted by any of

the cumulative projects identified in Chapter 3.0, *Project Description*, that individual cumulative project would be required to mitigate potentially significant impacts in accordance with the City's Historic Preservation Ordinance and CEQA. Cumulative projects identified in Chapter 3.0, *Project Description*, include construction of a new (replacement) water well; improvements to existing park, public pool, and community center facilities; construction of residential uses; the conversion of an existing nursing home to an apartment building; and a stormwater diversion project that includes park improvements. As previously described, each cumulative project would be required to evaluate and mitigate any impacts to historical resources. Based on the CEQA documentation prepared for the Garfield Replacement Well, cumulative project 1 would not result in any impacts to historical resources (Pasadena Power and Water 2021). Additionally, the 444 Fair Oaks Boulevard Project (cumulative project 4) would not result in substantial adverse change in significance of a known historical resource (City of Pasadena Planning and Community Development Department 2022). Additionally, the various park improvement projects identified as cumulative projects 2, 3, 5, 6, 7, and 9 do not include components that would result in significant impacts to historical resources. Cumulative project 8 consists of the conversion of an existing nursing home into a 15-unit apartment building, which is not expected to result in significant impacts to historical resources.

As described above, the demolition and replacement of some of the contributing features of the Sunset Reservoir Complex Historic District, including primary contributors Existing Reservoir 1 and Existing Reservoir 2 would constitute a significant, adverse impact and material impairment to the resource and as such, the Project would result in a significant, unavoidable historical resources impact. While the Project would result in a significant, unavoidable historical resources impact, no additional significant historical resource impacts are identified for cumulative projects occurring in the vicinity of the project. Thus, cumulative impacts to historical resources would be less than significant.

4.3.7 Mitigation Measures

CUL-1 Documentation Program. A documentation program shall be undertaken prior to commencement of the project to document the Pasadena Sunset Complex to the standards of the Historic American Engineering Record (HAER).

The documentation program would include the following components for all six contributing resources (Existing Reservoir 1, Existing Reservoir 2, the stream-rock retaining wall, A-Basin, Well No. 20 [Sunset Well], and Sheldon Booster House [Sunset Booster Station]):

1. Produce large format black-and-white, film photographs, with the original negatives having a minimum size of 4 inches by 5 inches, of all six contributing resources (Existing Reservoir 1, Existing Reservoir 2, the stream-rock retaining wall, A-Basin, Well No. 20 [Sunset Well], and Sheldon Booster House [Sunset Booster Station]) to include aerial and context views of the site, views of significant elements and interior spaces, and detail views of specific character-defining features. Include a photo index and photo key-maps. A draft laser copy (or digital PDF) of the finished survey formatted to the photo index is required for City review prior to final archival printing.

2. Reproduce original drawings (plans, drawings, blueprints, and other structural data) full scale on vellum that meets Federal Vellum Specification UU-P-561H, Type IV and prepared to HAER drawing guidelines per Recording Historic Structures & Sites for the Historic American Engineering Record (revised 2020). If original drawings are not

available, then an architect or engineer meeting the Secretary of the Interior's Professional Qualification Standards shall produce full-size scaled drawings of the resource's plan, elevations, sections, and details to the same HAER standards.

3. Assemble historical background information, and the produced drawings, large format and historic photographs relevant to the Sunset Reservoir and its setting, into a format meeting HAER history guidelines per the Historic American Engineering Record Guidelines for Historical Reports (2008, updated December 2017) (contact info updated December 2021).

4. Donate one copy of the final historic report, drawings, photographs, and negatives to the HABS/HAER/HALS division of the National Park Service for transmittal to the Library of Congress. Duplicate archival laser-copies, or other media as directed by the recipient, of the report, drawings and photographs shall be kept on file with the City of Pasadena Design & Historic Preservation archives and filed with the Pasadena Museum of History and the Pasadena Public Library.

CUL-2 **Interpretive Program.** An interpretive program shall be installed prior to filing the Notice of Completion for the construction project completion. The interpretive program shall be installed on or adjacent to the project site to provide a visual historical record for the general public. The interpretive program shall be designed, fabricated, and installed to visually interpret the history of the property including signage with descriptive narrative and reproductions of historic and recent images in an area that is publicly accessible. The interpretive program should be installed in the landscaped area to be located adjacent to the southernmost project boundary at the intersection of Mountain Street and Sunset Avenue, or a suitable alternative location as determined by the City of Pasadena.

4.3.8 Level of Significance After Mitigation

The proposed Project would result in a significant adverse impact and material impairment to historical resources. Although some of the historic district's character-defining features would remain, primary significant character-defining features of the Sunset Reservoir Complex historic district would be demolished as part of the Project. The new Project design would also completely alter the feeling of the reservoir site through the installation of two new individually capped reservoirs, uncovered parking areas and perimeter landscaping, etc. The proposed mitigation measures CUL-1 and CUL-2 would document the Sunset Reservoir for future research and help relate the site's history to the public through an interpretive program, but these mitigation measures are not sufficient to reduce impacts on cultural resources to a less than significant level. Therefore, direct impacts related to cultural resources would remain significant and unavoidable.

4.3.9 References

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Pasadena Water and Power (PWP). 2021. *Final Initial Study and Mitigated Negative Declaration, Garfield Replacement Well Project, State Clearinghouse No. 2021060461.* July. Available at: https://files.ceqanet.opr.ca.gov/269354-2/attachment/XbLhpUsc1DlrWjBDiF6L0rFPejKCA5oq5tMBuEraYf_Iw86cNYvuoKBe2ygqOXGr4Ik1aOLP-FkYt7940.

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4.4 Energy

This section describes the existing conditions of the proposed Project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation related to implementation of the proposed Project if necessary. The analysis of the Project impacts related to energy is based on data presented in **Appendix B**, *CalEEMod Data*, and **Appendix E**, *Energy Calculations*, of this EIR.

4.4.1 Methodology

Energy use was calculated using CalEEMod, Version 2022.1. CalEEMod is a computer model used to estimate air emissions resulting from land development projects throughout the state of California. CalEEMod was developed by CAPCOA in collaboration with the California air quality management and pollution control districts, primarily the SCAQMD. The calculation methodology, source of emission factors used, and default data is described in the CalEEMod User's Guide, and Appendices A, D, and E (CAPCOA 2022). A detailed discussion of the assumptions and methods used can be found in Section 4.2, *Air Quality*, of this EIR.

4.4.2 Existing Conditions

4.4.2.1 Units of Measure

The units of energy used in this section are the British thermal units (BTU), kilowatt hours (kWh), therms, and gallons. A BTU is the quantity of heat required to raise the temperature of one pound of water one °F at sea level. Because the other units of energy can all be converted into equivalent BTU, the BTU is used as the basis for comparing energy consumption associated with different resources. A kWh is a unit of electrical energy, and one kWh is equivalent to approximately 3,413 BTU, taking into account initial conversion losses (i.e., from one type of energy, such as chemical, to another type of energy, such as mechanical) and transmission losses. Natural gas consumption is described typically in terms of cubic feet or therms; one cubic foot of natural gas is equivalent to approximately 1,050 BTU, and one therm represents 100,000 BTU. One gallon of gasoline/diesel is equivalent to approximately 125,000/139,000 BTU, respectively, taking into account energy consumed in the refining process.

4.4.2.2 Electricity

Electrical power within the City of Pasadena is supplied by Pasadena Water and Power (PWP), which currently serves approximately 144,842 people (PWP 2020). Electricity provided by PWP is generated by PWP and other utilities with power generating facilities located both within the City of Pasadena and in other areas. These sources include natural gas-fired, coal-fired, hydroelectric, and nuclear plants. Existing renewable energy resources in the PWP portfolio include wind, solar, biogas, and geothermal facilities. The current resource mix affords reliability and flexibility in providing electrical energy to the citizens of Pasadena. In November 2018, the City of Pasadena adopted the 2018 Update to the 2015 Integrated Resource Plan (2018 IRP; PWP 2018). The 2018 IRP is a 21-year energy resource planning document that provides a framework to ensure that the future energy needs of the City are reliably met in a cost-effective manner, while reflecting PWP's commitment to environmental stewardship. Within the 2018 IRP, PWP outlines adequate electricity supply and transmission capability to meet the needs of its customers through 2039. The 2018 IRP includes updated renewable energy requirements, electrical

load forecasts, revenue and rate impacts, and the integration of public input (PWP 2018). The PWP service area used 1,058,176 megawatt-hours (MWh) of electricity in the 2020 fiscal year (PWP 2020).

PWP has adopted a number of initiatives to increase its use of renewable energy resources to support the goal of reducing greenhouse gas (GHG) emissions, reducing reliance on fossil fuels, and meeting state mandates requiring all utilities to provide 33 percent of their energy from renewable resources by 2020, 50 percent by 2030, 90 percent by 2035, and 95 percent by 2040. In 2017, PWP secured almost 38 percent of its power from renewable resources, exceeding the state interim goals (PWP 2018). On January 30, 2023, the City Council approved to set a policy goal to source 100% of the City's electricity from carbon free sources by the end of 2030.

4.4.2.3 Natural Gas

The Southern California Gas Company (SoCalGas) supplies natural gas to the City of Pasadena. In 2019, approximately 2,409 million cubic feet (MMcf) of natural gas per day was consumed in Southern California (California Gas and Electric Utilities 2020). SoCalGas projects total natural gas demand to decline by 1 percent annually from 2020 to 2035. The decline in demand will be caused by modest economic growth, California Public Utilities Commission-mandated energy efficiency standards and programs, renewable electricity goals, declining commercial and industrial demand, and conservation savings linked to advanced metering infrastructure. Projected demand for natural gas in Southern California in 2030 is anticipated to be 2,132 MMcf/day. SoCalGas obtains the majority of its natural gas from out-of-state sources, mostly in the western United States and Canada. Future supplies of natural gas are anticipated to be adequate to meet projected Southern California demand through 2035 (California Gas and Electric Utilities 2020).

4.4.3 Relevant Plans, Policies, and Ordinances

4.4.3.1 State/Regional

California Code of Regulations, Title 24, Part 6

CCR Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. Energy-efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for space or water heating) results in GHG emissions.

The Title 24 standards are updated approximately every three years to allow consideration and possible incorporation of new energy efficiency technologies and methods. The 2022 Title 24 standards went into effect on January 1, 2023. The 2022 update to the Building Energy Efficiency Standards encourages efficient electric heat pumps, establishes electric-ready requirements for new homes, expands solar photovoltaic and battery storage standards, and more (California Energy Commission [CEC] 2022).

The standards are divided into three basic sets. First, there is a basic set of mandatory requirements that apply to all buildings. Second, there is a set of performance standards—the energy budgets—that vary by climate zone (of which there are 16 in California) and building type; thus, the standards are tailored to local conditions. Finally, the third set constitutes an alternative to the performance standards, which is a set of prescriptive packages that are basically a recipe or a checklist compliance approach.

California Green Building Standards Code

The California Green Building Standards Code (CALGreen; CCR Title 24, Part 11) is a code with mandatory requirements for all nonresidential buildings (including industrial buildings) and residential buildings for which no other state agency has authority to adopt green building standards. The current 2022 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings went into effect on January 1, 2023 (California Building Standards Commission [CBSC] 2022).

The development of CALGreen is intended to (1) cause a reduction in GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, the code is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impact during and after construction.

CALGreen contains requirements for storm water control during construction; construction waste reduction; indoor water use reduction; material selection; natural resource conservation; site irrigation conservation; and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for the verification that all building systems, like heating and cooling equipment and lighting systems, are functioning at their maximum efficiency.

Renewables Portfolio Standard

California's Renewable Portfolio Standard (RPS) program was established in 2002 by SB 1078 with the initial requirement that 20 percent of electricity retail sales must be served by renewable resources by 2017. This was accelerated in 2006 with the signing of SB 107 requiring 20 percent of electricity retail sales come from renewable resources by the end of 2010. Approved by Governor Brown on April 12, 2011, SBX1-2 increases California's renewable requirement to 33 percent by the end of 2020. On October 7, 2015, Governor Brown signed SB 350 increasing California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. Approved by Governor Brown on September 10, 2018, SB 100 extends the renewable electricity procurement goals and requirements of SB 350. SB 100 requires that all retail sale of electricity to California end-use customers be procured from 100 percent eligible renewable energy resources and zero-carbon resources by the end of 2045. On September 16, 2022, Governor Newsom signed SB 1020 increasing California's renewable electricity procurement goal to 90 percent by 2035 and 95 percent by 2040 to help achieve the target set by SB 100. This will increase the use of RPS eligible resources, including solar, wind, biomass, and geothermal. In addition, large utilities are required to develop and submit Integrated Resource Plans to detail how each entity will meet their customers resource needs, reduce GHG emissions, and increase the use of clean energy.

4.4.3.2 Local

City of Pasadena General Plan Open Space and Conservation Element

The City's Energy Element of the 1983 General Plan was replaced by the City's Open Space and Conservation Element in 2012 (City of Pasadena 2012). The purpose of the Open Space and Conservation Element is to develop policies that promote the conservation of energy, air, water, and natural resources to enhance the overall quality of life in Pasadena. In terms of energy, the City seeks to improve energy conservation, expand renewable energy production, and promote sustainability. The

Open Space and Conservation Element also includes a series of implementation measures to achieve these goals and objectives. For example, the CALGreen Code voluntary measures are to be implemented to have permeable surfaces at a minimum of 20 percent (Tier 1) and 30 percent (Tier 2) of the total parking, walking, or patio surfaces. Such measures would be evaluated and potentially strengthened. Other implementation measures are also restated from existing plans, such as the City's Green Building Ordinance and Green City Program.

City of Pasadena Green Building Ordinance

The City green building ordinance is Municipal Code Sections 14.04.500 through 14.04.511 (as amended). The ordinance incorporates the 2022 CALGreen and 2022 Building and Energy Efficiency Standards. Under the ordinance, nonresidential development that is over 25,000 square feet would be subject to the mandatory Tier 1 CALGreen standards, and nonresidential development over 50,000 square feet would be subject to the mandatory Tier 2 CALGreen standards (Section 14.04.504).

City of Pasadena Green City Action Plan

The City of Pasadena developed and adopted the Green City Action Plan on September 18, 2006 (City of Pasadena 2006). The plan, which contains various actions and goals applicable on a local level, was prepared to create a more sustainable City capable of meeting growing demand and reducing impacts to natural sources. There are seven focus areas within the plan: (1) Energy, (2) Waste Reduction, (3) Urban Design, (4) Urban Nature, (5) Transportation, (6) Environmental Health, and (7) Water. Each of these focus areas contains actions and goals.

City of Pasadena Climate Emergency Resolution

At their January 30, 2023, meeting, the Pasadena City Council adopted a resolution to declare a climate emergency and set a policy goal to source 100 percent of Pasadena's electricity from carbon free sources by the end of 2030. This puts the City on a path to achieve 100 percent renewable energy before the State's target date of 2045 set by SB 100.

4.4.4 Thresholds of Significance

The significance criteria used to evaluate the Project impacts related to energy are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to energy would occur if the project would:

a) Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The applicable thresholds for evaluating potential energy impacts are provided below.

Threshold a: Energy Consumption. The Project would have a significant impact if it would require substantial levels of energy during construction or operation.

Threshold b: Conflict with an Energy Plan. The Project would have a significant impact if it would conflict with the goals listed in the City of Pasadena General Plan Open Space and Conservation Element.

4.4.5 Environmental Impacts Analysis

Threshold 4.4a. Would the project result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Implementation of the Project would require energy usage during construction and operation as discussed below.

Construction-related Energy Use

Energy used for construction would primarily consist of fuels in the form of diesel and gasoline. Fuel consumed by construction equipment would be the primary energy resource expended over the course of construction and would include the transportation of construction materials and construction worker commutes. Heavy-duty construction equipment associated with construction activities, haul trucks involved in the removal of construction and demolition materials, and smaller support equipment (such as lighting, air compressors, and pumps) would consume petroleum-based fuel. Construction workers would travel to and from the Project site throughout the duration of construction, presumably in gasoline-powered vehicles.

Calculations of energy use for the Project are based on the same assumptions used to calculate air quality criteria pollutant and GHG emissions. Table 4.4-1, *Construction Energy Use*, includes an estimation of energy usage from construction equipment. See Appendix E for additional construction energy usage data.

Table 4.4-1
Construction Energy Use

Phase	Total kBtu
Off-Road Construction Energy Use	
Demolition	1,383,853
Site Preparation	6,645,820
Grading	4,302,520
Paving	126,844
Building Construction	9,078,912
Subtotal	**21,537,948**
On-Road Construction Energy Use	
Worker Vehicles and Haul Trucks	2,790,894
Construction Total	**24,328,842**

Source: CalEEMod (output data is provided in Appendix B with additional energy calculations provided in Appendix E)
kBtu = kilo-British thermal unit

While construction activities would consume petroleum-based fuels, consumption of such resources would be temporary and would cease upon the completion of construction. The petroleum consumed

during Project construction would also be typical of similar construction projects and would not require the use of new petroleum resources beyond what are typically consumed in California. Based on these considerations, construction of the Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources.

Operation-related Energy Use

The Project involves replacement of the two existing reservoirs and associated structures with two new reservoirs. Operation of such structures would result in energy usage similar to or less than existing conditions based on the proposed capacity and increased efficiency of new systems to be installed and/or constructed at the site. During operation, the Project would not measurably increase the number of employees traveling to and from the site above existing conditions. The basic functions of the Sunset Reservoir facilities would remain the same, and therefore require a similar number of employees. The Project involves the installation of two emergency backup generators and construction of a new GWTP at the site; as such the increase in operational energy at the site is limited to those associated with testing of the backup generators and operation of the GWTP. Energy use (in kilo-British thermal units [kBtu]) associated with diesel fuel usage by the emergency generators and electricity usage for operation of the GWTP is provided in Table 4.4-2, *GWTP Operational Energy Use*.

Table 4.4-2
GWTP Operational Energy Use

Energy Type	Quantity	kBtu
Electricity	5,188,000 KWh	17,702,193
Diesel Fuel	102 Gal Diesel	14,200
	Total	**17,702,193**

Source: CalEEMod (output data is provided in Appendix B with additional energy calculations provided in Appendix E)
kBtu = kilo-British thermal unit; KWh = kilowatt-hour

Although the Project would result in an increase in overall electrical usage compared to existing conditions due to the proposed GWTP, no new major infrastructure (i.e., new energy sources) would be required and no new electrical connections would be constructed. The addition of electric vehicle charging stations would increase electrical usage while reducing the need for fuels used during commuting such as gasoline and diesel. According to the Department of Energy, electric vehicles convert over 77 percent of the electrical energy from the grid to power at the wheels while conventional gasoline vehicles only convert about 12 to 30 percent of the energy stored in gasoline to power at the wheels, making electric vehicles roughly 3 to 6 times more efficient (US Department of Energy 2025). In addition, the Project includes the placement of solar panels on the proposed reservoir roofs and solar canopies covering a portion of the parking lot. To be conservative, the solar panels were not included in the Project's energy usage calculations; as such, the solar panels would generate energy to help offset the increased operational energy usage of the of the Project. Further, the Project would be required to meet the mandatory energy standards of CALGreen and the California Energy Code (Title 24, Part 6 of the CCR), which would further minimize inefficient energy usage.

For these reasons, construction and operational energy use would not be considered wasteful or inefficient. There would be a less than significant impact related to wasteful, inefficient, or unnecessary consumption of energy resources during Project construction or operation, and no mitigation is required.

Threshold 4.4b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The purpose of the Open Space and Conservation Element (City of Pasadena 2012) is to develop policies that promote the conservation of energy, air, water, and natural resources to enhance the overall quality of life in Pasadena. In terms of energy, the City seeks to improve energy conservation, expand renewable energy production, and promote sustainability. As discussed previously, the Open Space and Conservation Element also includes a series of implementation measures to achieve these goals and objectives, many of which are restated from existing plans, such as the City's Green Building Ordinance and Green City Program. The City Green Building Ordinance is Municipal Code Sections 14.04.500 through 14.04.511. The ordinance incorporates the 2022 CALGreen and 2022 Building and Energy Efficiency Standards. As an ordinance within the Municipal Code, all projects are required to implement the applicable measures listed. Goals from Pasadena's Green City Action Plan applicable to the project include (1) Energy and (7) Water. Action 3 of the Green City Action Plan calls for the reduction of GHG emissions. By supporting the use of local water supplies in place of more energy intensive imported water, the Project would help reduce Citywide GHG emissions. Action 19 calls for increased adequate access to safe drinking water. A primary objective of the Project is to provide reliable and clean drinking water. Through consistency with the City Green Building Ordinance and Green Action Plan, the Project would also be consistent with the Open Space and Conservation Element.

Implementation of the GWTP would allow the facility to utilize their local groundwater supply, which would reduce reliance on imported water and reduce the substantial amount of energy required to pump imported water to the Sunset Reservoir facilities. The Project would also be consistent with the City's energy goals of increasing conservation, efficiency, and sustainability by providing solar panels to provide energy to the Project and by maintaining source capacity for potable water within the City limits. As such, the proposed Project would not result in any impacts related to obstruction of state or city plans for renewable energy or energy efficiency, and no mitigation is required.

4.4.6 Cumulative Impacts

The geographic area for consideration of cumulative impacts is the City of Pasadena, and cumulative impacts are evaluated based on projected growth. Future development throughout the City would generate additional energy demand and construction and operational fuel energy demand. Future development projects in the City would also need to comply with all applicable local and state energy efficiency and renewable energy regulations. The electrification of the transportation sector is anticipated throughout California and would contribute to reduced fuel energy use related to future development throughout the City. Also, regional (i.e., Southern California Association of Governments) planning documents support a denser land use pattern with a focus on proximity to transit. As discussed above, Project impacts related to energy and energy efficiency would be less than significant. Therefore, the Project's impacts would not be cumulatively considerable and cumulative impacts related to energy would be less than significant.

4.4.7 Mitigation Measures

No mitigation measures related to energy are required.

4.4.8 Level of Significance After Mitigation

The proposed Project would not result in potentially significant cumulative impacts related to energy. Cumulative impacts related to energy would be less than significant with Project implementation.

4.4.9 References

California Air Pollution Control Officers Association (CAPCOA). 2022. User's Guide for CalEEMod Version 2022.1. Available at: http://www.caleemod.com/.

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4.5 Greenhouse Gas Emissions

This section describes the existing conditions of the proposed Project site and vicinity, identifies associated regulatory requirements, evaluates potential environmental impacts, and identifies mitigation measures related to implementation of the proposed Project if necessary. The analysis of the Project impacts related to greenhouse gas (GHG) emissions is based on data presented in **Appendix B**, *AQ/GHG Calculations*, of this EIR.

4.5.1 Methodology

GHG emissions were calculated using CalEEMod, Version 2022.1. CalEEMod is a computer model used to estimate air emissions resulting from land development projects throughout the state of California. CalEEMod was developed by CAPCOA in collaboration with the California air quality management and pollution control districts, primarily the SCAQMD. The calculation methodology, source of emission factors used, and default data is described in the CalEEMod User's Guide, and Appendices A, D, and E (CAPCOA 2021). A discussion of the assumptions and methods used can be found in Section 4.2, Air Quality, of this EIR. The analysis of the Project related GHG emissions is based on data presented in **Appendix B**, *AQ/GHG Calculations*, of this EIR.

4.5.2 Existing Conditions

4.5.2.1 Climate Change Overview

Global climate change refers to changes in average climatic conditions on Earth including temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by atmospheric gases. These gases are commonly referred to as GHGs because they function like a greenhouse by letting sunlight in but preventing heat from escaping, thus warming the Earth's atmosphere.

GHGs are emitted by natural processes and human (anthropogenic) activities. Anthropogenic GHG emissions are primarily associated with: (1) the burning of fossil fuels during motorized transport, electricity generation, natural gas consumption, industrial activity, manufacturing, and other activities; (2) deforestation; (3) agricultural activity; and (4) solid waste decomposition.

The temperature record shows a decades-long trend of warming, with 2020 ranked as tied with 2016 for the warmest year on record since 1880 and with an increase of 1.84 degrees Fahrenheit compared to the 1951-1980 average (National Aeronautics and Space Administration [NASA] 2021). The most recent release announced 2021 ranked as tied with 2018 for the sixth warmest year on record (NASA 2022). GHG emissions from human activities are the most significant driver of observed climate change since the mid-20th century (United Nations Intergovernmental Panel on Climate Change [IPCC] 2013). The IPCC constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. The statistical models show a "high confidence" that temperature increase caused by anthropogenic GHG emissions could be kept to less than two degrees Celsius relative to pre-industrial levels if atmospheric concentrations are stabilized at about 450 parts per million (ppm) carbon dioxide equivalent (CO_2e) by the year 2100 (IPCC 2014).

4.5.2.2 Greenhouse Gases

The GHGs defined under California's Assembly Bill (AB) 32 include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

Carbon Dioxide. CO_2 is the most important and common anthropogenic GHG. CO_2 is an odorless, colorless GHG. Natural sources include the decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungi; evaporation from oceans; and volcanic outgassing. Anthropogenic sources of CO_2 include burning fuels, such as coal, oil, natural gas, and wood. Data from ice cores indicate that CO_2 concentrations remained steady prior to the current period for approximately 10,000 years. The atmospheric CO_2 concentration in 2010 was 390 ppm, 39 percent above the concentration at the start of the Industrial Revolution (approximately 280 ppm in 1750). In January 2022, the CO_2 concentration was 418 ppm, a 49 percent increase since 1750 (National Oceanic and Atmospheric Administration [NOAA] 2022).

Methane. CH_4 is the main component of natural gas used in homes. A natural source of CH_4 is from the decay of organic matter. Geological deposits known as natural gas fields contain methane, which is extracted for fuel. Other sources are from decay of organic material in landfills, fermentation of manure, and cattle digestion.

Nitrous Oxide. N_2O is produced by both natural and human-related sources. N_2O is emitted during agricultural and industrial activities, as well as during the combustion of fossil fuels and solid waste. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic (fatty) acid production, and nitric acid production.

Hydrofluorocarbons. Hydrofluorocarbons are commonly used by federal agencies in a wide variety of applications, including refrigeration, air-conditioning (AC), building insulation, fire extinguishing systems, and aerosols. HFCs have high global warming potential (GWP), raising concern about their impacts as they become increasingly used as replacements for ozone-depleting substances (ODS), and as economic growth spurs demand for new equipment, especially in the refrigeration/AC sector.

Perfluorocarbons. Perfluorocarbons are man-made compounds containing just fluorine and carbon. They are generally colorless, odorless, non-flammable gases at environmental temperatures and for the most part chemically unreactive. PFCs replace chlorofluorocarbons (CFCs) in manufacturing semiconductors. They are also used as solvents in the electronics industry, and as refrigerants of some specialized refrigeration systems.

Sulfur Hexafluoride. SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semi-conductor manufacturing, and as a tracer gas for leak detection.

GHGs have long atmospheric lifetimes that range from one year to several thousand years. Long atmospheric lifetimes allow for GHG emissions to disperse around the globe. Because GHG emissions vary widely in the power of their climatic effects, climate scientists have established GWP as a unit. The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO_2. For example, a gas with a GWP of 10 is 10 times more potent than CO_2 over 100 years. CO_2e is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each

GHG is multiplied by the prevalence of that gas to produce CO_2e. The atmospheric lifetime and GWP of selected GHGs are summarized in Table 4.5-1, *Global Warming Potentials and Atmospheric Lifetimes*.

Historically, GHG emission inventories have been calculated using the GWPs from the IPCC's Second Assessment Report (SAR). In 2007, IPCC updated the GWP values based on the latest science at the time in its Fourth Assessment Report (AR4). The updated GWPs in the IPCC AR4 have begun to be used in recent GHG emissions inventories. In 2013, IPCC again updated the GWP values based on the latest science in its Fifth Assessment Report (AR5) (IPCC 2013). However, United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines for national inventories require the use of GWP values from the AR4. To comply with international reporting standards under the UNFCCC, official emission estimates for California and the U.S. are reported using AR4 GWP values, and statewide and national GHG inventories have not yet updated their GWP values to the AR5 values. Project GHG emissions in this analysis are reported using the AR4 GWP values.

By applying the GWP ratios, project-related CO_2e emissions can be tabulated in metric tons per year. Typically, the GWP ratio corresponding to the warming potential of CO_2 over a 100-year period is used as a baseline.

Table 4.5-1
GLOBAL WARMING POTENTIALS AND ATMOSPHERIC LIFETIMES

Greenhouse Gas	Atmospheric Lifetime (years)	IPCC SAR GWP	IPCC AR4 GWP	IPCC AR5 GWP
Carbon Dioxide (CO_2)	50-200	1	1	1
Methane (CH_4)	12	21	25	28
Nitrous Oxide (N_2O)	114	310	298	265
HFC-134a	14	1,300	1,430	1,300
PFC: Tetrafluoromethane (CF_4)	50,000	6,500	7,390	6,630
PFC: Hexafluoroethane (C_2F_6)	10,000	9,200	12,200	11,100
Sulfur Hexafluoride (SF_6)	3,200	23,900	22,800	23,500

Source: IPCC 2007, 2013
IPCC = Intergovernmental Panel on Climate Change; GWP = global warming potential; HFC = hydrofluorocarbon; PFC = perfluorocarbon

4.5.3 Relevant Plans, Policies, and Ordinances

4.5.3.1 Federal

Federal Clean Air Act

The U.S. Supreme Court ruled on April 2, 2007, in *Massachusetts v. U.S. Environmental Protection Agency* that CO_2 is an air pollutant, as defined under the federal Clean Air Act (CAA), and that the U.S. Environmental Protection Agency (USEPA) has the authority to regulate emissions of GHGs. The USEPA announced that GHGs (including CO_2, CH_4, N_2O, HFC, PFC, and SF_6) threaten the public health and welfare of the American people (USEPA 2025). This action was a prerequisite to finalizing the USEPA's GHG emissions standards for light-duty vehicles, which were jointly proposed by the USEPA and the United States Department of Transportation's National Highway Traffic Safety Administration (NHTSA).

Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards

The USEPA and the NHTSA worked together on developing a national program of regulations to reduce GHG emissions and to improve fuel economy of light-duty vehicles. The USEPA established the first-ever national GHG emissions standards under the CAA, and the NHTSA established Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. On April 1, 2010, the USEPA and NHTSA announced a joint Final Rulemaking that established standards for 2012 through 2016 model year vehicles. This was followed up on October 15, 2012, when the agencies issued a Final Rulemaking with standards for model years 2017 through 2025.

4.5.3.2 State/Regional

California Code of Regulations, Title 24, Part 6

California Code of Regulations (CCR) Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. Energy-efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for space or water heating) results in GHG emissions.

The Title 24 standards are updated approximately every three years to allow consideration and possible incorporation of new energy efficiency technologies and methods. The 2022 Title 24 standards went into effect on January 1, 2023. The 2022 update to the Building Energy Efficiency Standards encourages efficient electric heat pumps, establishes electric-ready requirements for new homes, expands solar photovoltaic and battery storage standards, and more (California Energy Commission [CEC] 2022).

The standards are divided into three basic sets. First, there is a basic set of mandatory requirements that apply to all buildings. Second, there is a set of performance standards—the energy budgets—that vary by climate zone (of which there are 16 in California) and building type; thus, the standards are tailored to local conditions. Finally, the third set constitutes an alternative to the performance standards, which is a set of prescriptive packages that are basically a recipe or a checklist compliance approach.

California Green Building Standards Code

The California Green Building Standards Code (CALGreen; CCR Title 24, Part 11) is a code with mandatory requirements for all nonresidential buildings (including industrial buildings) and residential buildings for which no other state agency has authority to adopt green building standards. The current 2022 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings went into effect on January 1, 2023 (California Building Standards Commission [CBSC] 2022).

The development of CALGreen is intended to: (1) cause a reduction in GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, the code is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impact during and after construction.

CALGreen contains requirements for storm water control during construction; construction waste reduction; indoor water use reduction; material selection; natural resource conservation; site irrigation

conservation; and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for the verification that all building systems, like heating and cooling equipment and lighting systems, are functioning at their maximum efficiency.

Executive Order S-3-05

On June 1, 2005, Executive Order (EO) S-3-05 proclaimed that California is vulnerable to climate change impacts. It declared that increased temperatures could reduce snowpack in the Sierra Nevada, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To avoid or reduce climate change impacts, EO S-3-05 calls for a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

Assembly Bill 32 – Global Warming Solution Act of 2006

The California Global Warming Solutions Act of 2006, widely known as Assembly Bill (AB) 32, requires that California Air Resources Board (CARB) develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is directed by AB 32 to set a GHG emission limit, based on 1990 levels, to be achieved by 2020. The bill requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG emission reductions.

Executive Order B-30-15

On April 29, 2015, EO B-30-15 established a California GHG emission reduction target of 40 percent below 1990 levels by 2030. The EO aligns California's GHG emission reduction targets with those of leading international governments, including the 28 nation European Union. California is on track to meet or exceed the target of reducing GHGs emissions to 1990 levels by 2020, as established in AB 32. California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the goal established by EO S-3-05 of reducing emissions 80 percent under 1990 levels by 2050.

Senate Bill 32

Senate Bill (SB) 32 (Amendments to the California Global Warming Solutions Action of 2006) extends California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EO B-30-15 of 80 percent below 1990 emissions levels by 2050.

Assembly Bill 197

A condition of approval for SB 32 was the passage of AB 197. AB 197 requires that CARB consider the social costs of GHG emissions and prioritize direct reductions in GHG emissions at mobile sources and large stationary sources. AB 197 also gives the California legislature more oversight over CARB through the addition of two legislatively appointed members to the CARB Board and the establishment a legislative committee to make recommendations about CARB programs to the legislature.

Assembly Bill 1493 – Vehicular Emissions of Greenhouse Gases

AB 1493 (Pavley) requires that CARB develop and adopt regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State." On September 24, 2009, CARB adopted amendments to the Pavley regulations that intend to reduce GHG emissions in new passenger vehicles from 2009 through 2016. The amendments bind California's enforcement of AB 1493 (starting in 2009), while providing vehicle manufacturers with new compliance flexibility. In January 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single packet of standards called Advanced Clean Cars (CARB 2021).

Assembly Bill 341

The state legislature enacted AB 341 (California Public Resource Code Section 42649.2), increasing the diversion target to 75 percent statewide. AB 341 requires all businesses and public entities that generate 4 cubic yards or more of waste per week to have a recycling program in place. The final regulation was approved by the Office of Administrative Law on May 7, 2012 and went into effect on July 1, 2012.

Executive Order S-01-07

This EO, signed by Governor Schwarzenegger on January 18, 2007, directs that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by the year 2020. It orders that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established for California and directs CARB to determine whether a LCFS can be adopted as a discrete early action measure pursuant to AB 32. CARB approved the LCFS as a discrete early action item with a regulation adopted and implemented in April 2010. Although challenged in 2011, the Ninth Circuit reversed the District Court's opinion and rejected arguments that implementing LCFS violates the interstate commerce clause in September 2013. CARB is therefore continuing to implement the LCFS statewide.

Renewables Portfolio Standard

California's Renewable Portfolio Standard (RPS) program was established in 2002 by SB 1078 with the initial requirement that 20 percent of electricity retail sales must be served by renewable resources by 2017. This was accelerated in 2006 with the signing of SB 107 requiring 20 percent of electricity retail sales come from renewable resources by the end of 2010. Approved by Governor Brown on April 12, 2011, SBX1-2 increases California's renewable requirement to 33 percent by the end of 2020. On October 7, 2015, Governor Brown signed SB 350 increasing California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. Approved by Governor Brown on September 10, 2018, SB 100 extends the renewable electricity procurement goals and requirements of SB 350. SB 100 requires that all retail sale of electricity to California end-use customers be procured from 100 percent eligible renewable energy resources and zero-carbon resources by the end of 2045. On September 16, 2022, Governor Newsom signed SB 1020 increasing California's renewable electricity procurement goal to 90 percent by 2035 and 95 percent by 2040 to help achieve the target set by SB 100. This will increase the use of RPS eligible resources, including solar, wind, biomass, and geothermal. In addition, large utilities are required to develop and submit Integrated Resource Plans to detail how

each entity will meet their customers resource needs, reduce GHG emissions, and increase the use of clean energy.

Senate Bill 375

SB 375, the Sustainable Communities and Climate Protection Act of 2008, supports the State's climate action goals to reduce GHG emissions through coordinated transportation and land use planning with the goal of more sustainable communities.

Under the Sustainable Communities Act, CARB sets regional targets for GHG emissions reductions from passenger vehicle use. CARB established these targets for 2020 and 2035 for each region covered by one of the State's metropolitan planning organizations (MPOs). CARB periodically reviews and updates the targets, as needed, with the latest updates to the targets occurring at the March 22, 2018 Board hearing.

Each of California's MPOs must prepare a Sustainable Communities Strategy (SCS) as an integral part of its regional transportation plan (RTP). The SCS contains land use, housing, and transportation strategies that, if implemented, would allow the region to meet its GHG emission reduction targets. Once adopted by the MPO, the RTP/SCS guides the transportation policies and investments for the region. CARB must review the adopted SCS to confirm and accept the MPO's determination that the SCS, if implemented, would meet the regional GHG targets. If the combination of measures in the SCS would not meet the regional targets, the MPO must prepare a separate alternative planning strategy (APS) to meet the targets. The APS is not a part of the RTP. Qualified projects consistent with an approved SCS or Alternative Planning Strategy categorized as "transit priority projects" would receive incentives to streamline CEQA processing.

California Air Resources Board: Scoping Plan

The Scoping Plan is a strategy CARB develops and updates at least every five years, as required by AB 32. It lays out the transformations needed across our society and economy to reduce emissions and reach our climate targets. The current 2022 Scoping Plan is the third update to the original plan that was adopted in 2008. The initial 2008 Scoping Plan laid out a path to achieve the AB 32 mandate of returning to 1990 levels of GHG emissions by 2020, a reduction of approximately 15 percent below business as usual. The 2008 Scoping Plan included a mix of incentives, regulations, and carbon pricing, laying out the portfolio approach to addressing climate change and clearly making the case for using multiple tools to meet California's GHG targets. The 2013 Scoping Plan assessed progress toward achieving the 2020 mandate and made the case for addressing short-lived climate pollutants (SLCPs). The 2017 Scoping Plan also assessed the progress toward achieving the 2020 limit and provided a technologically feasible and cost-effective path to achieving the SB 32 mandate of reducing GHGs by at least 40 percent below 1990 levels by 2030. On December 15, 2022, CARB approved the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan). The 2022 Scoping Plan lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by Assembly Bill 1279. The actions and outcomes in the plan will achieve significant reductions in fossil fuel combustion by deploying clean technologies and fuels; further reductions in SLCPs; support for sustainable development; increased action on natural and working lands to reduce emissions and sequester carbon; and the capture and storage of carbon (CARB 2022).

Regional Transportation Plan/Sustainable Communities Strategy

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SCAG serves as the federally designated metropolitan planning organization for the Southern California region and is the largest metropolitan planning organization in the United States.

With respect to air quality planning and other regional issues, SCAG has prepared the Final 2008 Regional Comprehensive Plan: Helping Communities Achieve a Sustainable Future (2008 RCP) for the region (SCAG 2008). The 2008 RCP sets the policy context in which SCAG participates in and responds to the SCAQMD air quality plans and builds off the SCAMQD AQMP processes that are designed to meet health-based criteria pollutant standards in several ways (SCAG 2008). First, it complements AQMPs by providing guidance and incentives for public agencies to consider best practices that support the technology-based control measures in AQMPs. Second, the 2008 RCP emphasizes the need for local initiatives that can reduce the region's GHG emissions that contribute to climate change, an issue that is largely outside the focus of local attainment plans, which it assessed in Section 3 of the plan. Third, the 2008 RCP emphasizes the need for better coordination of land use and transportation planning, which heavily influences the emissions inventory from the transportation sectors of the economy. This also minimizes land use conflicts, such as residential development near freeways, industrial areas, or other sources of air pollution.

On April 7, 2016, SCAG's Regional Council adopted the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS). The 2016 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. The 2016 RTP/SCS charts a course for closely integrating land use and transportation so that the region can grow smartly and sustainably. The 2016 RTP/SCS was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, nonprofit organizations, businesses, and local stakeholders within the Counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. In June 2016, SCAG received its conformity determination from the Federal Highway Administration and the Federal Transit Administration indicating that all air quality conformity requirements for the 2016 RTP/SCS and associated 2015 Federal Transportation Improvement Program Consistency Amendment through Amendment 15-12 have been met (SCAG 2016).

On September 3, 2020, SCAG's Regional Council adopted the 2020-2045 RTP/SCS. The 2020-2045 RTP/SCS was determined to conform to the federally mandated state implementation plan (SIP), for the attainment and maintenance of NAAQS standards. On October 30, 2020, CARB also accepted SCAG's determination that the SCS met the applicable state greenhouse gas emissions targets. SCAQMD's 2022 AQMP applies the updated SCAG growth forecasts assumed in the newly adopted 2020-2045 RTP/SCS.

4.5.3.3 Local

City of Pasadena Climate Action Plan

The City's Final Climate Action Plan (CAP) was adopted on March 5, 2018 (City of Pasadena 2018). The City's CAP quantifies existing GHG emissions as well as projected emissions for the years 2020, 2030, 2035 and 2050 resulting from activities within the City's jurisdiction. The CAP also identifies City target

emissions levels, below which Citywide GHG impacts would be less than significant. The CAP and the accompanying adopted Initial Study/Negative Declaration (IS/ND) also identify and analyze the GHG emissions that would result from the business-as-usual scenario for the years 2020, 2030, 2035 and 2050. The CAP includes a monitoring and reporting program to ensure its progress toward achieving the specified GHG emissions reductions, and specifies 21 measures that, if implemented, would achieve the specified GHG emissions reductions targets. The CAP was adopted in a public process following adoption of the IS/ND. Subsequent to the adoption of the CAP, the City has also established additional specific measures that if implemented on a project-by-project basis, would further ensure that the City as a whole achieves the specified GHG emissions reduction targets in the CAP (City of Pasadena 2018).

City of Pasadena Climate Emergency Resolution

At their January 30, 2023, meeting, the Pasadena City Council adopted a resolution to declare a climate emergency and set a policy goal to source 100 percent of Pasadena's electricity from carbon free sources by the end of 2030. This puts the City on a path to achieve 100 percent renewable energy before the State's target date of 2045 set by SB 100.

4.5.4 Thresholds of Significance

The significance criteria used to evaluate the Project impacts related to GHG emissions are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to GHG emissions would occur if the project would:

a) Generate GHG 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 GHGs.

The City's CAP is a qualified GHG reduction plan consistent with CEQA Guidelines Section 15183.5. Projects consistent with an applicable local qualified GHG reduction plan are eligible for streamlined GHG analysis. Projects within the City which are consistent with the City's CAP would be consistent with statewide GHG reduction goals for 2020 (per AB 32) and 2030 (per SB 32) and would demonstrate progress towards the 2050 GHG reduction goal established by EO S-3-05 (City of Pasadena 2018), and therefore, would not cause a significant impact related to GHG emissions.

4.5.5 Environmental Impacts Analysis

Threshold 4.5a. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Threshold 4.5b. Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

4.5.5.1 Greenhouse Gas Emissions

The Project would generate GHG emissions during construction and operation. CEQA Guidelines Section 15064.4(a) states that a lead agency shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting

from a project. Therefore, GHG emissions are estimated using the methods described in Section 4.5.1, above, and are provided below for informational purposes.

Construction

Construction GHG emissions are generated by vehicle engine exhaust from construction equipment, on-road hauling trucks, and worker commuting trips. Construction GHG emissions were calculated by using CalEEMod Version 2022.1. The results are output in $MTCO_2e$ for each year of construction.

GHG emissions generated from construction activities are finite and occur for a relatively short period. Unlike the numerous opportunities available to reduce a project's long-term GHG emissions through design features, operational restrictions, use of green-building materials, or other methods, GHG-reduction measures for construction equipment are relatively limited. Therefore, SCAQMD staff recommends that construction emissions be amortized over a 30-year project lifetime so that GHG-reduction measures will address construction GHG emissions as part of the operational GHG-reduction strategies. Additionally, per the City's CAP, the City also recommends amortization of construction emissions over 30 years. As shown in Table 4.5-2, *Construction GHG Emissions*, the 30-year amortized construction emissions of the Project would be 57.3 $MTCO_2e$/yr.

Table 4.5-2
Construction GHG Emissions

Year	Emissions ($MTCO_2e$)
2026	600.2
2027	838.6
2028	279.1
Total Construction Emissions	**1,717.9**
Amortized Emissions[1]	*57.3*

Source: CalEEMod (output data is provided in Appendix B).
[1] Combined total amortized over 30 years.
$MTCO_2e$: metric tons of carbon dioxide equivalent

Operation

During operations, area and indirect emissions sources associated with the proposed Project would primarily result from energy sources, specifically the use of electricity. Stationary source emissions would result from the addition of two new backup emergency generators. Energy source emissions would result from the replacement of pumps currently not in operation at the Garfield and Bangham Wells. Additionally, the Project involves replacement of the two existing reservoirs with two new reservoirs and associated structures. Operation of such structures would generate GHG emissions similar to existing conditions. The only new structure proposed by the Project is the GWTP; therefore, CalEEMod was used to estimate operational GHG emissions associated with the testing of the new emergency generators, operation of the well pumps, and operation of the GWTP only. Operation of the GWTP is not anticipated to increase operational employee trips. Operational GHG emissions were estimated using CalEEMod Version 2022.1 and are shown in Table 4.5-3, *Operational GHG Emissions*. As shown in Table 4.5-3, the total estimated GHG emissions associated with operations would be 174.2 $MTCO_2e$. The solar panels that would be placed on the proposed reservoir roofs and the parking lot solar canopies along with the electric vehicle charging stations were not included in the GHG emissions

modeling for the Project. However, the solar panels would offset operational GHG emissions beyond the levels identified in the Project GHG modeling, and though the addition of electric vehicle charging stations would increase electrical usage they would reduce the need for fuels, such as gasoline and diesel, used during commuting. According to the Department of Energy, electric vehicles convert over 77 percent of the electrical energy from the grid to power at the wheels while conventional gasoline vehicles only convert about 12 to 30 percent of the energy stored in gasoline to power at the wheels, making electric vehicles roughly 3 to 6 times more efficient (US Department of Energy 2025). Thus, operational GHG emissions modeling is conservative because it does not incorporate the offset GHG emissions that would result from solar panel and electric vehicle charging usage for the Project. As stated above, the construction period GHG emissions were amortized over 30 years to be added to operational emissions. Averaged over 30 years, the proposed construction activities would contribute approximately 57.3 $MTCO_2e$ emissions per year. Combined with operational emissions, there would be a total of 231.5 $MTCO_2e$ emissions per year.

Table 4.5-3
GWTP Operational GHG Emissions

Emission Sources	Emissions ($MTCO_2e$)
Area	0.1
Energy	166.0
Water	2.5
Solid Waste	2.7
Refrigerants	0.3
Emergency Generators	2.5
Operational Subtotal	**174.2**
Construction (Annualized over 30 years)	*57.3*
Total GWTP Operational Emissions	**231.5**
SCAQMD Industrial Threshold	*10,000*
Exceed Threshold?	***No***

Source: CalEEMod (output data is provided in Appendix B).
$MTCO_2e$: metric tons of carbon dioxide equivalent

Although not quantified, the proposed Project would further reduce the City's reliance upon purchased imported water supplies from the Metropolitan Water District of Southern California (MWD). The Pasadena Department of Water and Power (PWP) currently imports approximately 65 percent of its potable water for the City and portions of unincorporated Los Angeles County from MWD as a member agency. MWD imports water from the Sacramento-San Joaquin Delta via the State Water Project and from the Colorado River via the Colorado River Aqueduct. The remaining approximately 35 percent of the City's potable water is supplied from Raymond Groundwater Basin aquifer (PWP 2020). A minimal, varying portion of potable water is purchased from neighboring water agencies, which includes a combination of surface and groundwater. The overall intent of the Project is to replace the aging Sunset Reservoir with new facilities that include treatment infrastructure to maximize water storage and the production of groundwater. By providing a local source for potable water, the Project would reduce reliance on imported water, thereby reducing GHG emissions associated with having to pump water from across the State for consumption.

4.5.5.2 Consistency with the City's CAP

As discussed in Section 4.5.4, the City of Pasadena evaluates GHG significance based on a project's consistency with the City's CAP. The Project is proposing to replace and upgrade existing infrastructure resulting primarily in construction-based emissions. As a result, none of the options identified in the CAP Consistency Checklist, which is intended for use by development projects (e.g., residential, mixed-use, and commercial projects), apply to the Project. This analysis evaluates the Project's consistency with the CAP based on consistency with the CAP's climate strategies and measures. The CAP identifies five climate strategies to reduce the City's GHG emissions: Energy Efficiency and Conservation; Sustainable Mobility and Land Use; Solid Waste Reduction; Water Conservation; and Urban Greening. Each of the climate strategies identified in the CAP contain a series of measures that define the direction that the community and the City will take to accomplish its emissions reduction goals for the years 2020, 2030, and 2035. In total, the CAP contains 27 measures. Table 4.5-4, *Project Consistency with CAP Measures*, outlines each of the CAP's 27 measures along with the Project's consistency with them.

Table 4.5-4
Project Consistency with CAP Measures

CAP Measure	Project Compliance
Measure T-1: Walking and Bicycling	Not Applicable. The Project would not inhibit the City from expanding and improving the walking and cycling network.
Measure T-2: Public Transit	Not Applicable. The Project would not inhibit the City from providing safe, reliable, and seamless transit service.
Measure T-3: Transportation Demand Management	Not Applicable. The Project would not inhibit the City from improving the transportation system.
Measure T-4: Alternative Fuel Vehicles	Consistent. The Project would provide 50 Level 2 electric vehicle charging stations and three Level 3 fast charging stations in the parking lot of the Sunset Complex site.
Measure T-5: Transit-Oriented Development	Not Applicable. The Project would not inhibit the City from facilitating high-density, mixed-use, transit-oriented and infill development.
Measure T-6: Construction Vehicles	Consistent. The Project would implement this measure through: 1) limiting equipment idling; and 2) encouraging the use of electrically powered or alternatively fueled construction equipment/vehicles.
Measure T-7: Lawn and Garden Equipment	Not Applicable. The Project would not inhibit the City from reducing GHG emissions from lawn and garden equipment.
Measure E-1: Building Performance Standards for New Construction	Consistent. The Project's buildings would meet the latest Title 24 standards.
Measure E-2: Energy Retrofits of Existing Buildings	Consistent. The overall intent of the Project is to replace aging and deficient water storage and incorporate treatment infrastructure to ensure that the City can continue to provide reliable and clean drinking water.

CAP Measure	Project Compliance
Measure E-3: Municipal Operations	Not Applicable. The Project would not inhibit the City from increasing municipal energy conservation efforts.
Measure E-4: Residential and Commercial Carbon-Neutral Energy	Not Applicable. The Project would not inhibit the City from encouraging and/or supporting carbon-neutral technologies in residential and commercial development.
Measure E-5: City's Energy Portfolio	Consistent. The Project includes the placement of solar panels on the reservoir roofs and solar canopies over a portion of the Project's surface parking lot, providing new sources of renewable energy for City use.
Measure WC-1: Potable Water	Consistent. As detailed on Sheet L-004 of the 74 percent design submittal, the Project's irrigation design reflects compliance with the City's adopted water efficient landscape ordinance.
Measure WC-2: Non-Potable (Recycled) Water	Not Applicable. The Project would not inhibit the City from increasing access to non-potable water.
Measure WC-3: Storm Water	Not Applicable. The Project would not inhibit the City from improving storm water systems.
Measure WR-1: Solid Waste	Consistent. Section 8.61.175 of the Pasadena Municipal Code requires that each solid waste franchisee meet a minimum recycling diversion rate of 75 percent for construction and demolition debris. The proposed Project would be required to comply with the solid waste franchisee's recycling requirements and therefore would meet local and state solid waste diversion regulations. In addition, the Project would be required to prepare a Construction Waste Management Plan (required for new structures over 1,000 square feet) to comply with the City's Construction and Demolition Ordinance (Section 8.62 of the Municipal Code).
Measure WR-2: Reuse and Recycle	Not Applicable. The Project would not inhibit the City from creating an internal program for all City departments to recirculate unwanted goods.
Measure WR-3: Composting and Food Recycling	Not Applicable. The Project would not inhibit the City from implementing a city-wide composing program.
Measure WR-4: Waste Collection System	Not Applicable. The Project would not inhibit the City from reducing GHG impacts of the waste collection system.
Measure UG-1: Greenspace	Not Applicable. The Project would not inhibit the City from preserving greenspace throughout the City.

CAP Measure	Project Compliance
Measure UG-2: Urban Forest	Consistent. The Sunset Reservoir Tree Protection Assessment provides tree pruning and protection recommendations to protect existing trees. Additionally, the landscape plan calls for the installation of 9 new trees and over 350 new screening and parkway shrubs.

Source: City of Pasadena 2018

As shown in Table 4.5-4, the Project would be consistent with all applicable measures within the CAP. Therefore, the Project would be consistent with the City's CAP.

Consistency with CARB's Scoping Plan

The CARB Scoping Plan, approved in 2008 and updated in 2014, 2017, and 2022, provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. The Scoping Plan is not directly applicable to individual projects, nor is it intended to be used for project-level evaluations (CNRA 2009). Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy use, high-GWP GHGs in consumer products) and changes to the vehicle fleet (e.g., Low Carbon Fuel Standard), among others. The proposed Project would not conflict with implementation of the measures identified in the Scoping Plan.

Consistency with SCAG RTP/SCS

SCAG's 2020-2045 RTP/SCS is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. It charts a path toward a more mobile, sustainable, and prosperous region by making connections between transportation networks, between planning strategies, and between the people whose collaboration can improve the quality of life for Southern Californians. Because the Project is not growth inducing, this type of consistency analysis does not apply. However, the major goals of the 2020-2045 RTP/SCS are outlined in Table 4.5-5, *Project Consistency with the SCAG RTP/SCS*, along with the Project's consistency with them.

Table 4.5-5
Project Consistency with the SCAG RTP/SCS

RTP/SCS Measure	Project Compliance
Encourage regional economic prosperity and global competitiveness.	Not Applicable. The Project would not inhibit SCAG from encouraging regional economic prosperity and global competitiveness.
Improve mobility, accessibility, reliability, and travel safety for people and goods.	Not Applicable. The Project would not inhibit SCAG from strengthening the regional transportation network for goods movement.

RTP/SCS Measure	Project Compliance
Enhance the preservation, security, and resilience of the regional transportation system.	Not Applicable. The Project would not inhibit SCAG from enhancing the resilience of the regional transportation system.
Increase person and goods movement and travel choices within the transportation system.	Not applicable. The Project would not inhibit SCAG from increasing person and goods movement and travel choices within the transportation system.
Reduce greenhouse gas emissions and improve air quality.	Consistent. The Project would result in emissions during construction and operation; however, emissions would not exceed the SCAQMD significance thresholds and would be consistent with the City's CAP. The Project would provide solar panels for energy generation, reducing Project GHG emissions and would also support the use of local water supplies in place of more energy intensive imported water.
Support healthy and equitable communities.	Not applicable. The Project would not inhibit SCAG from supporting healthy and equitable communities.
Adapt to a changing climate and support an integrated regional development pattern and transportation network.	Consistent. The Project would facilitate adaptation to climate change and would allow for increased utilization of the City's local water resources. The Project would reduce reliance upon imported water supplies from the MWD.
Leverage new transportation technologies and data-driven solutions that result in more efficient travel.	Not applicable. The Project would not inhibit SCAG from leveraging technology for the transportation system.
Encourage development of diverse housing types in areas that are supported by multiple transportation options.	Not applicable. The Project would not inhibit SCAG from encouraging development of diverse housing types.
Promote conservation of natural and agricultural lands and restoration of habitats.	Not applicable. The Project would not inhibit SCAG from promoting conservation and restoration of natural lands.

Source: SCAG 2020

As shown in Table 4.5-5, the Project would be consistent with all applicable goals within the SCAG RTP/SCS.

Consistency with Senate Bill 32

The quantitative goal of SB 32 is to reduce GHG emissions to 40 percent below 1990 levels by 2030. Plans and regulations (e.g., GHG emissions standards for vehicles and the Low Carbon Fuel Standard) are being implemented at the statewide level, and are aimed at reducing GHG emissions from major sources, such as transportation exhaust and building energy consumption, rather than replacement of small utility infrastructure elements. The proposed Project would not conflict with or obstruct implementation of SB 32. As demonstrated above, the Project would be consistent with the City's CAP, which was developed for the purpose of meeting statewide GHG emissions targets. Additionally, the Project would include electric vehicle charging stations and solar panels on the reservoir rooftops and

parking lot. The Project would also provide local water to Pasadena residents in place of more energy intensive imported water. Each of these components would result in reduced GHG emissions. Therefore, implementation of the Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. There would be a less than significant impact, and no mitigation is required.

4.5.6 Cumulative Impacts

By nature, GHG impacts are cumulative as they are the result of combined worldwide emissions over many years, and additional development would incrementally contribute to this cumulative impact. GHG emissions associated with past, present, and reasonably foreseeable future projects throughout the region, state, nation, and world are cumulatively significant, as these projects have and will continue to generate GHG emissions. The discussion presented in EIR Section 4.5.5 also serves as the Project's cumulative impact analysis. As detailed in that section, the Project would not generate GHG emissions during construction or operation that would exceed applicable thresholds and would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. As a result, the Project would not result in a cumulatively considerable contribution to impacts related to GHG emissions.

4.5.7 Mitigation Measures

No mitigation measures related to GHG emissions are required.

4.5.8 Level of Significance After Mitigation

The proposed Project would not result in potentially significant impacts related to GHG emissions. Impacts related to GHG emissions would be less than significant with Project implementation.

4.5.9 References

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4.6 Hazards and Hazardous Materials

4.6.1 Methodology

This section describes the existing conditions of the proposed Project site and vicinity, identifies associated regulatory requirements, evaluates potential environmental impacts, and identifies mitigation measures related to implementation of the proposed Project if necessary.

The analysis includes a discussion of applicable federal, state, and local requirements related to the transport, use, storage, and release of hazardous materials; discusses the potential for such materials to be present during Project construction and operation; and describes what impact would occur as a result of the presence of hazardous materials. The analysis discusses the potential for risk of accidental release of hazardous materials during demolition of existing structures, and describes the process for identifying hazardous materials during a pre-demolition survey. For the analysis of the Project's impact on emergency response plans or emergency evacuation plans, the impact analysis considers construction and operational traffic, removal of on-site parking during construction, potential lane closures during construction, and discusses the requirements of the City in regard to traffic control during construction activities.

4.6.2 Existing Conditions

4.6.2.1 Hazardous Materials Usage at the Project Site

Water supplied to PWP from Metropolitan Water District of Southern California (MWD) uses chloramines for disinfection. To match the MWD disinfection strategy, PWP currently produces chloramines by the combination of sodium hypochlorite and aqueous ammonia before storing the treated water in the existing reservoir. The existing chemical system includes a 6,150-gallon polyethylene storage tank for sodium hypochlorite and a 2,344-gallon carbon steel tank for aqueous ammonia. These materials are located at the current Disinfection Facility in the southern portion of the site, near West Mountain Street.

Additional hazardous materials present at the Project site include chemicals for routine maintenance and operation of the facility that are used intermittently and stored and transported on site in limited amounts. These chemicals include cleaning and maintenance chemicals (e.g., paints, solvents, and polishes) and materials used for general maintenance of the grounds (e.g., pesticides/herbicides and fuels used for landscape equipment).

4.6.2.2 Hazardous Materials Sites

According to Geotracker, there are no hazardous materials sites within 1,000 feet of the Project site. There are four hazardous materials sites identified by Geotracker within a one-mile radius of the Project site, consisting of three closed Leaking Underground Storage Tank (LUST) cases, and a Cleanup Program Site that is closed (State Water Resources Control Board 2023).

As discussed in Chapter 1, Introduction, past operations at the nearby National Aeronautics and Space Administration (NASA) Jet Propulsion Laboratory (JPL) have resulted in the release of chemicals of concern (COCs), including volatile organic compounds (VOCs; such as carbon tetrachloride), perchlorate, and 1,2,3-trichloropropane (TCP), among others, into soil, surface water, and groundwater at JPL. JPL is

located approximately two miles northwest of the Project site. Some of these chemicals have migrated off-site and have been detected in groundwater at drinking water supply wells owned and operated by PWP and drinking wells owned and operated by the Lincoln Avenue Water Company (LAWC). In 1992, the JPL was placed on the federal National Priorities List (NPL or Superfund), a list of sites subject to regulation under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and National Contingency Plan (NCP). In 1997, perchlorate was detected in samples from drinking water wells owned and operated by PWP (Monk Hills Wellfield; these wells are not at the Project site) and LAWC, with the advent of a more sensitive laboratory analytical methodology (JPL 2018). Eventually, similar COCs were detected in samples from drinking water wells owned and operated by PWP at the Sunset Wellfield[1] (e.g., VOCs, perchlorate), PWP concluded some, if not all, of this contamination was likely associated with releases at JPL. To arrive at a feasible remedy for the Sunset Wellfield, PWP relied on documents prepared for JPL that both JPL and United States Environmental Protection Agency (USEPA) considered compliant with CERCLA and the NCP. PWP also considered its professional expertise operating the USEPA-approved treatment technologies at Monks Hill Wellfield to inform its streamlined selection of similar appropriate presumptive drinking water treatment technologies and infrastructure to address the COCs at the Sunset Wellfield. The contamination associated with JPL has been the subject of ongoing investigation and cleanup, overseen by regulatory agencies (refer to the discussion in Chapter 1, Introduction, of this EIR for additional background on this topic).

4.6.3 Relevant Plans, Policies, and Ordinances

4.6.3.1 Federal

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980 and provides federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. Federal actions related to CERCLA are limited to sites on the National Priorities List (NPL) for cleanup activities, with NPL listings based on the United States Environmental Protection Agency (USEPA) Hazard Ranking System (HRS). The HRS is a numerical ranking system used to screen potential sites based on criteria such as the likelihood and nature of the hazardous material release, and the potential to affect people or environmental resources. CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986. SARA stressed the importance of permanent remedies and innovative treatment technologies in cleaning up hazardous waste sites; required Superfund actions to consider the standards and requirements found in other state and federal environmental laws and regulations; provided new enforcement authorities and settlement tools; increased state involvement in every phase of the Superfund program; increased the focus on human health problems posed by hazardous waste sites; encouraged greater citizen participation in making decisions on how sites should be cleaned up; and increased the size of the trust fund to $8.5 billion.

[1] Sunset Wellfield, as referenced in the JPL Focused Feasibility Study (JPL 2014) refers to multiple PWP wells, including the Copelin, Villa, Garfield, and Bangham wells. Copelin and Villa wells have been abandoned. Garfield Well has been replaced by Parke Well. Bangham well is located on the Project site.

Resources Conservation and Recovery Act

The federal Resources Conservation and Recovery Act (RCRA) of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984, provides for the management of hazardous wastes from generation to disposal to ensure that it is handled in a manner that protects human health and the environment. Under RCRA, the USEPA has established regulations and procedures for the generation, transportation, storage, and disposal activities of hazardous waste handlers, as well as technical standards for the design and safe operation of treatment, storage, and disposal facilities to minimize the release of hazardous waste into the environment. RCRA's corrective action program is designed to investigate and guide the cleanup of any contaminated air, groundwater, surface water, or soil from hazardous waste management of spills or releases into the environment as a result of the past and present activities at RCRA-regulated facilities.

Hazardous Materials Transportation Act

The U.S. Department of Transportation (USDOT), the Federal Highway Administration (FHWA), and the Federal Railroad Administration are the three entities that regulate the transport of hazardous materials at the federal level. The Hazardous Materials Transportation Act (49 CFR 171, Subchapter C) governs the transportation of hazardous materials. These regulations are promulgated by USDOT and enforced by USEPA.

Toxic Substances Control Act

The Toxic Substances Control Act (TSCA) was enacted in 1976, and requires the USEPA to protect the public from "unreasonable risk of injury to health or the environment" by regulating the manufacture and sale of chemicals. Its three main objectives are: to assess and regulate new commercial chemicals before they enter the market; to regulate chemicals already existing in 1976 that posed an "unreasonable risk to health or to the environment" (for example polychlorinated biphenyls [PCBs], lead, mercury, and radon); and to regulate the distribution and use of these chemicals. This act does not address wastes produced as byproducts of manufacturing. Instead, the TSCA directs government control over which types of chemicals could and could not be used in actual use and production. For example, the use of chlorofluorocarbons in manufacturing is now strictly prohibited in all manufacturing processes in the United States, even if no chlorofluorocarbons are released into the atmosphere as a result.

Occupational Safety and Health Administration (OSHA)

Congress passed the Occupational and Safety Health Act (OSHA) to ensure worker and workplace safety. Their goal was to make sure employers provide their workers a place of employment free from recognized hazards to safety and health, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress, or unsanitary conditions. In order to establish standards for workplace health and safety, the Act also created the National Institute for Occupational Safety and Health (NIOSH) as the research institution for the Occupational Safety and Health Administration (OSHA). OSHA is a division of the U.S. Department of Labor that oversees the administration of the Act and enforces standards in all 50 states. OSHA standards are listed in Title 29 CFR Part 1910.

OSHA's Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) applies to five groups of employers and their employees. This includes any employees who are exposed or potentially exposed to hazardous substances (including hazardous waste) and who are engaged clean-up

operations; corrective actions; voluntary clean-up operations; operations involving hazardous wastes at treatment, storage, and disposal facilities; and emergency response operations.

4.6.3.2 State/Regional

California Code of Regulations

Most state and federal regulations and requirements that apply to generators of hazardous waste are codified in California Code of Regulations (CCR) Title 22, Division 4.5. Title 22 contains detailed compliance requirements for hazardous waste generation, transportation, treatment, storage, and disposal facilities. Because California is a fully authorized state under RCRA, most RCRA regulations are integrated into Title 22. The California Environmental Protection Agency (CalEPA)/California Department of Toxic Substances Control (DTSC) regulates hazardous waste more stringently than the USEPA through Title 22, which does not include as many exemptions or exclusions as the equivalent federal regulations. Title 22 also regulates a wider range of waste types and waste management activities than RCRA. The State has compiled a number of additional regulations from various CCR titles related to hazardous materials, wastes, and toxics into CCR Title 26 (Toxics), and provides additional related guidance in Titles 23 (Waters) and 27 (Environmental Protection), although California hazardous waste regulations are still commonly referred to as Title 22.

Additionally, CCR Title 8, Division 1, Chapter 4, Subchapter 4 regulates exposure to asbestos (Section 1529) and lead-based paint (Section 1532.1) during construction work.

Hazardous Material Release Response Plans and Inventory Act

The Hazardous Materials Release Response Plans and Inventory Act requires facilities that handle hazardous materials in amounts above threshold quantities to establish and implement hazardous materials business plans. Pursuant to California Health and Safety Code Section 25504, hazardous materials business plans must contain a hazardous materials inventory disclosing the type, quantity, use, location, and health risks of every hazardous substance, chemical product, and waste handled by the facility; emergency response plans and procedures in the event of a reportable release or threatened release of a hazardous material; and provisions for employee training in safety procedures.

Emergency Response to Hazardous Materials Incidents

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local governments and private agencies. Response to hazardous material incidents is one part of this plan. The plan is managed by the California Emergency Management Agency, which coordinates the responses of other agencies, including CalEPA, the California Highway Patrol, California Department of Fish and Wildlife, and Regional Water Quality Control Board.

California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (CalOSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR §§337-340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

4.6.3.3 Local

Certified Unified Program Agency

A Certified Unified Program Agency (CUPA) is a local agency certified by the California Environmental Protection Agency to implement and enforce six state hazardous waste and hazardous materials regulatory management programs. The Los Angeles County Fire Department (LACFD) is the CUPA for much of Los Angeles County. However, the Pasadena Fire Department (PFD) is designated as a participating agency and is authorized to implement one or more of the program elements within their jurisdiction (County of Los Angeles 2023). The LACFD and PFD administer the following programs:

- Hazardous Materials Release Response and Inventory Program;
- California Accidental Release Prevention Program (CalARP), a combination of federal and state programs for the prevention of accidental release of regulated toxic and flammable substances;
- Underground Storage Tanks (UST) Program;
- Aboveground Storage Tanks (AST) Program; and
- Hazardous Waste Generator Program.

City of Pasadena General Plan Safety Element

The Safety Element of the City of Pasadena's Comprehensive General Plan outlines goals, policies, and programs designed to help the City plan for emergency response, disaster preparedness, and recovery. It also helps minimize the potential for hazardous contamination. Goal H-1 of the Safety Element and its associated policies for Hazardous Materials that are relevant to the proposed Project are detailed below.

Goal H-1. Reduce the potential for hazardous contamination in the City.

- **H-1.3:** New proposed facilities involved in the production, use, storage, transport or disposal of hazardous materials will be located at a safe distance from land uses that may be adversely affected by such facilities. Conversely, new sensitive facilities shall not be allowed to be located near existing sites that use, store, or generate hazardous materials.
- **H-1.4:** The City shall assure the continued response to and capability of handling hazardous materials incidents in the City and along the sections of freeways that extend across the City.
- **H-1.5:** The City will continue to encourage residents and businesses to reduce or eliminate the use of hazardous materials.

City of Pasadena Municipal Code

Chapter 8.80, *Handling and Disclosure of Hazardous Materials*, contains requirements for facilities that use, handle, store, treat, dispose of, or generate hazard materials. Such facilities are required to establish hazardous waste management programs, regardless of the quantity of hazardous materials handled by the facility. Hazardous materials tracking and reporting requirements are administered by the City's Fire Department.

4.6.4 Thresholds of Significance

The significance criteria used to evaluate the Project impacts related to hazards and hazardous materials are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to hazards and hazardous materials would occur if the project would:

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

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?

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?

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?

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 or excessive noise for people residing or working in the project area?

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

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Through the analysis in the IS/NOP (see Appendix A of this EIR), it was determined that the proposed Project would not result in impacts associated with handling hazardous material within ¼ mile of a school (i.e., Threshold c), being located on a hazardous materials site (i.e., Threshold d), airport safety hazards (i.e., Threshold e), or wildfire hazards (i.e., Threshold g). Accordingly, these issues are not further analyzed in the EIR. While the IS/NOP also identified the impacts associated with remaining thresholds (Thresholds a, b, and f) as less than significant, additional information has been made available since the IS/NOP was prepared and therefore these issues are included in this EIR section. Based on the remaining thresholds, a significant impact related to hazards and hazardous materials would occur if the Project would:

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

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?

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

4.6.5 Environmental Impacts Analysis

Threshold 4.6a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Materials and waste are generally considered hazardous if they are poisonous (toxicity), can be ignited by open flame (ignitability), corrode other materials (corrosivity), or react violently, explode, or generate vapors when mixed with water (reactivity). The term "hazardous material" is defined in the State Health and Safety Code (Chapter 6.95, Section 25501[o]) as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment. Hazardous waste is defined as any hazardous material that is abandoned, discarded, or recycled, as defined in the State Health and Safety Code (Chapter 6.95, Section 25125). The transportation, use, and disposal of hazardous materials, as well as the potential releases of hazardous materials to the environment, are closely regulated through many state and federal laws.

The Project would comply with all federal, state, and local requirements related to the transport, use, storage, and release of hazardous materials during construction and operation. These include, but are not limited to, regulations set forth by the USEPA; USDOT (CFR Title 49, Hazardous Materials Transportation Act; and Title 40 261.31, 261.21, and 261.24); CERCLA (40 CFR parts 300, 311, 355, 370, and 373); RCRA (40 CFR parts 240-299); Toxic Substances Control Act (40 CFR parts 745, 761 and 763); DTSC; and CalOSHA.

Construction

During the Project construction period, hazardous substances typical of construction activities would be used to maintain and operate construction equipment (such as fuel, lubricants, adhesives, and solvents). These substances would be present at the Project site during construction activities. The use of these materials could potentially result in significant impacts through accidental discharge associated with use and storage of hazardous materials. The transport, use, and disposal of hazardous materials and/or wastes would be conducted in accordance with applicable federal and state laws. In addition, implementation of the proposed Project would require conformance with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit. Specifically, this would entail implementation of a Stormwater Pollution Prevention Plan (SWPPP) to address the use of hazardous materials during construction and the potential discharge of contaminants including construction-related hazardous wastes through the installation of appropriate best management practices (BMPs). While specific BMPs would be determined during the SWPPP process, the suite of BMPs would include standard industry measures and guidelines contained in the NPDES Construction Permit text and Stormwater Best Management Practices Construction Handbook (California Stormwater Quality Association [CASQA] 2019). Based on implementation of appropriate BMPs to provide conformance with the NPDES Construction General Permit and compliance with existing regulations, potential impacts associated with construction related hazardous materials would be less than significant.

Operation

PWP currently produces chloramines by the combination of sodium hypochlorite and aqueous ammonia before storing the treated water in the existing reservoir. Operation of the Project would continue the use of chloramines; however, the relocated Disinfection Facility would use liquid ammonium sulfate instead of aqueous ammonia (as is used in the existing condition). The relocated Disinfection Facility

would continue the use of chloramines through the combination of sodium hypochlorite and liquid ammonium sulfate to treat water for secondary disinfection. The relocated Disinfection Facility proposed for the Project would not require changes to the major components of the existing chemical system currently in use at the Project site. The chemical system would remain unchanged, but the existing equipment would be relocated to the new Disinfection Facility, in the western portion of the Project site, just north of the Proposed Reservoir 2. Due to the hazardous nature of sodium hypochlorite and liquid ammonium sulfate, the chemical storage tanks would be placed in a secondary containment structure, sized to contain 110 percent of the storage tank volume. The concrete containment structure would be equipped with a sump and level limit controls set to alarm at the detection of liquid in the sump. This would prevent the discharge of incompatible liquids into the same area and allow for rapid response in the case of leaks. Adequate safety provisions would be implemented including stairs in and out of the containment areas, eye wash stations in each containment area, and eye wash stations at the chemical fill connections. Also, a separation wall would be installed between the sodium hypochlorite, aqueous ammonia, and electrical areas. Additionally, diesel fuel would be present and stored at the Project site during long-term operation, for use in the two emergency generators included in the Project.

The transport, use, storage, and disposal of hazardous materials at the Project site during long-term operation would be conducted in accordance with applicable federal, state, and local regulations. Compliance with existing regulations would ensure that the routine transport, use, and disposal of hazardous materials at the Project site would not result in significant impacts. Impacts would be less than significant.

Threshold 4.6b. 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?

As discussed in response to Threshold 4.6a above, the Project would require the use of hazardous materials during construction and long-term operation of the facility; however, existing regulatory requirements are sufficient for minimizing potential impacts associated with the potential for accidental release of these materials at the Project site. As discussed above, hazardous materials used during the operation of the facility would include the use of sodium hypochlorite and liquid ammonium sulfate stored in tanks, which would be placed within a secondary containment structure sized to contain 110 percent of the storage tank volume. In the event of an accidental release of these materials, the secondary containment would contain the materials until a clean-up response is implemented in compliance with regulations. The transport, handling, use, storage, and disposal of hazardous materials at the Project site in compliance with applicable regulations would ensure that hazardous materials present would not create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

The existing reservoirs were constructed in 1888 (Existing Reservoir 1) and 1900 (Existing Reservoir 2). Additional structures proposed for demolition at the site were constructed in 1925 (Sunset Well) and 1934 (A-Basin). Due to the age of the existing structures at the site, there is potential for asbestos-containing materials (ACM) and lead-based paint (LBP) to be present within the existing structures. Additionally, aged wood construction materials at the Project site were coated in creosote, a dark brown oil distilled from coal tar and used as a wood preservative. The potential presence of these materials in existing structures at the Project site, which would be disturbed during Project demolition and could be

released (if such materials are present), would result in a potentially significant impact without mitigation. Therefore, mitigation measures HAZ-1 and HAZ-2 are included to require proper pre-demolition survey for ACM, LBP, and creosote and, if found, proper handling and disposal of such materials.

Threshold 4.6f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Construction

PWP employees that currently park on the Project site would be able to park off-site at the City Yard during construction activities. Thus, employee parking during construction activities would not occur along area roadways and would not contribute to an impediment of an adopted emergency response plan or emergency evacuation plan.

Construction-related traffic for the Project would be temporary and would include worker trips and truck trips carrying equipment and material to and from the Project site. Worker-related truck trips and the delivery of materials, concrete, and export of soils (if necessary) would generate additional traffic. It is anticipated that construction activities would require between 18 and 48 round trips (number of daily worker trips varying based on what construction work is occurring) associated with worker travel to the construction site at the beginning of the work day and departure from the work site at the end of the work day, and up to 15 vendor trips per day. Additionally, export of soil would require 2,700 trips and removal of demolition debris would require 703 trips.

Construction would occur predominantly within the boundaries of the existing Sunset Reservoir Complex; however, construction of pipeline connections to the City's existing water and sewer system would occur within adjacent public street rights-of-way. Construction within public street rights-of-way could result in temporary lane closures along West Mountain Street and a full street closure on Sunset Avenue between Glorieta Street and West Mountain Street. Most of the street construction areas are expected to be less than 20 feet wide within the pavement, sidewalk/parkway, and shoulder areas. Construction activities would limit traffic on the affected street segment to one lane total for traffic, and traffic lanes in each direction would be maintained on West Mountain Street. However, on Sunset Avenue, temporary construction activities would result in full street closure on Sunset Avenue between Glorieta Street and West Mountain Street during daytime construction hours. This closure would be limited to the portion of Sunset Avenue between Glorieta Street and West Mountain Street, where no access to the adjacent residential uses or access to any uses occur (the adjacent residential uses are accessed from Glorieta Street or Poplar Lane via Kirkwood Avenue). During construction of the pipeline on public street rights-of-way, plates would be installed on the streets to cover the construction area at the end of each workday to allow traffic flow and the street would be fully available and open during non-construction hours (i.e., nights and weekends). PWP would notify first responders in advance of the closure of Sunset Avenue. Further, the residential neighborhood east of the Project site can be accessed via Morton Avenue, located approximately 500 feet east of Sunset Avenue, and accessible from West Mountain Street. Morton Avenue provides access to Glorieta Street, Kirkwood Avenue, and the other streets and cul-de-sacs interior to the residential neighborhood to the east of the Project site.

In accordance with standard regulations of the City of Pasadena, and to ensure appropriate traffic controls are implemented, approval of a Construction Staging and Traffic Management Plan (CSTMP) by the City of Pasadena would be included as a Project condition of approval. The CSTMP would require

PWP's construction contractor to address vehicular circulation issues associated with the haul trucks, closure of traffic lanes, parking lanes, parkways, or other public rights-of-way in accordance with the Manual of Uniform Traffic Control Devices (MUTCD). Traffic control measures may include, but are not limited to flag persons, warning signs, lights, barricades and cones to provide safe passage of vehicular (including public transportation vehicles such as buses), bicycle, and pedestrian traffic, and access by emergency responders. In addition, a Utility Excavation permit would be obtained from the City of Pasadena's Department of Public Works for use of other public rights-of-way. Lane closures would be conducted in accordance with the latest edition of the MUTCD. If the public right-of-way occupation requires a diagram that is not included based on the MUTCD, a separate traffic control plan must be submitted as part of the CSTMP to the City of Pasadena's Department of Transportation for approval. Implementation of the CSTMP would ensure construction-related improvements within the public right-of-way do not adversely affect vehicular circulation and access in the area. Circulation during construction, including any lane or street closures, would be approved by the City of Pasadena and included in the CSTMP prior to construction. For these reasons, Project construction, including construction traffic and the temporary closures of lanes, would not impair implementation of or physically interfere with an adopted emergency response plan.

Operation

Operation of the proposed Project would not substantially increase traffic and would not result in a significant increase in operational traffic over existing conditions. Operational trips related to maintenance, deliveries, and employees would be minimal and similar to existing conditions. The Project would have similar functional infrastructure to the existing site, so the level of activity for the new Project is not expected to increase significantly. The Project would provide improvements to existing access points to the Project site, including widening the existing employee entrance along Sunset Avenue and modifying the site entrance along West Mountain Street. The Project would provide a new traffic signal at the reconfigured truck access driveway along the Project's West Mountain Street frontage to provide safe ingress and egress to vehicles accessing the site. Based on the minimal changes in activity (and thus, traffic) associated with the operational phase of the Project, and the proposed improvements to site ingress and egress, the long-term operation of the Project would not impair implementation of or physically interfere with an adopted emergency response plan. Impacts would be less than significant.

4.6.6 Cumulative Impacts

Because the issue of hazards and hazardous materials tends to be site-specific in nature, the cumulative study area includes a list of existing and planned developments within a one-mile radius of the Project site. A one-mile radius is appropriate because that is the standard distance used in regulatory database searches of properties that may generate or store toxic materials. As discussed in Chapter 3, *Project Description*, cumulative projects include all City-initiated Capital Improvement Projects (CIPs) within the City, as well as private land development projects within one mile of the Project site. The CIPs within one mile of the Project site include all of the CIPs listed in Section 3.6.2, except for the Washington Park Community House and Restroom Project and Washington Park Stormwater Capture Project, which are outside of a one-mile radius for the Project. Cumulative private development projects consist of two residential projects. Each of the cumulative projects within a one-mile radius can reasonably be expected to have small quantities of hazardous materials present at their locations during construction activities. These materials would be typical of construction sites and would include fuels, oils, lubricants, etc. Each cumulative project would be required to comply with applicable federal, state, and local

regulations related to the transport, handling, and storage of hazardous materials, including the requirements for spill containment and cleanup procedures. Proper handling and storage of hazardous materials would minimize the potential for accidental spills, while implementation of spill containment and cleanup procedures would prevent significant hazard to the public or the environment in the event of accidental spills. As such, cumulative impacts associated with the routine transport, use and disposal of hazardous materials would be less than significant, and impacts associated with a potential accidental release would be less than significant.

With regard to emergency response and emergency evacuation plans, as discussed above, Project activities would only affect public street rights-of-way during construction activities, but with the implementation of the City's required CSTMP, Project impacts would be less than significant. Cumulative projects in the immediate vicinity of the Project include improvements to Brenner Park, which is located directly across West Mountain Street from the Project site. Brenner Park improvements would include construction of a new concrete playing surface, replacement of light fixtures and drinking fountains, and other improvements. This type of project would not be expected to require lane closures; however, if lane closures are expected, the Brenner Park project would be required to implement a CSTMP, similar to the Project, to ensure impacts would be less than significant. The remaining cumulative projects are located at enough distance that they are not sharing primary access roadways with the Project. For these reasons, there is no potential for the Project to contribute to significant cumulative impacts associated with an adopted emergency response plan or emergency evacuation plan.

4.6.7 Mitigation Measures

The following mitigation measures would be required to reduce potentially significant impacts associated with the potential presence of ACM, LBP, and creosote.

HAZ-1 **Pre-Demolition Surveys.** Prior to demolition and after the reservoirs have been drained, PWP shall retain a qualified professional to perform a pre-demolition survey to identify the potential for potentially hazardous materials to be present The pre-demolition survey shall consist of a review of available reservoir construction information, and a visual inspection of the water reservoirs and any visible connecting appurtenances. The objective of the pre-demolition survey shall be to observe, locate, and evaluate the condition of suspected ACM, LBP, wood construction materials formerly treated with Creosote, and any other identifiable hazardous materials. Sampling and laboratory testing shall be required to confirm suspected hazardous materials. The survey shall provide information that shall be used to implement a removal program prior to initiating demolition activities.

HAZ-2 **Removal and Disposal of Hazardous Materials.** If ACM, LBP, wood construction materials formerly treated with creosote, or other identifiable hazardous materials are discovered during the pre-demolition survey, remediation shall be required prior to demolition of these structures and the construction of the new structures. If the survey identifies hazardous materials, PWP shall retain a qualified professional to prepare and implement a work plan that addresses the specific hazardous materials identified in the survey, and identifies the required removal and disposal activities associated with each material. The plan shall be submitted to the PWP for review and approval prior to the start of removal and disposal activities. The plan shall include the necessary steps for safe removal and disposal of any hazardous materials identified during the pre-demolition survey. The plan shall include recommendations for removal and disposal consistent with regulatory requirements specific to the materials being removed (i.e., LBP, ACM,

or wood construction materials formerly treated with creosote) and in accordance with applicable laws, including Occupational Safety and Health Administration (OSHA) guidelines, to ensure that no hazards to the demolition crew, adjacent residents, or others are created by exposure to hazardous building materials. Following completion of the required removal activities, the qualified professional shall prepare a Summary Report to document the removal activities performed and any variations from their work plan. The Summary Report shall be submitted to the PWP for review and approval prior to the issuance of demolition permits for the existing structures at the Project site. Demolition activities shall adhere to all applicable federal, state, and local requirements related to hazardous materials.

4.6.8 Level of Significance After Mitigation

With adherence to mitigation measures HAZ-1 and HAZ-2, the potential for direct or cumulative impacts associated with hazards and hazardous materials as a result of the Project would be reduced to a less than significant level.

4.6.9 References

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4.7 Noise

4.7.1 Methodology

This section describes the existing conditions of the proposed Project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed Project if necessary. The analysis of the Project impacts related to noise and vibration is based on data presented in **Appendix F-1**, *Construction Noise Modeling Output*, and **Appendix F-2**, *Noise Technical Letter,* of this EIR.

Project construction noise was analyzed using the U.S. Department of Transportation (USDOT) Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM; USDOT 2008), which utilizes estimates of sound levels from standard construction equipment. Modeling of the exterior noise environment for construction traffic was accomplished using USDOT FHWA Traffic Noise Model (TNM) version 2.5. TNM was released in February 2004 by the USDOT and calculates the daytime average hourly L_{EQ} from traffic data (California Department of Transportation [Caltrans] 2004).

Modeling of the operational noise for this Project was accomplished using the Computer Aided Noise Abatement (CadnaA) model version 2022. CadnaA is a program developed by DataKustik™ for predicting noise impacts in a wide variety of conditions. It allows for the input of project-related information, such as noise source data, barriers, structures, and topography to create a detailed model, and uses the methodology from the USDOT FHWA TNM version 2.5 for traffic noise. The CadnaA noise models used in this analysis were developed using Google Earth and site plans provided by the Project architect.

4.7.2 Existing Conditions

4.7.2.1 Noise Terminology

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound, which interferes with normal activities, causes physical harm, or has adverse health effects.

All noise level or sound level values presented herein are expressed in terms of decibels (dB), with A-weighting (dBA) to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol L_{EQ}, with a specified duration. The Community Noise Equivalent Level (CNEL) is a 24-hour average, with an added 5 dBA weighting during the evening hours of 7:00 PM to 10:00 PM, and an added 10 dBA weighting for sound levels during the nighttime hours of 10:00 PM to 7:00 PM. These metrics are used to express noise levels for both measurement and comparison to municipal regulations, as well as for land use guidelines and the enforcement of noise ordinances.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver contribute to the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

The amplitude of pressure waves generated by a sound source determines the loudness of that source. A logarithmic scale is used to describe sound pressure level (SPL) in terms of dBA units. The threshold of hearing for the human ear is about 0 dBA.

Because decibels are logarithmic units, SPL cannot be added or subtracted through simple addition. Under the decibel scale, a doubling of sound energy corresponds to a 3 dBA increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level would be 3 dBA higher than one source under the same conditions.

4.7.2.2 Noise-Sensitive Land Uses

Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise and generally include residences, hospitals, schools, hotels, resorts, libraries, sensitive wildlife habitat, or similar facilities where quiet is an important attribute of the environment. Land uses in which ground-borne vibration could potentially interfere with operations or equipment, such as research, manufacturing, hospitals, and university research operations are considered "vibration-sensitive." The degree of sensitivity depends on the specific equipment that would be affected by the ground-borne vibration. In addition, excessive levels of ground-borne vibration of either a regular or an intermittent nature can result in annoyance to residential uses or schools.

NSLUs in the project vicinity include the single-family residences north of the project site and east of the project across Sunset Avenue (refer to **Exhibit 2-3**, *Existing Sunset Reservoir Facilities*, in Section 2, *Environmental Setting*, of this EIR for an aerial view of the Sunset Complex and surrounding land uses). The nearest single-family residences include those located approximately 80 feet from the Project's eastern boundary and a residence adjacent to the project's northern boundary.

4.7.2.3 Existing Noise Environment

The Project site is located in a developed area and is bordered by residences to the north, Sunset Avenue to the east, West Mountain Street to the south, and City of Pasadena buildings to the west. Surrounding land uses also include Brenner Park to the south, I-210 to the west, Robinson Park Recreation Center to the east, and residential uses to the north, east, and south. Noise within the vicinity of the Project site is currently generated by traffic noise on local roadways and I-210; outdoor recreational activities at Brenner Park and Robinson Park Recreation Center; and typical residential noise (i.e., HVAC units, small landscaping equipment). Ambient noise measurements taken at the Project site indicated that the ambient noise level is approximately 61.5 dBA L_{EQ} (see **Appendix F-2** for further details).

4.7.3 Relevant Plans, Policies, and Ordinances

4.7.3.1 City of Pasadena Municipal Code

Section 9.36.040 – Ambient Noise Level

Section 9.36.040 of the Pasadena Municipal Code defines "ambient noise level" as the measured ambient noise level measured by a sound level meter using A weighting. For specified noise types, the following adjustments shall be made to the measured ambient noise level during daytime (6:00 AM to 11:00 PM) periods:

a. Except for noise emanating from any electrical transformer or gas metering and pressure control equipment existing and installed prior to the effective date of the ordinance codified herein, any steady audible tone: + 5;

b. Repeated impulsive noise: + 5;

c. Noise occurring more than 5 but less than 15 minutes per hour: - 5;

d. Noise occurring more than 1 but less than 5 minutes per hour: - 10;

e. Noise occurring less than 1 minute per hour: -20.

Section 9.36.050 – General Noise Sources

Section 9.36.050 of the Pasadena Municipal Code prohibits the generation of noise that exceeds the ambient noise level at the property line of any property by more than 5 decibels.

Section 9.36.070 – Construction Projects

Section 9.36.070 of the Municipal Code prohibits the operation of construction equipment and construction activity within 500 feet of a residential district except from 7:00 AM to 7:00 PM Monday through Friday, and from 8:00 AM to 5:00 PM on Saturday. Operation of construction equipment is prohibited on Sunday and on defined holidays.

Section 9.36.080 – Construction Equipment

Section 9.36.080 of the City of Pasadena Municipal Code prohibits the operation of powered construction equipment that generates a noise level of 85 dBA when measured within a radius of 100 feet from such equipment.

Section 9.36.090 – Machinery, Equipment, Fans and Air Conditioning

Section 9.36.090 of the Pasadena Municipal Code declares that except for emergency work, no machinery, equipment, pump, fan, air conditioning apparatus or similar mechanical device shall be operated such that the noise level at a property line exceeds the ambient noise level by more than 5 decibels. Emergency work is defined as work made necessary to restore property to a safe condition following a public calamity or work required to protect persons or property from an imminent exposure to danger or work by private or public utilities when restoring utility service.

Section 9.36.170 – Exemptions

Section 9.36.170 of the Pasadena Municipal Code provides circumstances under which other restrictions within Municipal Code Chapter 9.36 do not apply. The exemptions include activities conducted by public agencies or their contractors to resolve emergency conditions or to provide services that are in the best interest of public health, safety, and welfare. Other exemptions are allowed as permitted by the City Manager or a permit/license agreement.

4.7.3.2 City of Pasadena General Plan Noise Element

The following policies outlined in the City's General Plan Noise Element are applicable to the proposed Project:

> **Policy 2b.** The City will encourage site planning and traffic control measures that minimize the effects of traffic noise in residential zones.
>
> **Policy 7c**. The City will encourage construction and landscaping activities that employ techniques to minimize noise.
>
> **Policy 7d**. The City will enforce noise level restrictions contained in the City of Pasadena Noise Regulations (Chapter 9.86 of the Municipal Code), except during federal, State, or local emergencies (such as power generators required for energy emergencies).

4.7.4 Thresholds of Significance

The significance criteria used to evaluate the Project impacts related to noise are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to noise would occur if the project would:

a) Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

b) Result in generation of excessive groundborne vibration or groundborne noise levels.

c) For a project located in the vicinity of a private airstrip or 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?

Through the analysis in the IS/NOP (see Appendix A-2 of this EIR), it was determined that the proposed Project would not result in generation of excessive groundborne vibration or groundborne noise levels (i.e., Threshold b). Additionally, the Project would not expose people residing or working in the Project area to excessive noise levels as a result of the Project being located in the vicinity of a private airstrip or 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 (i.e., Threshold c). Accordingly, these issues are not further analyzed in the EIR. Based on the remaining threshold, a significant impact related to noise would occur if the Project would:

a) Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

The applicable criteria for evaluating potential noise impacts for Threshold 4.7a is provided below.

Threshold a: Temporary or Permanent Noise Level Increase. The Project would have a significant impact on temporary noise increases if construction would occur on Sunday, defined holidays, or outside of the hours of 7:00 AM to 7:00 PM Monday through Friday, and 8:00 AM to 5:00 PM on Saturday. A significant increase in temporary noise would also occur if construction involved the use of equipment that generates a noise level of 85 dBA when measured at 100 feet. Additionally, as noted in Section 4.7.2.1, a doubling of average daily traffic (ADT) would cause a doubling in noise (a 3-dBA increase), which would result in a perceptible increase. A significant impact would occur if Project-related traffic noise would cause the noise levels measured at the property line of a NSLU to increase by 3 dBA CNEL within the "normally unacceptable" or "clearly unacceptable" noise categories as identified in Figure 1 of the Noise Element of the Pasadena General Plan, or a 5 dBA CNEL increase at locations with ambient noise in the normally acceptable or conditionally acceptable noise categories.

The City of Pasadena Municipal Code specifies that, except for emergency work, machinery should not result in noise levels exceeding the ambient noise level by more than 5 decibels at the property line. As such, the Project would result in a significant increase in permanent noise if non-emergency operation of the Project would generate noise levels exceeding 66.5 dBA L_{EQ} at the property line, which is 5 dB greater than the ambient noise level documented in Appendix F-2.

4.7.5 Environmental Impacts Analysis

Threshold 4.7a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

The Project would generate noise during construction and operation, which are both analyzed below.

Construction Noise

Construction noise impacts from general construction activities of the Project would include noise generated from construction equipment involved in demolition, site preparation, grading, and building construction. The loudest pieces of equipment from this type of construction would likely include a dozer, concrete saw, backhoe, and grader.

As previously discussed, Section 9.36.080 of the Municipal Code prohibits the operation of powered construction equipment that generates a noise level of 85 dBA when measured at 100 feet. According to the RCNM outputs (USDOT 2008; Appendix F-1), the loudest noise levels would be generated by the use of a concrete saw during demolition. A concrete saw would result in a maximum noise level of 83.6 dBA at 100 feet. This noise level would therefore not exceed the City's construction noise ordinance standard of 85 dBA at 100 feet. The noise levels presented in Appendix F-1 also do not account for existing barriers, such as walls, that may further attenuate noise at adjacent properties. Additionally, construction of the Project would not occur during the prohibited hours specified in the City of Pasadena Municipal Code (Sundays, defined holidays, or outside of the hours of 7:00 AM to 7:00 PM

Monday through Friday and 8:00 AM to 5:00 PM on Saturday). As a result, construction noise impacts from on-site activities would be less than significant.

Construction would generate vehicular traffic in the form of worker vehicles and material import and export trucks. Workers would use an existing lot within the City's Maintenance Yard south of West Hammond Street that would be reconfigured for temporary parking. Employees would access and exit the lot via the main entrance off West Mountain Street and existing gates on Hammond Street. While the temporary parking lot would lead to an increase in worker trips along West Hammond Street and West Mountain Street, these would be light vehicles and the small number of rerouted trips is not anticipated to significantly increase local noise levels.

Heavy vehicles such as haul trucks associated with Project construction would utilize Sunset Avenue to access the site. It is estimated the Project would require approximately 60 truck trips per day. Modeling of the exterior noise environment was accomplished using TNM version 2.5. At a distance of 50 feet from the roadway centerline, the addition of truck trips from the Project would result in an increase in temporary traffic noise levels of less than 1 CNEL. An increase of less than 3 dBA CNEL would not be perceptible, and impacts from construction traffic would be less than significant.

Operation Noise

Following completion of the Project, on-site operational noise would be generated from operation of the pump stations and emergency generators. The pump stations would operate on a 24-hour basis, as they do under existing conditions. The emergency generators would only run in the event of an emergency or during maintenance operations, which would ensure the generators are able to supply power in the event of an emergency. Appendix F-2 provides the noise levels that would result from operation of these sources at residential properties north and east of the Project site. At the nearest residence to the north of Bangham Well, noise levels of up to 65.2 dBA L_{EQ} would occur when the emergency generators are in operation. At residences east of Sunset Avenue, noise levels of up to 59.7 dBA L_{EQ} would occur during operation of the emergency generators (Appendix F-2).

Noise generated by the proposed emergency generators was considered in the noise levels presented above. However, the generators are for the purpose of emergency power and are exempt from City noise regulations in accordance with Pasadena Municipal Code Sections 9.36.090 and 9.36.170. Noise impacts from the emergency generators would not exceed any applicable standards and, therefore, would be less than significant.

The Project proposes to replace and upgrade pump station components but would not install new equipment types such that noise levels from the pump stations would be substantially changed from existing conditions. As such, operation of the project would not result in a permanent increase in ambient noise and impacts related to pump station noise would be less than significant.

Off-site traffic would not result in a substantial new source of noise, as the proposed parking area would remain similar in size to the existing parking area. As such, it is anticipated that the number of employees commuting to the Project site would remain the same as the existing condition. In addition, although parking spaces would be located closer to some offsite residences east of Sunset Avenue, general parking lot noise such as occasional squealing tires, closing of vehicle doors, and engine starts would be intermittent and would not lead to a substantial increase in ambient noise levels. No substantial increase in maintenance or other traffic-generating activities would be required as a result of

the Project and a substantial increase in off-site traffic noise would not occur. Impacts related to off-site operational noise would be less than significant.

4.7.6 Cumulative Impacts

Cumulative impacts associated with noise are generally limited to the immediate vicinity of a noise-generating activity and are evaluated here based on the list of cumulative projects and growth projections. As shown on **Exhibit 3-4,** *Cumulative Projects,* cumulative projects are located at varying distances from the Project site, with the nearest project occurring at Brenner Park, immediately south of the Project site across Mountain Street. While the proposed improvements would occur in close proximity to the Project, and thus could potentially contribute to cumulative noise impact in conjunction with the Project if construction of both projects were to occur concurrently, the nature of the park improvements would be very limited and are not expected to result in substantial noise generation. More specifically, the improvements to Brenner Park would include construction of a new concrete playing surface at the basketball court and replacement of light fixtures and drinking fountains. Such activities would involve minimal construction equipment and would not require the use of heavy equipment such as excavators, bulldozers, loaders or other machinery capable of generating substantial noise levels. Furthermore, the duration of the proposed construction activities would be very limited in relation to those of the Project, thereby reducing the potential for additive noise effects in conjunction with the Project. The remaining cumulative projects occur at distances ranging from 0.3 to 1.2 miles. Based on the distance between the Project site and cumulative projects, it is not expected that a cumulative noise impact would occur if construction of the Project and cumulative projects occurred concurrently. Additionally, each project would comply with requirements of City of Pasadena Municipal Code, which prohibits construction activities on Sundays, defined holidays, or outside of the hours of 7:00 AM to 7:00 PM Monday through Friday and 8:00 AM to 5:00 PM on Saturday. Cumulative impacts associated with construction noise would not occur.

Similarly, for long-term operational noise impacts, cumulative projects are located at distances such that the Project would not contribute to a cumulative noise impact. In addition, cumulative projects would have to comply with the City's noise ordinances. The Project would not result in significant increases in ambient noise levels at the Project site and would not generate substantial traffic resulting in off-site ambient noise level increases. As such, the Project would not have the potential to contribute to a long-term, cumulatively considerable noise impact.

4.7.7 Mitigation Measures

No mitigation measures related to noise would be required.

4.7.8 Level of Significance After Mitigation

The proposed Project would not result in potentially significant direct or cumulative impacts related to noise. Impacts related to noise would be less than significant with Project implementation.

4.7.9 References

California Department of Transportation (Caltrans). 2004. California Department of Transportation, Traffic Noise Model (TNM).

U.S. Department of Transportation (USDOT). 2008. Roadway Construction Noise Model (RCNM).

4.8 Tribal Cultural Resources

4.8.1 Methodology

This section describes the existing tribal cultural resource conditions of the Project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed Project. This analysis is based, in part, on a review of existing resources and applicable laws, regulations, and guidelines, information contained in **Appendix C**, *Cultural Resources Assessment Report for the Pasadena Sunset Complex Project*, and **Appendix G**, *Confidential AB 52 Consultation Documentation*, of this EIR.

The Cultural Resources Assessment Report includes a review of the results of a South Central Coastal Information Center (SCCIC) records search, a search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF), and tribal consultation completed by the lead agency, the City of Pasadena, pursuant to California Assembly Bill (AB) 52. Communication from the NAHC and Tribal entities in response to the Notice of Preparation (NOP) included instructions for complying with AB 52 (tribal consultation processes), and recommendations for cultural resource assessments. These concerns are addressed and summarized in this section. A copy of the tribal responses received by the City are included in Confidential Appendix G of this EIR.

4.8.2 Existing Conditions

4.8.2.1 Ethnographic Setting

Gabrieleño

The project site is located within the region that has traditionally been occupied by the Gabrieleño people (also spelled as Gabrieleno or Gabrielino; Bean and Smith 1978:538; Kroeber 1925: Plate 57). Other Indigenous groups in the surrounding areas include the Chumash to the north and northwest, the Tataviam/Alliklik to the north, the Serrano to the east, and the Luiseño and Juaneño to the south. Interactions between these groups are well-documented, comprised primarily of trade and intermarriage.

The name Gabrieleño identifies the Indigenous people who were administered by the Spanish missionaries settled at Mission San Gabriel. This group is now considered to have a regional dialect of the Gabrielino language, along with the Santa Catalina Island and San Nicolas Island dialects (Bean and Smith 1978:538). In the post-European contact period, Mission San Gabriel included natives of the greater Los Angeles area, while also including members of surrounding Indigenous groups from other areas such as Kitanemuk, Serrano, and Cahuilla. There is little evidence that the people we call Gabrieleño had a broad term for their group (Dakin 1978:222); rather, they identified themselves as an inhabitant of a specific community with locational suffixes (e.g., a resident of Yaanga was called a Yabit, much the same way that a resident of New York is called a New Yorker; Johnston 1962:10).

Several native words have been suggested as labels for the broader group of Indigenous people from the Los Angeles region. These include Tongva (or Tong-v; Merriam 1955:7–86) and Kizh (Kij or Kichereno; Heizer 1968:105), though evidence indicated that these terms referred to local places or smaller groups of people within the larger group that we now call Gabrieleño. Nevertheless, many present-day descendants of these people have taken on Tongva as a preferred group name because it has a native

rather than Spanish origin (King 1994:12). Thus, the term Gabrieleño /Tongva is used in the remainder of this report when discussing the Indigenous people of the Los Angeles Basin and their descendants.

The Gabrieleño/Tongva subsistence economy was centered on hunting and gathering. Due to the rich and varied nature of their environment, the Indigenous population exploited mountains, foothills, valleys, deserts, riparian, estuarine, and open and rocky coastal eco-niches. Acorns served as the staple food, supplemented by the roots, leaves, seeds, and fruits of a variety of flora (e.g., islay, cactus, yucca, sages, and agave). Freshwater and saltwater fish, shellfish, birds, reptiles, and insects, as well as both large and small mammals, were also hunted or collected and served as a large part of their diet (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 Gabrieleño/Tongva to gather and collect food resources. These included the bow and arrow, traps, nets, blinds, throwing sticks and slings, spears, harpoons, and hooks for hunting and fishing. Those groups located near the ocean used oceangoing plank canoes, or *ti'at*, and tule balsa canoes for fishing, travel, and trade between the mainland and the Channel Islands (McCawley 1996:7). Gabrieleño/Tongva people processed their resources 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 likewise consumed from a variety of vessels, with Catalina Island steatite 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 Gabrieleño/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 beliefs and practices (McCawley 1996:143–144).

The burial practices of the Gabrieleño/Tongva included both burials and cremations, with inhumation the more common practice on the Channel Islands and the adjacent mainland coastal areas, while cremation was the primary practice on the remainder of the coast and through the inland areas (Harrington 1942; McCawley 1996:157). Remains were buried in distinct burial areas, sometimes associated with villages and sometimes with no clear village association (Altschul et al. 2007). 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 corresponds with ethnographic descriptions of an elaborate mourning ceremony that occurred over several days and included a variety of offerings, such as seeds, stone grinding tools, animal skins, baskets, wood tools, shell beads, bone and shell ornaments, and projectile points and knives. Offerings varied, both with the sex of the deceased individual as well as their status (Dakin 1978:234–365; Johnston 1962:52–54; McCawley 1996:155–165).

Tataviam

Boundaries between different Indigenous groups are fluid, moving as groups gain and lose status and power. The Tataviam are the next closest Indigenous group near the project, and their territory was located primarily in the upper drainage of the Santa Clara River, with lands extending east to the

southern fringe of Antelope Valley, but centered on the south sides of the Liebre, Sawmill, and Sierra Pelona Mountains.

Like the Gabrieleño/Tongva, the Tataviam language is a part of the Takic branch of the Uto-Aztecan language family (Mithun 2001:540). The Tataviam language probably began to differentiate itself from the others in the language group around 1000 B.C. (King and Blackburn 1978:535). The name "Tataviam" itself, is derived from the Kitanemuks' name for them (King and Blackburn 1978:535). Similarly, the Ventureño Chumash referred to them as the "Alliklik" in order to separate them from the Beñeme Serrano in the western Mojave Desert and Antelope Valley, and both names are used by ethnographers and archaeologists (Kroeber 1925:614).

Information about Tataviam social organization and political structure is limited, but there is no evidence to indicate a substantial difference between their structure and those of the Kitanemuk and Gabrieleño/Tongva groups. Tataviam villages ranged from large centers of around 200 individuals to small settlements of 10 to 15 people (King and Blackburn 1978:536). Intermediate-sized villages were dispersed between the larger centers, with smaller villages spaced around the larger villages. It was estimated that the Tataviam population at contact was no more than 1,000 people. Mortuary practices probably included cremation, as well as a mourning ceremony practiced in late summer or early fall (King and Blackburn 1978:535). With the construction of the San Fernando Mission in 1797, the Tataviam were forced to settle within the Mission, though some were also taken to Mission San Gabriel as well.

Archaeological data, the primary source of information available, indicate broad similarities among the Tataviam, Chumash, and Gabrieleño/Tongva (King and Blackburn 1978:536). Considering their environment and geographical range, it is likely that Tataviam relied more heavily on yucca as a staple than acorns. Other foods most likely included sage seeds, juniper seeds, and islay berries, with hunting focused on small mammals such as rabbits and rodents but also included deer and antelope. Extensive trade networks existed between the Indigenous groups in the region, and the Tataviam traded lithic material and large game animals with coastal groups for marine resources, shell, asphaltum, and steatite.

Indigenous Communities in Pasadena

The project is located within the territory of the Gabrieleño/Tongva, which was rich in villages of various sizes (King 2004; McCawley 1996:36–40). In general, however, it has been very difficult to determine the precise location of any specific Indigenous village occupied in the Ethnohistoric period (McCawley 1996:31–32). Traditional place names referred to at the time of Spanish contact did not necessarily represent a continually occupied settlement at a single location, and in many cases, these communities were in fact representative of several smaller camps scattered across a general area, shaped by the local geography and subject to change over generations (Johnston 1962:122). By the time ethnographers, anthropologists, and historians began efforts to document their locations, many of the villages had been abandoned, their locations already heavily affected by agricultural and urban development, and Indigenous lifeways had been changed forever. Additionally, alternative names and spellings for historic communities, conflicting reports on their meaning, and differing geographic reference points, from different informants, further confound relocation attempts.

Even with the growing collection of archaeological evidence, making a conclusive determination on whether a specific assemblage represents the remains of a former village site can be difficult. Although

the precise location of any given village is subject to much speculation, the vicinity of Pasadena once contained many Gabrieleño/Tongva villages, including several concentrated along the banks of the Arroyo Seco and its offshoots. This type of settlement pattern concentrated along waterways is reflected in historical maps published by the Southwest Museum (1962; reprinted in Johnston 1962) and George Kirkman (1938). Maps such as these convey a general sense of significant historical areas based on the geographic information available at the time and are considered as a representational depiction of these locations rather than explicit geographic points.

Known ethnographically documented villages within the Pasadena vicinity included *Akuronga*, *Alyeupkigna*, *Hahamon'ga*, *Haramoknga*, *Puntitavjatngna*, and *Sisitkanonga*. The closest of these villages to the Project site is *Hahamon'ga* (alternative spellings and names include *Hahmogna*, *Hahamog-na*, and *Xaxaamonga*). Current ethnographic thought places this settlement in the upper part of the Arroyo Seco, approximately 2.5 miles north-northwest of the Project site. Another village of the same name is located in Glendale, and it is possible that these were two separate locations used by the same band. The village of *Akuronga* (or *Akuuronga*) is purported to be located less than five miles southeast of the Project site. *Sonaanga* has been identified as being located approximately four miles southeast, while *Alyeupkigna* (or *Aluupkenga*) is located six miles east-southeast, and *Sisitkanonga* (or *Sisitcanonga*) is located along the banks of Eaton Creek, less than five miles northeast of the Project. Like *Hahamon'ga*, these other villages were described in ethnographic accounts, but the exact locations are unknown (McCawley 1996).

4.8.2.2 California Historical Resources Information System Records Search

As previously discussed in Section 4.3, *Cultural Resources*, of this EIR, a CHRIS records search at the SCCIC was conducted on May 10, 2021. The results of the records search identified six previous cultural resource studies within the half-mile record search limits, none of which occurred within the Project site. Five of the studies were archaeological surveys or site visits, one of which included a historic resources survey; the remaining report title does not indicate the type of study but appears to have been a site visit/survey as well. The SCCIC has a record of 84 previously recorded cultural resources within a 0.5-mile radius of the Project, but none have been recorded within the Project site. All the resources recorded within the 0.5 mile search radius consist of historic built environment resources.

4.8.2.3 Native American Coordination

Assembly Bill 52

A project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource (TCR) is a project that may have a significant effect on the environment (PRC Section 21084.2). Under AB 52, a TCR must have tangible, geographically defined properties that can be impacted by project implementation. The proposed project is subject to compliance with AB 52.

The City sent notification of the proposed Project, pursuant to AB 52 on June 3, 2021, to all California Native American tribal representatives that have requested to be notified of projects within the City. Only two Native American tribes, the Gabrielino-Tongva Indian Tribe and the Gabrieleño Band of Mission Indians- Kizh Nation (Kizh Nation), requested to be notified by the City. The notification letter included a Project map and description inquiring if the tribe entities would like to request formal consultation in order to discuss the Project and the potential to impact any TCRs. AB 52 allows tribes 30 days after receiving notification to request consultation. If a response is not received within the allotted

30 days, it is assumed that consultation is declined. To date, one response to the City's notification letters has been received and formal consultation has been requested. In a letter from Andrew Salas, Chairperson of Kizh Nation, dated June 16, 2021, Mr. Salas stated that the Project site is located within the Tribe's ancestral territory and that formal consultation was requested of the City by the Tribe.

Formal consultation between the City and Kizh Nation occurred via teleconference on August 18, 2021 and January 4, 2022. After a description of the Project, history of on-site improvements and the nature of soils in the Project area were provided by the City, Kizh Nation representatives presented their knowledge of cultural resources in the area as well as their concerns regarding potential impacts to buried tribal cultural resources as a result of the proposed Project. Although no tribal cultural resources have been identified within the Project site, Kizh Nation indicated that Project site and surrounding vicinity are sensitive for TCRs that pertain to village sites, trade corridors, ceremonial sites, unmarked burials, and objects related to cultural patrimony considered significant to the tribe. Due to these concerns, Kizh Nation requests the Project implement Native American monitoring of soils during ground disturbing activities within the Project site, as it is currently planned.

The City contacted the Kizh Nation via email on October 21, 2021 and provided proposed mitigation language developed based on the Tribe's input during the consultation. Kizh Nation returned revised mitigation language via email on October 21, 2021. The City provided additional modifications to the proposed mitigation language on October 26, 2021. Additional follow-up was conducted by the City on May 24, 2022. On June 2, 2022, Kizh Nation emailed the City and confirmed that they are in agreement with the proposed mitigation measures for the Project. The June 2, 2022 email signifies the conclusion of the consultation pursuant to AB 52.

Table 4.8-1, *Assembly Bill 52 Native American Tribal Outreach Results*, summarizes the results of the AB 52 process for the Project. Complete documentation of the AB 52 process is included in confidential Appendix G (on file at the City of Pasadena).

Table 4.8-1
ASSEMBLY BILL 52 NATIVE AMERICAN TRIBAL OUTREACH RESULTS

Native American Tribal Representatives	Method of Notification/Date	Response Received
Andrew Salas, Chairperson Gabrieleño Band of Mission Indians - Kizh Nation	Certified Mail; June 3, 2021	Tribe requested formal consultation, via email, regarding the proposed Project on June 16, 2021. Consultation meetings between the City and the Tribe occurred on August 18, 2021 and January 4, 2022. The Tribe requested monitoring of ground disturbance during the consultation meetings. The City and Tribe worked on proposed mitigation language via email. On June 2, 2022, the Tribe emailed the City and confirmed that they are in agreement with the proposed mitigation measures for the Project. The mitigation measures are set forth in TCR-1, TCR-2, and TCR-3 of this EIR. The June 2, 2022 email signifies the conclusion of the consultation pursuant to AB 52.

Native American Tribal Representatives	Method of Notification/Date	Response Received
Charles Alvarez, Co-Chairperson Gabrielino-Tongva Indian Tribe	Certified Mail; June 3, 2021	No response received.

4.8.3 Relevant Plans, Policies, and Ordinances

4.8.3.1 Federal

No federal requirements related to TCRs are applicable to the proposed Project.

4.8.3.2 State/Regional

California Register of Historical Resources

In California, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (California Public Resources Code Section 5020.1(j)). In 1992, the California legislature established the California Register of Historic Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code Section 5024.1(a)). The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP, enumerated below. According to California Public Resources Code Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

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.

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

In order to understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see 14 CCR 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties

listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further below, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- California Public Resources Code Section 21083.2(g) defines "unique archaeological resource."
- California Public Resources Code Section 21084.1 and CEQA Guidelines Section 15064.5(a) define "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource." It also defines the circumstances when a project would materially impair the significance of an historical resource.
- California Public Resources Code Section 21074(a) defines "tribal cultural resources."
- California Public Resources Code Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
- California Public Resources Code Sections 21083.2(b)-(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

More specifically, under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5(b).) If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources or identified as significant in a historical resources survey (meeting the requirements of California Public Resources Code Section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064.5(b)(1); California Public Resources Code Section 5020.1(q)). In turn, CEQA Guidelines section 15064.5(b)(2) states the significance of an historical resource is materially impaired when a project:

1. Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

2. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

3. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired. 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 they cannot be left undisturbed, mitigation measures are required (California Public Resources Code Section 21083.2[a], [b], and [c]).

California Public Resources Code 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 meets any of the following criteria:

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.

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

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (California Public Resources Code section 21083.2(a); CEQA Guidelines Section 15064.5(c)(4)). However, if a non-unique archaeological resource qualifies as tribal cultural resource (California Public Resources Code Section 21074(c), 21083.2(h)), further consideration of significant impacts is required. CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in California Public Resources Code Section 5097.98.

California State Assembly Bill 52

AB 52 of 2014 amended PRC Section 5097.94 and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 established that TCRs must be considered under CEQA and also provided for additional Native American consultation requirements for the lead agency. Section 21074 describes a TCR as a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American tribe and that is either:

- On or determined to be eligible for the California Register of Historical Resources or a local historic register; or

- 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 Section 5024.1.

AB 52 formalizes the lead agency–tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project site, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report.

Section 1 (a)(9) of AB 52 establishes that "a substantial adverse change to a TCR has a significant effect on the environment." Effects on TCRs should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures "capable of avoiding or substantially lessening potential significant impacts to a TCR or alternatives that would avoid significant impacts to a tribal cultural resource." Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects to TCRs, the consultation shall include those topics (PRC Section 21080.3.2(a)). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted through the approval of the environmental document (PRC Section 21082.3(a)).

California Health and Safety Code Section 7050.5

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. California Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the county coroner has examined the remains (Health and Safety Code Section 7050.5(b)). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the NAHC within 24 hours (Health and Safety Code Section 7050.5(c)). The NAHC will notify the "most likely descendant." With the permission of the landowner, the most likely descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the most likely descendant by the NAHC. The most likely descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

4.8.3.3 Local

There are no applicable local plans, policies, and ordinance applicable to tribal cultural resources.

4.8.4 Thresholds of Significance

The significance criteria used to evaluate the Project impacts related to tribal cultural resources are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to tribal cultural resources would occur if the project would:

> 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) 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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

4.8.5 Environmental Impacts Analysis

Threshold 4.8a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as 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 section 5020.1(k)?

As described in the Project's IS/NOP (included in Appendix A of this EIR), no archaeological or tribal cultural resources were identified during the pedestrian survey of the Project site. Additionally, no archaeological or tribal cultural resources were identified within the Project site as a result of the CHRIS records search or Native American outreach. No archaeological sites or Sacred Lands have been previously documented within the Project area, and the Cultural Resources Assessment prepared for the Project did not identify any new cultural or tribal cultural resources within the Project area. No previously recorded TCRs listed in the CRHR or a local register were identified within the Project site. During the AB 52 notification and consultation process, the consulting Tribe provided documentation to corroborate their knowledge of significant TCRs affiliated with the Tribe potentially exist within the Project site based on the sensitivity of the surrounding Project vicinity and proximity to known TCR's. The Tribe stated, "we have provided to the Lead Agency substantial evidence that the proposed project may have a significant impact on our TCRs."

A short-term impact to a TCR can be defined as an impact that would prevent potential use of or access to a tribal cultural resource, such as for ceremonial purposes. No TCRs have been identified on the Project site that meet these criteria of use. Therefore, there are no Project-related conditions that

would cause a short-term impact. Therefore, short-term construction impacts related to a site, feature, place, cultural 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 would be less than significant, and no mitigation is required.

Based on the results of the archaeological records search, the NAHC Sacred Land Files search and AB 52 consultation impacts to tribal cultural resources would be less than significant. Therefore, no mitigation measures are required to mitigate existing TCR's. However, in response to the AB 52 consultation, the City has developed mitigation measures to ensure the proper treatment of potential TCRs that could potentially be encountered during ground disturbing activities, as described under Threshold 4.8b.

Threshold 4.8b. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as 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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Short-Term Construction Impacts

Pursuant to AB 52, the City sent notification letters on June 3, 2021, to all California Native American tribal representatives that have requested to be notified of projects within the City (refer to Table 4.8-1). To date, the Gabrieleño Band of Mission Indians - Kizh Nation is the only Native American individual or tribal organization to have responded to the City's notification letter. Andrew Salas, Chairperson of the Gabrieleño Band of Mission Indians - Kizh Nation responded via email on June 16, 2021, stating that the Project site is located within the Tribe's ancestral territory and that formal consultation was requested of the City by the Tribe. Formal consultation between the City and the Tribe occurred on August 18, 2021 and January 4, 2022. After a description of the Project, history of on-site improvements and the nature of soils in the Project area were provided by the City, the Tribal representatives presented their knowledge of tribal cultural resources in the area as well as their concerns regarding potential impacts to buried tribal cultural resources as a result of the proposed Project. As stated under Threshold 4.8a above, no previously recorded TCRs listed in the CRHR or a local register were identified within the Project site. During the AB 52 notification and consultation process, the consulting Tribe provided documentation to support the potential impacts related to TCRs affiliated with the Tribe within the Project site based on the tribal and cultural sensitivity within the surrounding Project vicinity and stated, "we have provided to the Lead Agency substantial evidence that the proposed Project may have a significant impact on our TCRs."

The Tribal representatives stated that they request monitoring of soils during ground disturbing activities and that the Tribe is not requesting any Project alternatives or avoidance. The City contacted the Tribe via email on October 21, 2021 and provided proposed mitigation language developed based on the Tribe's input during the consultation. The Tribe returned revised mitigation language via email on October 21, 2021. The City provided additional modifications to the proposed mitigation language on

October 26, 2021. Additional follow-up was conducted by the City on May 24, 2022. On June 2, 2022, the Tribe emailed the City and confirmed that they are in agreement with the proposed mitigation measures for the Project which concluded the consultation pursuant to AB-52.

Although no TCRs have been identified as present within the Project site as a result of the NAHC SLF and a review of the CRHR and local register, information gathered during tribal consultation demonstrates a potential for unknown subsurface TCRs to be impacted by the Project, which could result in a significant impact. Therefore, mitigation measures have been included to provide for tribal monitoring of ground disturbing activities (TCR-1), inadvertent discovery of TCRs (TCR-2), and procedures for burials and funerary remains (TCR-3). Implementation of mitigation measures TCR-1 through TCR-3 would ensure that potential short-term construction impacts related to an unknown site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American tribe, would be reduced to a level less than significant.

Long-Term Operational Impacts

Long-term operational impacts would be consistent with the short-term construction impacts identified above.

4.8.6 Cumulative Impacts

The cumulative impacts analysis on TCRs considers whether impacts of the proposed Project together with other projects or tribal cultural resources identified within the vicinity of the Project site, when taken as a whole, substantially diminish the number of TCRs within the same or similar context. Sufficient evidence of existing TCRs within the Project site has not been identified through various records searches or AB 52 consultation and as such, the Project site is not part of an existing or known grouping of TCRs that would be impacted as part of the cumulative impacts of other projects.

It is anticipated that TCRs that are potentially affected by cumulative projects would also be subject to the same requirements of CEQA and AB 52 as the proposed Project and any impacts would be mitigated, as applicable. These determinations would be made on a case-by-case basis, and the effects of cumulative development on TCRs would be mitigated to the extent feasible in accordance with CEQA and other applicable legal requirements. Therefore, the proposed Project would not cumulatively contribute to a significant impact associated with TCRs and impacts would be less than significant. However, as discussed above, buried TCRs within the Project site subsurface may exist and, as such, the Project has a potential to impact these buried resources. These potential impacts could result in a cumulative impact if they relate to resources located within the Project vicinity. However, the Project will implement MM TCR-1 through MM TCR-3 to reduce this potential impact to a less than significant level. MM TCR-1 through MM TCR-3 will reduce these potential cumulative impacts to a less than significant level by requiring a Native American monitor during ground disturbing activities to ensure buried resources are properly identified and by implementing the Gabrieleño Band of Mission Indians - Kizh Nation’s preferred treatment and reburial policies in the event a tribal cultural resource is discovered.

4.8.7 Mitigation Measures

TCR-1 Retain a Native American Monitor Prior to Commencement of Ground-Disturbing Activities

A. The project applicant/lead agency shall retain a Native American Monitor from or approved by the Gabrieleño Band of Mission Indians – Kizh Nation. The monitor shall be retained prior to the commencement of any "ground-disturbing activity" at the Sunset Reservoir Project site. "Ground-disturbing activity" shall include, but is not limited to, demolition, pavement removal, potholing, auguring, grubbing, tree removal, boring, grading, excavation, drilling, and trenching.

B. A copy of the executed monitoring agreement shall be submitted to the lead agency prior to the earlier of the commencement of any ground-disturbing activity, or the issuance of any permit necessary to commence a ground-disturbing activity.

C. The monitor shall complete daily monitoring logs that will provide descriptions of the relevant ground-disturbing activities, the type of construction activities performed, locations of ground-disturbing activities, soil types, cultural-related materials, and any other facts, conditions, materials, or discoveries of significance to the Tribe. Monitor logs will identify and describe any discovered TCRs, including but not limited to, Native American cultural and historical artifacts, remains, places of significance, etc., (collectively, tribal cultural resources, or "TCR"), as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs will be provided to the project applicant/lead agency upon written request to the Tribe.

D. On-site tribal monitoring shall conclude upon the latter of the following (1) written confirmation to the Kizh from a designated point of contact for the project applicant/lead agency that all ground-disturbing activities and phases that may involve ground-disturbing activities on the project site or in connection with the project are complete; or (2) a determination and written notification by the Kizh to the project applicant/lead agency that no future, planned construction activity and/or development/construction phase at the project site possesses the potential to impact Kizh TCRs.

E. Upon discovery of any TCRs, all construction activities in the immediate vicinity of the discovery shall cease (i.e., not less than the surrounding 50 feet) and shall not resume until the discovered TCR has been fully assessed by the Kizh monitor and/or Kizh archaeologist. The Kizh will recover and retain all discovered TCRs in the form and/or manner the Tribe deems appropriate, in the Tribe's sole discretion, and for any purpose the Tribe deems appropriate, including for educational, cultural and/or historic purposes.

TCR-2 Unanticipated Discovery of Human Remains and Associated Funerary Objects

A. Native American human remains are defined in PRC 5097.98 (d)(1) as an inhumation or cremation, and in any state of decomposition or skeletal completeness. Funerary objects, called associated grave goods in Public Resources Code Section 5097.98, are also to be treated according to this statute.

B. If Native American human remains and/or grave goods are discovered or recognized on the project site, then all construction activities shall immediately cease. Health and Safety Code Section 7050.5 dictates that any discoveries of human skeletal material shall be immediately reported to the County Coroner and all ground-disturbing activities shall immediately halt and

shall remain halted until the coroner has determined the nature of the remains. If the coroner recognizes the human remains to be those of a Native American or has reason to believe they are Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission, and Public Resources Code Section 5097.98 shall be followed.

C. Human remains and grave/burial goods shall be treated alike per California Public Resources Code section 5097.98(d)(1) and (2).

D. Construction activities may resume in other parts of the Project site at a minimum of 200 feet away from discovered human remains and/or burial goods, if the Kizh determines in its sole discretion that resuming construction activities at that distance is acceptable and provides the project manager express consent of that determination (along with any other mitigation measures the Kizh monitor and/or archaeologist deems necessary). (CEQA Guidelines Section 15064.5(f).)

E. Preservation in place (i.e., avoidance) is the preferred manner of treatment for discovered human remains and/or burial goods. Any historic archaeological material that is not Native American in origin (non-TCR) shall be curated at a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County or the Fowler Museum, if such an institution agrees to accept the material. If no institution accepts the archaeological material, it shall be offered to a local school or historical society in the area for educational purposes.

F. Any discovery of human remains/burial goods shall be kept confidential to prevent further disturbance.

TCR-3 Procedures for Burials and Funerary Remains

A. The treatment of human remains or burials will be established with the Most Likely Descendant (MLD), as identified by the NAHC. The Burial Policy shall be implemented for all discovered Native American human remains and/or grave goods. Tribal Traditions include, but are not limited to, the preparation of the soil for burial, the burial of funerary objects and/or the deceased and the ceremonial burning of human remains.

B. If the discovery of human remains includes four or more burials, the discovery location shall be treated as a cemetery and a separate treatment plan shall be created.

C. The prepared soil and cremation soils are to be treated in the same manner as bone fragments that remain intact. Associated funerary objects are objects that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later; other items made exclusively for burial purposes or to contain human remains can also be considered as associated funerary objects. Cremations will either be removed in bulk or by means as necessary to ensure complete recovery of all sacred materials.

D. In the case where discovered human remains cannot be fully documented and recovered on the same day, the remains will be covered with muslin cloth and a steel plate that can be moved by heavy equipment placed over the excavation opening to protect the remains. If this type of steel plate is not available, a 24-hour guard should be posted outside of working hours. The Tribe will

make every effort to recommend diverting the project and keeping the remains in situ and protected. If the project cannot be diverted, it may be determined that burials will be removed.

E. In the event preservation in place is not possible despite good faith efforts by the project, applicant/developer and/or landowner, before ground-disturbing activities may resume on the project site, the landowner shall arrange a designated site location within the footprint of the project for the respectful reburial of the human remains and/or ceremonial objects.

F. Each occurrence of human remains and associated funerary objects will be stored using opaque cloth bags. All human remains, funerary objects, sacred objects and objects of cultural patrimony will be removed to a secure container on site if possible. These items should be retained and reburied within six months of recovery. The site of reburial/repatriation shall be on the project site but at a location agreed upon between the Tribe and the landowner at a site to be protected in perpetuity. There shall be no publicity regarding any cultural materials recovered.

G. The Tribe will work closely with the project's qualified archaeologist to ensure that the excavation is treated carefully, ethically and respectfully. If data recovery is approved by the Tribe, documentation shall be prepared and shall include (at a minimum) detailed descriptive notes and sketches. All data recovery-related forms of documentation shall be approved in advance by the Tribe. If any data recovery is performed, once complete, a final report shall be submitted to the Tribe and the NAHC. The Tribe does NOT authorize any scientific study or the utilization of any invasive and/or destructive diagnostics on human remains.

4.8.8 Level of Significance After Mitigation

With adherence to mitigation measures TCR-1 through TCR-3, the potential for direct and cumulative impacts to TCRs as a result of the Project would be reduced to a less than significant level.

4.8.9 References

No specific documents are referenced in this section.

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5.0 MANDATORY CEQA TOPICS

This section discusses other issues for which the California Environmental Quality Act (CEQA) requires analysis in addition to the specific issue areas discussed in Chapter 4, Environmental Analysis. These additional issues include: (1) significant effects that cannot be avoided; (2) significant irreversible environmental changes that would be caused by the proposed Project should it be implemented; and (3) growth-inducing impacts.

5.1 Significant Unavoidable Environmental Effects

Section 15126.2(c) of the CEQA Guidelines requires an Environmental Impact Report (EIR) to identify significant environmental effects that cannot be avoided if the project is implemented (14 California Code of Regulations [CCR] 15000 et seq.). As discussed in Sections 4.1 through 4.8 of this EIR, implementation of the proposed Project would result in less than significant direct and cumulative impacts to Aesthetics, Air Quality, Energy, Greenhouse Gas Emissions, and Noise given compliance with all applicable regulations. The proposed Project would result in potentially significant direct impacts to Cultural Resources (Historical Resources), Hazards and Hazardous Materials, and Tribal Cultural Resources. Cumulative impacts associated with Hazards and Hazardous Materials would be less than significant. No cumulative impact is identified for Cultural Resources, and the Project would not contribute to a cumulatively considerable significant impact on Tribal Cultural Resources with implementation of project-specific mitigation. However, the proposed Project's direct impacts to Hazards and Hazardous Materials and Tribal Cultural Resources would be mitigated to less-than-significant levels with the incorporation of mitigation measures, and direct impacts to historic resources (Section 4.3, Cultural Resources) would be significant and unavoidable.

As discussed in Section 4.3, the Project site is eligible as a historic district under National Register of Historic Places (NRHP) Criterion A, California Register of Historical Resources (CRHR) Criterion 1, and as a City of Pasadena Landmark under District. As contributors to the Sunset Reservoir Complex Historic District, removal of the Existing Reservoir 1 and Reservoir 2 would create a substantial adverse change to a historical resource. Therefore, even with implementation of mitigation measures, the Project-related direct impacts to historic resources would be significant and unavoidable.

Section 15128 of the CEQA Guidelines states that an EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR, and that such a statement may be contained in an attached copy of an Initial Study. A copy of the Notice of Preparation (NOP) and Initial Study for the Sunset Complex Project (proposed Project) is included in Appendix A of this EIR. **Table 5-1**, *Initial Study and EIR Conclusion Summary*, below, identifies the following: (1) the significance conclusions in the Initial Study for each environmental topic, (2) which topics were determined to not require additional analysis in the EIR, (3) which topics were brought forward into the EIR for further analysis, and (4) the significance conclusions of the EIR for direct impacts associated with the Project. Refer to the Initial Study for the analysis that supports the conclusions included in Table 5-1.

Table 5-1
Initial Study and EIR Conclusion Summary

CEQA Threshold	Initial Study Conclusion	EIR Conclusion[1]
Aesthetics *Except as provided in Public Resources Code Section 21099, would the project:*		
a) Have a substantial adverse effect on a scenic vista?	No Impact	Refer to Initial Study
b) Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	Potentially Significant Impact: See Section 4.1	Less than Significant Impact
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	Less than Significant Impact	Refer to Initial Study
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Less than Significant Impact	Less than significant impact
Agriculture and Forestry Resources *Would the project:*		
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	No Impact	Refer to Initial Study
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	No Impact	Refer to Initial Study
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])?	No Impact	Refer to Initial Study
d) Result in the loss of forest land or conversion of forest land to non-forest use?	No Impact	Refer to Initial Study
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	No Impact	Refer to Initial Study

CEQA Threshold	Initial Study Conclusion	EIR Conclusion[1]
Air Quality *Would the project:*		
a) Conflict with or obstruct implementation of the applicable air quality plan?	Potentially Significant Impact: See Section 4.2	No Impact
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?		Less than Significant Impact
c) Expose sensitive receptors to substantial pollutant concentrations?		Less than Significant Impact
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less than Significant Impact	Refer to Initial Study
Biological Resources *Would the project:*		
a) Have a substantial adverse effect, either directly or through habitat modification, 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?	Less than Significant Impact	Refer to Initial Study
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 Wildlife or U.S. Fish and Wildlife Service?	No Impact	Refer to Initial Study
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	No Impact	Refer to Initial Study
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Less than Significant Impact	Refer to Initial Study
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Less than Significant Impact	Refer to Initial Study
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?	No Impact	Refer to Initial Study

CEQA Threshold	Initial Study Conclusion	EIR Conclusion[1]
Cultural Resources *Would the project:*		
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	Potentially Significant Impact: See Section 4.3	Significant and Unavoidable Impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	Less than Significant Impact	Refer to Initial Study
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	Less than Significant Impact	Refer to Initial Study
Energy *Would the project:*		
a) Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Potentially Significant Impact: See Section 4.4	Less than Significant Impact
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?		No Impact
Geology and Soils *Would the project*:		
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:		
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	Less than Significant Impact	Refer to Initial Study
ii) Strong seismic ground shaking?	Less than Significant Impact	Refer to Initial Study
iii) Seismic-related ground failure, including liquefaction?	Less than Significant Impact	Refer to Initial Study
iv) Landslides?	Less than Significant Impact	Refer to Initial Study
b) Result in substantial soil erosion or the loss of topsoil?	Less than Significant Impact	Refer to Initial Study

CEQA Threshold	Initial Study Conclusion	EIR Conclusion[1]
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 onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	Less than Significant Impact	Refer to Initial Study
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	Less than Significant Impact	Refer to Initial Study
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	No Impact	Refer to Initial Study
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	No Impact	Refer to Initial Study
Greenhouse Gas Emissions *Would the project:*		
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Potentially Significant Impact: See Section 4.5	Less than Significant Impact
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?		Less than Significant Impact
Hazards and Hazardous Materials *Would the project:*		
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Less than Significant Impact. See Section 4.6 for additional analysis	Less Than Significant Impact
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Less than Significant Impact. See Section 4.6 for additional analysis	Less than Significant Impact with Mitigation Incorporated
c) 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	Refer to Initial Study
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?	No Impact	Refer to Initial Study

CEQA Threshold	Initial Study Conclusion	EIR Conclusion[1]
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 or excessive noise for people residing or working in the project area?	No Impact	Refer to Initial Study
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Less than Significant Impact. See Section 4.6 for additional analysis	Less than Significant Impact
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	No Impact	Refer to Initial Study
Hydrology and Water Quality *Would the project:*		
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	Less than Significant Impact	Refer to Initial Study
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Less than Significant Impact	Refer to Initial Study
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:		
i) result in substantial erosion or siltation onsite or offsite;	Less than Significant Impact	Refer to Initial Study
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	Less than Significant Impact	Refer to Initial Study
iii) 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; or	Less than Significant Impact	Refer to Initial Study
iv) impede or redirect flood flows?	Less than Significant Impact	Refer to Initial Study
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	No Impact	Refer to Initial Study
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Less than Significant Impact	Refer to Initial Study

CEQA Threshold	Initial Study Conclusion	EIR Conclusion[1]
Land Use and Planning *Would the project:*		
a) Physically divide an established community?	No Impact	Refer to Initial Study
b) Cause a significant environmental impact due to conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	No Impact	Refer to Initial Study
Mineral Resources *Would the project:*		
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	No Impact	Refer to Initial Study
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	No Impact	Refer to Initial Study
Noise *Would the project result in:*		
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Potentially Significant Impact: See Section 4.7	Less than Significant
b) Generation of excessive groundborne vibration or groundborne noise levels?	Less than Significant Impact	Refer to Initial Study
c) For a project located within the vicinity of a private airstrip or 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	Refer to Initial Study
Population and Housing *Would the project:*		
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through the extension of roads or other infrastructure)?	No Impact	Refer to Initial Study
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	No Impact	Refer to Initial Study

CEQA Threshold	Initial Study Conclusion	EIR Conclusion[1]
Public Services *Would the project:*		
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:		
Fire protection?	No Impact	Refer to Initial Study
Police protection?	No Impact	Refer to Initial Study
Schools?	No Impact	Refer to Initial Study
Parks?	No Impact	Refer to Initial Study
Other public facilities?	No Impact	Refer to Initial Study
Recreation *Would the project:*		
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	Refer to Initial Study
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?	No Impact	Refer to Initial Study
Transportation[2] *Would the project:*		
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit roadway, bicycle, and pedestrian facilities?	Less than Significant Impact	Refer to Initial Study
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	Less than Significant Impact	Refer to Initial Study
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Less than Significant Impact	Refer to Initial Study
d) Result in inadequate emergency access?	Less than Significant Impact	Refer to Initial Study

CEQA Threshold	Initial Study Conclusion	EIR Conclusion[1]
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:*		
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	Potentially Significant Impact: See Section 4.8	Less than Significant Impact
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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		Less than Significant with Mitigation Incorporated
Utilities and Service Systems *Would the project:*		
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	Less than Significant Impact	Refer to Initial Study
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	No Impact	Refer to Initial Study
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	Less than Significant Impact	Refer to Initial Study
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	Less than Significant Impact	Refer to Initial Study
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	Less than Significant Impact	Refer to Initial Study
Wildfire *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:*		
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	No Impact	Refer to Initial Study

CEQA Threshold	Initial Study Conclusion	EIR Conclusion[1]
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	No Impact	Refer to Initial Study
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	No Impact	Refer to Initial Study
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	No Impact	Refer to Initial Study

[1] The EIR conclusions listed in this table refer to the direct impacts associated with the Project.

[2] Since publication of the Initial Study/Notice of Preparation, changes to the circulation pattern during construction have been identified. This includes the removal of the need for an off-site parking lot. Existing staff would instead temporarily use the parking lot at the adjacent City Yards, accessed by a gate on Hammond Street. No need for shuttles would be required for staff to access the site. This is a minor change that would not change the less than significant conclusions of the Initial Study.

5.2 Significant Irreversible Changes

CEQA Guidelines Section 15126.2(d) requires the evaluation of significant irreversible environmental changes which would be caused by the project should it be implemented as follows (14 CCR 15000 et seq.):

> Uses of nonrenewable resources during the initial and continued phases of the project [that] may be irreversible since a large commitment of such resources makes removal or non-use thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as a highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

Renewable resources are those that are generally unlimited in supply, such as solar, hydro, or wind energy, and those that can be readily replenished, such as biomass materials that can be grown (e.g., wood products, agricultural commodities). As such, the vast majority of materials used to construct and operate projects are considered to be non-renewable, or those with a finite supply that cannot be readily replenished. Such non-renewable resources include, but are not limited to, fossil fuels, natural gas, metals (e.g., steel, copper, aluminum), plastics, and cement.

Construction and Operational Materials Use

Fossil fuel would be used during construction activities and would include gasoline/diesel for construction equipment, material deliveries, demolition waste disposal, and construction crew travel. No natural gas would be required. Petroleum consumed by construction equipment, transport of construction materials, and worker trips would be the primary energy resource expended over the course of construction activities. Construction workers would likely travel to and from the Project area in gasoline- or diesel-powered vehicles. Construction is expected to require approximately 24 months. However, once construction activities cease, petroleum use from off-road equipment and transportation vehicles would not vary substantially from the operations at the Project site in the current existing condition. More specifically, once the Project is completed, the GWTP will require regular services to replace materials used in the groundwater treatment process, including resin, granular activated carbon (GAC), and filter cartridges. Although these activities would be limited, media replacement services would require pickup of spent media and delivery of new media with separate trips by large diesel-powered trucks, which would occur generally on a monthly basis throughout operations. In addition, while the proposed generators would provide backup power for the GWTP and Glorieta Booster Station during power outage conditions, and thus would only operate when needed or during monthly testing activities, the operation of the generators would consume a limited quantity of natural gas. However, such consumption would represent a very small fraction of the over 2,132 MMcf (or 2.1 billion cubic feet) of natural gas projected to be consumed state-wide on a daily basis in 2030, by which time the Project is expected to be operational (refer to Section 4.4, *Energy*, of this EIR). Similarly, because of the short-term nature of construction and relatively small scale of the construction activities required for the Project, the net increase in petroleum consumption during construction and operation of the Project would not be substantial when compared to California's daily total use of approximately 1.8 million barrels of petroleum (Cal Matters 2022). Project impacts related to consumption of nonrenewable resources are considered to be less than significant because the Project would not use unusual or wasteful amounts of energy or construction materials.

In addition to fossil fuel use, a variety of resource materials would be used during the construction process, including steel, wood, concrete, electrical wiring, and fabricated materials. Upon completion of the construction activities, the commitment of such materials is considered irreversible because it is unlikely that the facilities would ever be decommissioned, and if they were decommissioned in the future, it is unlikely that the materials would be reused. Construction and demolition (C&D) waste is required to be diverted from landfills by the CALGreen Code, which requires a minimum 50 percent of diversion; however, for the purposes of this analysis, the use of such resources is considered a permanent and irreversible use.

Construction materials would include concrete, cinderblocks, roofing materials, and electrical components and wiring, as well as pipes and valves and other appurtenances. These construction materials would likely be committed to other similar projects in the region if not used for this Project. Resources used for the Project would be typical of similar water infrastructure projects in the region and would require a relatively minimal amount of resources when compared to land use development projects with habitable structures. Therefore, although irretrievable commitments of resources would result from the proposed Project, such changes would be less than significant.

Irreversible changes may occur from environmental damage, such as spill or release of hazardous materials due to failure of human-made structures, or accidental fire resulting from mechanical or electrical failure. While there are many other types of accidents possible, those listed above represent the key sources for irreversible damage that can be associated with water infrastructure projects. As discussed in the Initial Study, construction activities would utilize hazardous materials on a short-term basis, and compliance with existing federal, state, and local regulations regarding hazardous material use, storage, disposal, and transport would prevent risks to public health and safety. Construction wastes that meet hazardous waste criteria would be stored, manifested, transported, and disposed of in accordance with the CCR (Title 22) and to the satisfaction of the Los Angeles County Fire Department, which serves as the local Certified Unified Program Agency (CUPA). Therefore, with compliance with applicable state and local regulations, the proposed Project would not result in irreversible damage from environmental accidents associated with the Project.

5.3 Growth-Inducing Impacts

Section 15126.2(e) of the CEQA Guidelines defines growth-inducement as the ways in which a project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. A project can induce growth by removing obstacles to population growth (e.g., a major expansion of a wastewater treatment plant); providing new transportation infrastructure that reaches previously undeveloped areas; building infrastructure sized beyond the needs to serve the existing region; or otherwise attracting growth to the project area that is not assumed in a General Plan or the regional growth projections. Growth-inducing impacts could be significant if they increase the population or require the construction of new regional-serving facilities that could cause significant environmental effects; and/or facilitate other activities that could significantly affect the environment, either individually or cumulatively.

The proposed Project would not directly foster economic or population growth. The Project does not involve the construction of any habitable structures that could support any occupiable land uses; no commercial or residential activity would result from Project implementation. As discussed above, during operation, the Project would not measurably increase the number of employees traveling to and from

the site above existing conditions. The basic functions of the Sunset Reservoir facilities would remain the same, and therefore require a similar number of employees.

The proposed Project would not indirectly foster economic or population growth, or otherwise remove a barrier to growth. The Project would not increase the available water supply such that population growth could be indirectly induced. Because there would be no direct or indirect impact related to fostering economic or population growth, or otherwise remove a barrier to growth, there would be no cumulative impacts related to growth-inducing impacts.

Additionally, the Project would not propose any physical or regulatory changes that would remove a restriction to or encourage population growth in the Project area, such as regulatory changes including General Plan Amendments encouraging population growth, specific plan amendments, zone reclassifications, sewer or water annexations; Local Agency Formation Commission annexation; or other similar actions. The Project is intended to increase water supply reliability and water system resiliency through an increase in local water supplies and would not encourage housing growth or result in growth-inducing impacts.

5.4 References

14 CCR 15000–15387 and Appendices A–N. Guidelines for Implementation of the California Environmental Quality Act, as amended.

California Public Resources Code, Sections 21000–21177. California Environmental Quality Act (CEQA), as amended.

Cal Matters. 2022. *Californians should look to California for its oil*. Available at: https://calmatters.org/commentary/2022/04/californians-should-look-to-california-for-its-oil/. April 25. Accessed August 16, 2022.

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6.0 ALTERNATIVES

This section of the Draft Environmental Impact Report (EIR) describes and evaluates alternatives to the Pasadena Water and Power Sunset Complex Project (Project). This section implements the requirements set forth in the California Environmental Quality Act (CEQA) Guidelines.

6.1 Introduction

Pursuant to Section 15126.6(a) of the CEQA Guidelines, an EIR "shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation."

Pursuant to Section 15126.6(b) of the CEQA Guidelines, an alternatives discussion must focus on "alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly."

Pursuant to Section 15126.6(c) of the CEQA Guidelines, "the range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination."

The inclusion of an alternative in an EIR does not constitute definitive evidence that the alternative is in fact "feasible." The final decision regarding the feasibility of alternatives lies with the decision maker(s) for a given project, who must make the necessary findings addressing the potential feasibility of an alternative, including whether it meets most of the basic project objectives or reduces the severity of significant environmental effects pursuant to CEQA (California Public Resources Code, Section 21081; see also 14 CCR 15091).

This EIR includes the analysis of three alternatives to the proposed Project:

- Alternative 1 - No Project Alternative
- Alternative 2 – Partial Historic Preservation Alternative
- Alternative 3 – Historic Rehabilitation Alternative

6.2 Project Objectives

As described in Section 3.0, *Project Description*, the overall intent of the Project is to replace aging and deficient water storage facilities and incorporate treatment infrastructure to ensure that the City can continue to provide reliable and clean drinking water. More specifically, the Project includes the following objectives:

1. Provide safe drinking water and system reliability to Pasadena Department of Water and Power (PWP) customers by:

    a. Addressing existing water leaks and seismic safety concerns present in the existing deteriorating Sunset Reservoirs.

    b. Constructing reservoirs that provide the volume necessary for operational and fire flow requirements.

    c. Replacing the existing reservoirs onsite to meet current engineering and seismic safety standards(2022 California Building Code or current code at the time permits are issued) for essential facilities, as designated by California Building Code Section 1604.5.

    d. Providing an on-site groundwater treatment system to remove perchlorates and volatile organic compounds at a rate of up to 4,500 gallons per minute (gpm), and provide space for nitrate removal at a rate of up to 800 gpm.

    e. Installing emergency generators to provide emergency power in the event of a power failure.

    f. Maintaining existing system hydraulics.

2. Improve the reliability of water service to existing PWP customers throughout implementation of the Project.

3. Maintain parking capacity for City employees currently parking at the site.

4. Maintain vehicular access to surrounding residences during construction activities, including pipeline connections and other improvements on adjacent public streets.

5. Enhance vehicular safety by providing a new traffic signal at the reconfigured truck access driveway along the Project's West Mountain Street frontage.

6. Improve the appearance of the facility by providing enhanced visual screening along the Project site's public street frontages.

7. Improve security at the facilities to minimize potential for tampering.

8. Provide opportunities for renewable energy generation at the Project site.

6.3 Alternatives Considered But Not Carried Forward

CEQA Guidelines Section 15126.6(c) recommends that an EIR identify alternatives that were considered for analysis but rejected as infeasible and briefly explain the reasons for their rejection. According to the CEQA Guidelines, among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts. With regard to feasibility, Section 15126.6(f)(1) states, "among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency,

other plan or regulatory limitations, jurisdictional boundaries, and whether the applicant can reasonably acquire, control, or otherwise have access to the alternative site." Three alternatives for the Project were considered, but ultimately rejected from further analysis in the EIR, consistent with Section 15126.6(c) of the CEQA Guidelines. A description of the potential alternatives considered, but not carried forward, and the rationale for rejection is provided below.

6.3.1 Off-Site Location Alternative

An Off-Site Location Alternative is not considered feasible as the existing Sunset Reservoirs are connected to the City's water system to serve certain pressure zones. A new facility at an alternative location would either need to be sited within the same pressure zones, limiting alternative locations, or would require a large amount of additional pipe construction and other improvements to connect to existing infrastructure to serve the correct pressure zone. The Project site contains buildings and infrastructure that would, in combination with the proposed Project components, continue to be in use following Project implementation. The use of an Off-Site Location Alternative would require the construction of additional facilities beyond those proposed for the Project, as existing infrastructure would not be utilized. The necessary additional construction of facilities and infrastructure that would be required for an Off-Site Location Alternative to continue to serve the correct pressure zones, whether located within the same pressure zones or outside of the pressure zones would likely result in additional significant impacts. As such, an Off-Site Location Alternative is dismissed from further consideration.

6.3.2 Relocation Alternative

A Relocation Alternative, which would relocate the existing facility and would require moving existing infrastructure from the Project site to a new location, is not considered feasible. Similar to the Off-Site Location Alternative, a Relocation Alternative would require a location within the same pressure zones to serve the existing service area or would require a large amount of additional pipe construction and other improvements to serve the correct pressure zone. In addition, a Relocation Alternative would require the removal and relocation of existing infrastructure currently in place at the Project site, to a new location. Due to the age of existing facilities, such as the reservoirs, relocation and reuse of some components would likely be unachievable, requiring replacement construction of those components that would not survive relocation. Relocation of existing facilities would not leave the Sunset Reservoir Complex Historic District intact, and thus, would not reduce significant impacts of the Project. As such, a Relocation Alternative is dismissed from further consideration.

6.3.3 Visual Preservation Alternative

The Visual Preservation Alternative would consist of the same components as the Project; however, the two new reservoirs constructed as part of the Visual Preservation Alternative on the Project site would preserve the existing reservoir roofs (i.e., reinstalling them over the new tanks after they are built) to retain the look of the current facility. Although this alternative would maintain the visual appearance of the existing reservoirs from off-site, this alternative would require the removal of the existing reservoirs and construction of new reservoirs. This alternative would still result in the removal of two of three primary contributors to the Sunset Reservoir Complex Historic District. Although this alternative would maintain some of the visual appearance of the historic reservoir structures, it would not maintain the historic structures, and it would not avoid the significant historic impact of the Project. Additionally, the engineering feasibility of reusing the roofs is undetermined. As this alternative would not substantially

reduce significant impacts of the Project and the feasibility of such an alternative is undetermined, it is eliminated from further discussion.

6.4 Alternatives to the Proposed Project

This section discusses the alternatives to the Project, including the No Project Alternative, under consideration. However, the range of alternatives analyzed is limited, as discussed above, based upon the Project site's location and purpose. The No Project Alternative, which is a required element of an EIR pursuant to Section 15126.6(e) of the CEQA Guidelines, examines the environmental effects that would occur if the Project were not to proceed and no development activities were to occur. The other alternatives are discussed as part of the "reasonable range of alternatives" selected by the City, as Lead Agency, that would attain most of the basic objectives of the Project, would be potentially feasible to implement, and would avoid or substantially lessen one or more of the significant effects of the Project. Accordingly, the following alternatives to the Project were selected for consideration in this EIR:

- Alternative 1 – No Project Alternative
- Alternative 2 – Partial Historic Preservation Alternative
- Alternative 3 – Historic Rehabilitation Alternative

The following rationale was considered when developing this range of alternatives:

- The No Project Alternative is required per State CEQA Guidelines Section 15126.6(e). It provides a basis for comparing the impacts that would occur if the Project were approved, relative to what would occur if the Project were not approved.
- The Partial Historic Preservation Alternative and the Historic Rehabilitation Alternative are included in this section to evaluate whether the significant historic resources impacts would be reduced substantially when compared to the Project.

Pursuant to Section 15126.6(d) of the CEQA Guidelines, each alternative is evaluated in sufficient detail to determine whether the overall environmental impacts would be less than, similar to, or greater than the corresponding impacts of the Project. Each alternative is also evaluated to determine whether the Project objectives would be substantially attained.

6.4.1 Alternative 1 – No Project Alternative

Section 15126.6(e) of the State CEQA Guidelines provides that the "no project" analysis "shall discuss the existing conditions at the time the notice of preparation is published, as well as what would be reasonably expected to occur in the foreseeable future if a project were not approved, based on current plans and consistent with available infrastructure and community services." The "no project" alternative is defined as the circumstance under which the Project does not proceed and a comparison of the environmental effects of the property remaining in its existing state against the environmental effects associated with the Project. Accordingly, the No Project Alternative assumes that the Project would not be adopted and no improvements to the Pasadena Water and Power Sunset Reservoir facility would occur. Ongoing upkeep and repairs would still be required to maintain the existing facilities, which

would contribute to potential environmental impacts. The existing conditions described in Section 2.0, *Environmental Setting*, of this EIR would remain at the Project site.

6.4.1.1 Consistency with Project Objectives

The No Project Alternative would result in a continuation of existing conditions at the Project site. No improvements to the Sunset Reservoirs facility would occur, although ongoing maintenance would be required to upkeep and repair the aging infrastructure. Table 6-1, *Comparison of Project Objectives and the No Project Alternative*, provides a list of the Project objectives (previously identified in Chapter 3.0, *Project Description*) and an evaluation of the No Project Alternative's consistency with each objective. As shown in Table 6-1, the No Project Alternative would fail to meet many of the Project objectives.

Table 6-1
COMPARISON OF PROJECT OBJECTIVES AND THE NO PROJECT ALTERNATIVE

Project Objectives	No Project Alternative Consistency with Project Objectives
1. Provide safe drinking water and system reliability to PWP customers by: a. Addressing existing water leaks and seismic safety concerns present in the existing deteriorating Sunset Reservoirs. b. Constructing reservoirs that provide the volume necessary for operational and fire flow requirements. c. Replacing the existing reservoirs to meet current engineering and seismic safety standards (2022 California Building Code or current code at the time permits are issued) for essential facilities, as designated by California Building Code Section 1604.5. d. Providing an on-site groundwater treatment system to remove perchlorates and volatile organic compounds at a rate of up to 4,500 gpm, and provide space for nitrate removal at a rate of up to 800 gpm. e. Installing emergency generators to provide emergency power in the event of a power failure. f. Maintaining existing system hydraulics.	The No Project Alternative would not address existing water leaks and seismic safety concerns associated with the existing deteriorating Sunset Reservoirs; would not replace or modify the existing reservoirs; and would not provide a new on-site groundwater treatment system or emergency generators. Existing system hydraulics would be maintained under the No Project Alternative. The ongoing leaks and deteriorating infrastructure may result in future substantial upkeep to prevent future impacts, which would not be addressed by the No Project Alternative.
Improve the reliability of water service to existing PWP customers throughout implementation of the Project.	The No Project Alternative would not result in improvements to the reliability of water service to existing PWP customers.

Project Objectives	No Project Alternative Consistency with Project Objectives
Maintain parking capacity for City employees currently parking at the site.	No changes to the Sunset Reservoirs facility would occur under the No Project Alternative; thus, existing on-site parking would be maintained. Electric Vehicle (EV) parking stalls or infrastructure would not be installed.
Maintain vehicular access to surrounding residences during construction activities, including pipeline connections and other improvements on adjacent public streets.	No construction activities and associated vehicular access issues would occur under the No Project Alternative.
Enhance vehicular safety by providing a new traffic signal at the reconfigured truck access driveway along the Project's West Mountain Street frontage.	The No Project Alternative would not meet this Project objective as it would not result in improvements at the Project site. No new traffic signal or reconfigured truck access would occur under the No Project Alternative.
Improve the appearance of the facility by providing enhanced visual screening along the Project site's public street frontages.	No improvements to the appearance of the facility would occur under the No Project Alternative.
Improve security at the facilities to minimize potential for tampering.	The No Project Alternative would not meet this Project objective as it would not result in improvements at the Project site.
Provide opportunities for renewable energy generation at the Project site.	The No Project Alternative would not result in the placement of solar panels or other renewable energy resources at the Project site.

6.4.1.2 Environmental Analysis

Aesthetics

As discussed in Section 4.1, *Aesthetics,* of this EIR, the Project would result in less than significant aesthetic impacts. The No Project Alternative would not result in any visual changes or aesthetic impacts at the Project site. No removal of existing structures or construction of new structures would occur. Thus, no changes to the scenic resources present on the Project site (an eligible historic district and local landmark) would occur. No scenic vistas would be impacted and no changes to the visual character or quality of public views of the site would occur. No new sources of light or glare would be added to the Project site. All less than significant aesthetic impacts that would occur as a result of the Project would be eliminated under the No Project Alternative.

Air Quality

Air quality impacts associated with the Project would be less than significant, as discussed in Section 4.2, *Air Quality*, of this EIR. Under the No Project Alternative, no demolition, grading, construction, or new development would occur and therefore no air pollutants associated with those activities would be

generated, which is a reduced impact compared to the Project. In addition, the negligible operational emissions associated with the Project's testing of the backup generators and operation of the groundwater treatment plant (GWTP) would not occur. Emissions related to maintenance would potentially be slightly higher than the Project, due to the upkeep and repairs required for the aging infrastructure. Additionally, the No Project Alternative would not provide solar panels at the Project site, reducing operational emissions. The No Project Alternative would not expose sensitive receptors to pollutant concentrations. Overall, impacts associated with the No Project Alternative would be reduced compared to the Project.

Cultural Resources

As discussed in Section 4.3, *Cultural Resources*, of this EIR, implementation of the Project would result in a significant adverse impact and material impairment to the Sunset Reservoir Complex Historic District. Under the No Project Alternative, existing structures would not be demolished and as a result, no significant impact to historic structures would occur as a result of this alternative. No removal of contributing structures within the existing Sunset Reservoir Complex Historic District would occur. The No Project Alternative would avoid the significant, unmitigable historic resource impact associated with the Project.

Energy

Project impacts associated with energy are identified as less than significant in Section 4.4, *Energy*, of this EIR. The No Project Alternative would not directly result in changes to energy consumption at the Project site. The existing Sunset Reservoir Complex would continue operating in its current condition. However, operational energy use associated with the No Project Alternative would incrementally increase compared to the proposed Project, as water losses associated with keeping the existing aging infrastructure would be greater than those that would occur with new reservoirs, requiring replacement water. Additionally, no energy would be generated by the addition of solar panels at the site under this alternative. No energy would be required for construction activities (as no construction activities would occur under the No Project Alternative). Less than significant impacts would occur as a result of the No Project Alternative, similar to the Project.

Greenhouse Gas Emissions

Implementation of the Project would result in less than significant greenhouse gas (GHG) impacts, as discussed in Section 4.5, *Greenhouse Gas Emissions*, of this EIR. The No Project Alternative would not result in new construction GHG emissions or impacts, but the No Project Alternative would lead to slightly increased emissions related to future maintenance required for repair and upkeep of the existing aging infrastructure. The increased need for replacement water under this alternative would lead to more pumping, and thus, an associated increase in energy usage and GHG emissions. Additionally, the reduced operational GHG emissions associated with the use of solar panels at the Project site would not occur under this alternative. Less than significant impacts would occur as a result of the No Project Alternative, similar to the Project.

Hazards and Hazardous Materials

As discussed in Section 4.6, *Hazards and Hazardous Materials*, of this EIR, the Project would result in hazards and hazardous materials impacts requiring mitigation. Under the No Project Alternative, hazardous materials transport, storage, use, and disposal would continue to occur at the Project site as

part of normal facility operations, including potential additional maintenance and repairs related to upkeep of aging infrastructure. This would be done in compliance with applicable federal, state, and local requirements. No hazardous materials specific to the construction of new facilities would be present. No impact associated with potential releases of hazardous materials (such as asbestos-containing materials (ACM), lead-based paint (LBP), or wood construction materials formerly treated with Creosote) as a result of demolition activities would occur. Further, no construction-related traffic, or temporary lane closures would occur as a result of the No Project Alternative, and no impacts associated with impediment of an adopted emergency response plan or emergency evacuation plan would occur as a result of the No Project Alternative, which is a reduced impact compared to the Project.

Noise

As described in Section 4.7, *Noise*, of this EIR, the Project would result in less than significant noise impacts. The No Project Alternative would not result in demolition or construction activities or new stationary and mobile noise sources in the vicinity of existing noise-sensitive land uses. Therefore, no noise impact from construction would occur, and no mitigation would be required. The existing operational noise conditions on the Project site would continue and there would be no new noise sources at the site that could potentially impact off-site uses. There would be no noise impact, which is reduced compared to the Project.

Tribal Cultural Resources

Under the No Project Alternative, no excavation or grading activities would occur and the potential for construction or operational impacts to unknown tribal cultural resources from implementation of the Project would be avoided. As described in Section 4.8, *Tribal Cultural Resources*, of this EIR, the identified potential for impacts to tribal cultural resources associated with implementation of the Project would be significant but mitigable with the implementation of a monitoring program, including procedures for burials and funerary remains. No tribal cultural resource impacts are associated with the No Project Alternative, which is a reduced impact compared to the Project.

6.4.1.3 Conclusion

The No Project Alternative would avoid the significant and unmitigable historic resources impact. The No Project Alternative would also avoid significant but mitigable impacts to tribal cultural resources. It would avoid all other impacts of the Project related to aesthetics, air quality, cultural resources, energy, GHG emissions, hazards and hazardous materials, noise, and tribal cultural resources. However, maintenance related to future upkeep and repair would still be required. In addition, the following benefits of the Project would not be realized under the No Project Alternative:

- Improved reliability for the PWP water system;
- Minimization of water losses for the PWP water system by replacement of reservoirs with existing leaks;
- Incorporation of seismic improvements for the reservoirs;
- Replacement or modification of existing reservoirs to current engineering standards;

- Improved water quality through the provision of an on-site groundwater treatment system;
- Improved site security;
- New source of backup power for emergencies associated with the installation of emergency generators;
- Enhanced vehicular safety due to a new traffic signal at the reconfigured truck access driveway along the Project's West Mountain Street frontage;
- Visual improvements along the Project site's public street frontages through enhanced perimeter fencing and landscaping elements for visual screening; and
- Placement of renewable energy resources at the Project site.

Based on the preceding analysis and the fact that no development of any of the Project features would occur with the No Project Alternative, this alternative would fail to meet any of the basic Project objectives listed above in Section 6.4.1.1.

6.4.2 Alternative 2 – Partial Historic Preservation Alternative

The Partial Historic Preservation Alternative would retain a larger number of the Sunset Reservoir Complex Historic District features than the Project, but would also implement Project components that would enhance the functionality of the facility. This alternative would implement some of the Project components, but would preserve additional components of the Sunset Reservoir Complex Historic District in its current condition. Table 6-2, *Alternative 2 – Partial Historic Preservation Alternative*, summarizes the components of the Sunset Reservoir Complex Historic District that would be retained under this alternative. The Partial Historic Preservation Alternative would include the removal of Existing Reservoir 2 (a primary contributor to the Sunset Reservoir Complex Historic District). Existing Reservoir 1, Well No. 20 (Sunset Well)[1], and A-basin would be retained in their existing condition and location. Existing Reservoir 1 is a primary contributor to the Sunset Reservoir Complex Historic District. Well No. 20 (Sunset Well) and A-basin are secondary contributors to the Sunset Reservoir Complex Historic District. The Partial Historic Preservation Alternative would construct a new reservoir in place of the Existing Reservoir 2, similar in size to the Project, with minor modifications due to its overlap in location with Existing Reservoir 1, which would remain in place. Solar panels would be placed on top of the new reservoir. Additionally, the Partial Historic Preservation Alternative would construct a number of improvements at the site that are identical to the Project, including a GWTP, emergency generators, air gap structures, stormwater treatment structures, a new traffic signal at the reconfigured truck access driveway along the property's West Mountain Street frontage, a surface parking lot with solar canopies, and new perimeter fencing and landscape screening (landscape screening under this alternative would be reduced as compared to the Project, as some portions of the west perimeter to Existing Reservoir 1 do not have adequate space to provide landscaping screening). The Partial Historic Preservation Alternative would also relocate the Disinfection Facility and two chemical tanks, the same as identified for the Project. Similar to the Project, this alternative would also retain the Glorieta Booster Station (which is not a contributing structure to the Sunset Reservoir Complex Historic District), the Sheldon

[1] Well No. 20 is described elsewhere in this EIR as Sunset Well; however, the Well No. 20 nomenclature has been retained in this discussion of the Partial Historic Preservation Alternative to be consistent with the naming conventions used in the Project Historic Resources Evaluation Report.

Booster House (Sunset Booster Station; a secondary contributor to the Sunset Reservoir Complex Historic District)[2], and the stream-rock retaining wall (a primary contributor to the Sunset Reservoir Complex Historic District). This alternative would result in the preservation of two of the three primary contributors (Existing Reservoir 1 and the stream-rock retaining wall) and all three secondary contributors (Sheldon Booster House [Sunset Booster Station], Well No. 20 [Sunset Well], and A-basin) to the Sunset Reservoir Complex Historic District.

Table 6-2
ALTERNATIVE 2 - PARTIAL HISTORIC PRESERVATION ALTERNATIVE

Resource Name	Resource Type	NRHP/CRHR/City Landmark Eligibility Criteria	Primary or Secondary Contributor	Disposition of Resource under Alternative 2
Existing Reservoir 1	Reservoir	Eligible as a contributor to the Sunset Reservoir Complex Historic District under Criteria A/1/a	Primary	To be retained
Existing Reservoir 2	Reservoir	Eligible as a contributor to the Sunset Reservoir Complex Historic District, Criteria A/1/a	Primary	To be demolished/ removed
A-Basin	Aerator tank, weir, and flume	Eligible as a contributor to the Sunset Reservoir Complex Historic District, Criteria A/1/a	Secondary	To be retained
Well No. 20 (Sunset Well)	Well	Eligible as a contributor to the Sunset Reservoir Complex Historic District, Criteria A/1/a	Secondary	To be retained
Glorieta Pump Station	Pump house	Not a contributing structure	Not a contributing structure	To be retained

[2] The Sheldon Booster House is described elsewhere in this EIR as Sunset Booster Station; however, the Sheldon Booster House nomenclature has been retained in this discussion of the Partial Historic Preservation Alternative to be consistent with the naming conventions used in the Project Historical Resources Evaluation Report.

Resource Name	Resource Type	NRHP/CRHR/City Landmark Eligibility Criteria	Primary or Secondary Contributor	Disposition of Resource under Alternative 2
Sheldon Booster House (Sunset Booster Station)	Booster House	Eligible as a contributor to the Sunset Reservoir Complex Historic District, Criteria A/1/a	Secondary	To be retained
Steam-Rock Retaining Wall	Wall	Eligible as a contributor to the Sunset Reservoir Complex Historic District, Criteria A/1/a	Primary	To be retained

6.4.2.1 Consistency with Project Objectives

The Partial Historic Preservation Project Alternative would result in the preservation of five of the six contributors to the Sunset Reservoir Complex Historic District (including two out of the three primary contributors and all three secondary contributors) and the implementation of many of the Project components to increase facility functionality. Table 6-3, *Comparison of Project Objectives and the Partial Historic Preservation Alternative*, provides a list of the Project objectives (previously identified in Chapter 3.0, *Project Description*) and an evaluation of the Partial Historic Preservation Alternative's consistency with each objective. As shown in Table 6-3, while the Partial Historic Preservation Alternative would meet many of the Project objectives, it would not fully realize the Project objectives addressing the provision of safe drinking water and overall reliability of the PWP water system. This alternative would not fully address existing water leaks and the need for updating the existing reservoirs to current engineering and seismic safety standards for both reservoirs. These issues would only be addressed for the reservoir that is proposed for replacement under the Partial Historic Preservation Alternative.

Table 6-3
COMPARISON OF PROJECT OBJECTIVES AND THE PARTIAL HISTORIC PRESERVATION ALTERNATIVE

Project Objectives	Partial Historic Preservation Alternative Consistency with Project Objectives
Provide safe drinking water and system reliability to PWP customers by: a. Addressing existing water leaks and seismic safety concerns present in the existing deteriorating Sunset Reservoirs. b. Constructing reservoirs that provide the volume necessary for operational and fire flow requirements.	As this alternative would not replace Existing Reservoir 1, this alternative would not fully address existing water leaks and seismic safety concerns. Additionally, the alternative does not ensure that a seismic event would not jeopardize the storage capacity, as no improvements to Existing Reservoir 1 would occur. Existing Reservoir 1 would not meet current engineering and seismic safety standards. A new GWTP and

Project Objectives	Partial Historic Preservation Alternative Consistency with Project Objectives
c. Replacing the existing reservoirs onsite to meet current engineering and seismic safety standards (2022 California Building Code or current code at the time permits are issued) for essential facilities as designated by California Building Code Section 1604.5. d. Providing an on-site groundwater treatment system to remove perchlorates and volatile organic compounds at a rate of up to 4,500 gpm, and provide space for nitrate removal at a rate of up to 800 gpm. e. Installing emergency generators to provide emergency power in the event of a power failure. f. Maintaining existing system hydraulics.	emergency generators would be provided under this alternative. Existing system hydraulics would be maintained under the Partial Historic Preservation Alternative.
Improve the reliability of water service to existing PWP customers throughout implementation of the Project.	The Partial Historic Preservation Alternative would partially address the objective of improving the reliability of water service to PWP customers under this alternative; although improvements would not be to the extent of the Project, as only one reservoir would be replaced. The Partial Historic Preservation Alternative would provide a new on-site groundwater treatment system and emergency generators, which would contribute to improved reliability.
Maintain parking capacity for City employees currently parking at the site.	The Partial Historic Preservation Alternative would include the provision of a surface parking lot, thereby maintaining parking capacity for City employees during operation of this alternative, similar to the Project. Electric Vehicle (EV) parking stalls or infrastructure would be installed.
Maintain vehicular access to surrounding residences during construction activities, including pipeline connections and other improvements on adjacent public streets.	The Partial Historic Preservation Alternative would implement construction traffic measures to maintain vehicular access to surrounding residences during construction activities, similar to the Project.
Enhance vehicular safety by providing a new traffic signal at the reconfigured truck access driveway along the Project's West Mountain Street frontage.	A new traffic signal and reconfigured truck access would be implemented as part of the Partial Historic Preservation Alternative, enhancing vehicular safety along West Mountain Street and the property driveway.

Project Objectives	Partial Historic Preservation Alternative Consistency with Project Objectives
Improve the appearance of the facility by providing enhanced visual screening along the Project site's public street frontages.	The Partial Historic Preservation Alternative would implement enhanced perimeter fencing and landscaping elements to improve the appearance of the facility; however, these improvements would be reduced as compared to the Project, due to limited spacing between Existing Reservoir 1, which would remain in place under this alternative and the property line, which would restrict landscape improvements in that area.
Improve security at the facilities to minimize potential for tampering.	The Partial Historic Preservation Alternative would improve security at the Project site by providing a new reservoir, which would be constructed to minimize the ability for tampering; however, Existing Reservoir 1 would remain in place, without security improvements to reduce the risk of tampering.
Provide opportunities for renewable energy generation at the Project site.	The Partial Historic Preservation Alternative would allow for the placement of solar panels at the Project site, although the number of panels would be reduced as compared to the Project as they would only be placed on one reservoir under this alternative.

6.4.2.2 Environmental Analysis

Aesthetics

As discussed in Section 4.1, *Aesthetics,* of this EIR, the Project would result in less than significant aesthetic impacts. The Partial Historic Preservation Alternative would not result in impacts to scenic resources along scenic highways, as the Project site is not located within the viewsheds of State Route 2 or Interstate 210. The Project site is an eligible historic district and local landmark, and the Partial Historic Preservation Alternative would alter the visual appearance of the Project site. The Partial Historic Preservation Alternative would result in the demolition of Existing Reservoir 2, and the construction of a new reservoir and several additional components, as previously described. The GWTP, emergency generators, air gap structures, stormwater treatment structures, a new traffic signal at the reconfigured truck access driveway, surface parking lot with solar canopies, and new perimeter fencing and landscape screening would generally be in the same locations as identified for the Project. The Partial Historic Preservation Alternative would also relocate the Disinfection Facility and two chemical tanks, which would be placed in the same location as the Project.

The perimeter fencing and landscape screening, coupled with siting of the Project components strategically at the site, would largely reduce visual impacts associated with these components; however, landscaping improvements under this alternative would be slightly reduced as compared to the Project, due to limited spacing between Existing Reservoir 1 (which would remain in place under this

alternative) and the Project site property line. Elevational differences and public views into and of the Project site would further reduce the visual impact of new structures, similar to the Project. The new reservoir proposed under the Partial Historic Preservation Alternative would be sited in a similar manner and location to that proposed for the Project. Additionally, the existing components that would remain under this alternative, including Existing Reservoir 1, Sunset Well, and A-basin would remain visually unchanged from the existing condition. The landscape screening that would occur under the Partial Historic Preservation Alternative would reduce visibility of the existing components as viewed from off site, except where space limitations occur near Existing Reservoir 1. The placement of solar panels at the Project site under this alternative would result in similar impacts to those identified for the Project, although a reduced number of solar panels would be installed under this alternative. Glare impacts would be less than significant, the same as identified for the Project. The Partial Historic Preservation Alternative would result in similar aesthetic impacts to those identified for the Project and aesthetic impacts would be less than significant.

Air Quality

Air quality impacts associated with the Project would be less than significant, as discussed in Section 4.2, *Air Quality*, of this EIR. The Partial Historic Preservation Alternative would be consistent with the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP). Pollutant emissions from the Partial Historic Preservation Alternative would be less than the SCAQMD thresholds (refer to paragraph below), due to reduced construction emissions, and would not result in a significant impact. In addition, operational emissions under the Partial Historic Preservation Alternative would be similar to the proposed Project, and emissions related to maintenance would potentially be higher than the Project, due to the upkeep and repairs required for the remaining aging infrastructure and a reduced number of solar panels. The Partial Historic Preservation Alternative would be consistent with the Zoning and General Plan Land Use designations for the site and would therefore be consistent with the growth expectations for the region. Similar to the Project, no impact associated with AQMP consistency would occur for the Partial Historic Preservation Alternative.

Demolition, grading, and construction activities would occur under the Partial Historic Preservation Alternative. Construction activities associated with the Partial Historic Preservation Alternative would be reduced as compared to the Project, as this alternative would not demolish Existing Reservoir 1, Sunset Well, or A-basin; grading would not occur within those portions of the Project site; and the construction of a new Reservoir 1 would not occur. Construction activities associated with the Partial Historic Preservation Alternative would be conducted in compliance with SCAQMD's Rule 403 for fugitive dust, which requires the implementation of best available control measures for any activity or human-made condition capable of generating fugitive dust. As demonstrated in Section 4.2, *Air Quality*, of this EIR, the Project would result in less than significant impacts associated with construction emissions, and construction emissions associated with the Project would not exceed SCAQMD daily emission thresholds. Because demolition and construction activities would be reduced under this alternative, the Partial Historic Preservation Alternative would result in less construction emissions than the Project, would not exceed SCAQMD's daily emission thresholds, and would result in less than significant impacts.

The Partial Historic Preservation Alternative would construct a GWTP, emergency generators, air gap structures, stormwater treatment structures, a new traffic signal at the reconfigured truck access driveway along the property's West Mountain Street frontage, a surface parking lot with solar canopies, and new perimeter fencing and landscape screening. Operational emissions associated with the Partial Historic Preservation Alternative would be increased as compared to that of the proposed Project, as

water losses associated with Existing Reservoir 1 would be greater than those that would occur with a new reservoir, requiring replacement water. The increased need for replacement water under this alternative would require more pumping, and thus, more energy usage and more operational air quality emissions. Additionally, this alternative would result in a reduced amount of solar panels being installed at the Project site. The use of emergency backup generators (which would operate in limited capacity during periodic testing and during emergency-use situations) and operation of the new GWTP would generate new emissions. However, as discussed for the Project in Section 4.2 of this EIR, modeling estimates the emergency generators would result in 2.4 pounds per day of volatile organic compounds (VOC) and 6.3 pounds per day of carbon monoxide (CO) per generator; emissions of all other pollutants would be less than one pound per day per generator. Additionally, operation of the GWTP was estimated to result in negligible emissions (refer to Section 4.2, *Air Quality*). As the Partial Historic Preservation Alternative would implement these components of the Project and would result in additional operational air quality emissions associated with energy use for pumping water to replace water losses, and would provide fewer solar panels for energy generation, operational emissions would be increased under this alternative, but would not be expected to exceed significance thresholds. Impacts associated with operational emissions under this alternative would be greater than those identified for the Project, but would result in similar less than significant impacts.

With regards to the alternative's potential to expose sensitive receptors to substantial pollutant concentrations, the Partial Historic Preservation Alternative would result in similar impacts to those identified for the Project. The basic functions of the Sunset Reservoir facility would remain the same under the Partial Historic Preservation Alternative, and therefore, the facility would require the same number of employees as that of the Project and the existing facility. Because operational trips associated with employees under the Project would remain the same, the Partial Historic Preservation Alternative, like the Project, would not contribute to a significant impact associated with the formation of CO hot spots. Maximized daily construction emissions for the Project would not exceed SCAQMD localized significance thresholds for receptors located at a distance of 25 meters. As the Partial Historic Preservation Alternative would result in reduced demolition, grading, and construction activities as compared to the Project, construction emissions would also be below SCAQMD localized significance thresholds for nearby receptors and would be less than significant. Toxic air contaminant emissions during construction activities would occur in relation to diesel particulate emissions associated with heavy construction equipment. Construction activities associated with the Partial Historic Preservation Alternative would be short term, similar to the Project. The assessment of cancer risk is typically based on a 30- to 70-year exposure period. Because exposure to diesel exhaust would be well below the 30 and 70-year exposure period, construction of the Partial Historic Preservation Alternative is not anticipated to result in an elevated cancer risk to exposed persons. Toxic air contaminant emissions during construction would be similar to those identified for the Project, and related impacts would be less than significant.

Cultural Resources

As discussed in Section 4.3, *Cultural Resources*, of this EIR, implementation of the Project would result in a significant adverse impact and material impairment to the Sunset Reservoir Complex Historic District. Mitigation measures are provided for the Project, but the measures would not reduce Project impacts to historic resources to a less than significant level. As such, the Project would have a significant and unmitigable impact to historic resources.

The Partial Historic Preservation Alternative would retain three additional structures (Existing Reservoir 1, Well No. 20 [Sunset Well], and A-basin) on the Project site that are contributors to the Sunset Reservoir Complex Historic District. Specifically, this alternative would result in the preservation of two of the three primary contributors (Existing Reservoir 1 and the stream-rock retaining wall) and all three secondary contributors (Sheldon Booster House [Sunset Booster Station], Well No. 20 [Sunset Well], and A-basin) to the Sunset Reservoir Complex Historic District. Existing Reservoir 2, which is a primary contributor to the Sunset Reservoir Complex Historic District, would be demolished and replaced with a new reservoir. While the Partial Historic Preservation Alternative would preserve three additional structures that are contributors to the Sunset Reservoir Complex Historic District as compared to the Project, impacts to the historic resource (the Sunset Reservoir Complex Historic District) would remain significant, because Existing Reservoir 2, which is a contributing resource to the Sunset Reservoir Complex Historic District, would be removed, and the Sunset Reservoir Complex Historic District would no longer convey its significance. The Sunset Reservoir Complex Historic District is comprised of a set of individual, discreet and unique contributing elements. There are three primary contributors to the District: Reservoir 1 and Reservoir 2, dating to 1888 and 1900 respectively, as well as the stream rock retaining wall also dating to 1888. The two reservoirs are large, functionally significant structures that are not identical, and each is defined by its own character-defining features as described in the Historic Resources Evaluation Report (HRER) for the Project. Each reservoir represents a specific period within the history of the facility's development as a water conveyance system. The significance of the Sunset Reservoir facility is derived from the interrelationship of its resources and how they have functioned together over time. As such, in this particular case the contributing resources are interpreted together as one cohesive unit (the Historic District) that represents the history of an important water conveyance complex in the history of Pasadena's late 19th and early 20th Century growth and development. Thus, all contributing resources to the district are considered necessary to retain and convey the significance of the Sunset Reservoir Complex Historic District. The demolition of Reservoir 2 represents the loss of one of three distinct primary contributing features of the Sunset Reservoir Complex Historic District. The HRER for the Project concluded that "the demolition and replacement of some of [the Sunset Reservoir Complex Historic District] contributing features, including primary contributors Reservoir No. 1 and Reservoir No. 2, would be expected to cause a significant adverse impact and material impairment" As such, any significant impacts to one or more of the contributing resources would be considered a significant impact to the Historic District as a whole. Mitigation measure requirements would be the same as those identified for the Project, but these mitigation measures are not sufficient to reduce impacts on historic resources to a less than significant level. As such, the Partial Historic Preservation Alternative would result in a significant adverse impact and material impairment to the Sunset Reservoir Complex Historic District. Therefore, impacts related to historic resources for the Partial Historic Preservation Alternative would be reduced when compared to the Project but would remain significant and unmitigable.

Energy

Project impacts associated with energy are identified as less than significant in Section 4.4, *Energy*, of this EIR. Construction and operational-related energy use would be similar to the Project under the Partial Historic Preservation Alternative. Construction-related energy use associated with the Partial Historic Preservation Alternative would primarily consist of fuels in the form of diesel and gasoline. Fuel consumed by construction equipment would be the primary energy resource expended over the course of construction and would include the transportation of construction materials and construction worker commutes. Heavy-duty construction equipment associated with construction activities, haul trucks involved in the removal of construction and demolition materials, and smaller support equipment (such

as lighting, air compressors, and pumps) would consume petroleum-based fuel. Construction workers would travel to and from the Project site throughout the duration of construction, presumably in vehicles utilizing internal combustion engines. Construction energy usage associated with the Partial Historic Preservation Alternative would be reduced as compared to the Project, due to the reduced demolition and associated grading. In addition, construction energy would be reduced as only one new reservoir would be constructed. Similar to the Project, construction energy usage would be temporary and typical of similar construction projects.

Operational energy use associated with the Partial Historic Preservation Alternative would be increased as compared to that of the proposed Project, as water losses associated with keeping Existing Reservoir 1 would be greater than those that would occur with a new reservoir, requiring replacement water. The increased need for replacement water under this alternative would require more pumping, and thus, more energy usage. Additionally, this alternative would result in a reduced amount of solar panels being installed at the Project site. Both the Project and the Partial Historic Preservation Alternative would add new components that increase energy usage - the new GWTP and backup emergency generators. Although these two components would increase energy usage in the form of electricity for the GWTP and fuel for the backup emergency generators, no new major infrastructure and no new electrical connections would be constructed. Additionally, although the Partial Historic Preservation Alternative would use more energy pumping water to replace water losses associated with Existing Reservoir 1, it is not expected that the increased energy usage would require new major infrastructure or new electrical connections. Further, the Partial Historic Preservation Alternative would be required to meet the mandatory energy standards of CALGreen and the California Energy Code (Title 24, Part 6 of the California Code of Regulations), which would further minimize inefficient energy usage. This alternative would provide solar panels at the Project site, albeit a reduced number as compared to the Project. Impacts associated with wasteful, inefficient, or unnecessary consumption of energy resources would be less than significant during construction and operation of the Partial Historic Preservation Alternative.

Although the Partial Historic Preservation Alternative would result in an increase in energy usage and reduced energy generation from a reduced number of solar panels, the Partial Historic Preservation Alternative would be replacing existing infrastructure and the consumption of energy would be comparable to existing conditions. Similar to the Project, the Partial Historic Preservation Alternative would construct a new GWTP on the site, but as discussed above, the GWTP would not result in a significant increase in energy usage. The Partial Historic Preservation Alternative would also be consistent with the City's energy goals of increasing conservation, efficiency, and sustainability by maintaining source capacity for potable water within the City limits. As such, similar to the Project, the Partial Historic Preservation Alternative would not result in any significant impacts related to obstruction of state or city plans for renewable energy or energy efficiency.

Greenhouse Gas Emissions

Implementation of the Project would result in less than significant GHG impacts, as discussed in Section 4.5, *Greenhouse Gas Emissions*, of this EIR. Construction GHG emissions associated with the Partial Historic Preservation Alternative would be generated by vehicle engine exhaust from construction equipment, on-road hauling trucks, and worker commuting trips. Construction GHG emissions would be slightly reduced under the Partial Historic Preservation Alternative as compared to the Project, due to the reduced demolition and grading that would occur. Additionally, only one reservoir would be constructed under this alternative, which would reduce emissions associated with construction activities.

During operations, area and indirect emissions sources associated with the Partial Historic Preservation Alternative would primarily result from energy sources, including the use of natural gas and electricity. Operational GHG emissions associated with the Partial Historic Preservation Alternative would be similar to that of existing conditions and slightly increased as compared to the Project. Both the Project and the Partial Historic Preservation Alternative would add new GHG-generating components - the new GWTP and backup emergency generators; however, as discussed above for Air Quality, emissions associated with these components are limited. The Partial Historic Preservation Alternative would also add solar panels on the roof of the new reservoir and in solar canopies over a portion of the surface parking lot; however, the number of solar panels installed would be reduced as compared to the Project. Additionally, the Partial Historic Preservation Alternative would result in increased water losses associated with keeping Existing Reservoir 1 as compared to the Project, requiring replacement water. The increased need for replacement water under this alternative would require more pumping, and thus, an associated increase in energy usage and GHG emissions.

The City of Pasadena evaluates GHG significance based on a project's consistency with the City's Climate Action Plan (CAP) using the CAP Consistency Checklist. Similar to the Project, the Partial Historic Preservation Alternative would replace and upgrade existing infrastructure resulting primarily in construction-based emissions. As such, the mandatory Sustainable Development Actions in the CAP Consistency Checklist would not apply to the Partial Historic Preservation Alternative. As identified for the Project, the Partial Historic Preservation Alternative would implement GHG reduction measures T-6.1, which would reduce GHG emissions from heavy-duty construction equipment and vehicles, and WC-1.1, which would reduce potable water use throughout Pasadena. GHG reduction measure E-5 from the CAP would also be implemented by this alternative, with the addition of solar panels on the new reservoir's roof and in the solar canopies that would be provided over a portion of the surface parking lot. Additionally, the Partial Historic Preservation Alternative would comply with Section 8.61.175 of the Pasadena Municipal Code that requires a minimum recycling diversion rate of 75 percent for construction and demolition debris. Similar to the Project, the Partial Historic Preservation Alternative would require preparation of a Construction Waste Management Plan to comply with the City's Construction and Demolition Ordinance (Section 8.62 of the Municipal Code). With the Partial Historic Preservation Alternative's Construction Best Management Practices to limit emissions from construction equipment and to reduce potable water use, this alternative would implement all potentially relevant selective actions from the CAP Consistency Checklist and would be consistent with the City of Pasadena's CAP, General Plan, and Zoning Code and would not be a significant source of GHG emissions. The Partial Historic Preservation Alternative would not conflict with implementation of the measures identified in the California Air Resources Board Scoping Plan. Additionally, the Partial Historic Preservation Alternative would be consistent with applicable goals of the South California Association of Governments' 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy, including the goal for reducing GHG emissions and improving air quality and the goal for adapting to changing climate and supporting an integrated regional development pattern and transportation network by reducing reliance upon imported water supplies. As the Partial Historic Preservation Alternative would be consistent with the City's CAP, which was developed for the purpose of meeting statewide GHG emissions targets, the Partial Historic Preservation Alternative would not conflict with or obstruct implementation of Senate Bill 32. Similar to the Project, the Partial Historic Preservation Alternative would result in less than significant impacts associated with conflicts of any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

Hazards and Hazardous Materials

As discussed in Section 4.6, *Hazards and Hazardous Materials*, of this EIR, the Project would result hazards and hazardous materials impacts requiring mitigation. Under the Partial Historic Preservation Alternative, the transport, storage, use, and disposal of hazardous materials during construction activities and during operation of the alternative would be similar to that identified for the Project. Construction activities would require similar amounts and types of hazardous materials usage as those identified for the Project. Similarly, the Partial Historic Preservation Alternative would use liquid ammonium sulfate in the related Disinfection Facility, just as the proposed Project would. Secondary disinfection would continue the use of chloramines through the combination of sodium hypochlorite and liquid ammonium sulfate to treat water. Diesel fuel would be required for the emergency generators, similar to the proposed Project. The transport, use, storage, and disposal of hazardous materials at the Project site under the Partial Historic Preservation would be conducted in accordance with applicable federal, state, and local regulations. Similar measures, such as secondary containment, would be utilized under this alternative for the use of hazardous materials.

As the Partial Historic Preservation Alternative would still require the demolition of existing structures, including Reservoir 2, the potential for a release of hazardous materials (such as asbestos-containing materials (ACM), lead-based paint (LBP), or wood construction materials formerly treated with creosote) as a result of demolition activities would exist, similar to the Project. Like the Project, this alternative would require a pre-demolition survey to observe, locate, and evaluate the condition of suspected ACM, LBP, wood construction materials formerly treated with creosote, and any other identifiable hazardous materials and provide a plan for remediation prior to demolition activities. Additionally, like the Project, construction-related traffic and temporary lane closures would occur as a result of the Partial Historic Preservation Alternative, and preparation of a Construction Staging and Traffic Management Plan (CSTMP) would be required to ensure impacts to an adopted emergency response plan or emergency evacuation plan would remain less than significant. Thus, overall impacts associated with the Partial Historic Preservation Alternative would be less than significant with mitigation, similar to the Project.

Noise

As discussed in Section 4.7, *Noise*, of this EIR, construction noise impacts of the Project would be less than significant. Construction noise associated with the Partial Historic Preservation Alternative would be similar to those identified for the Project; however, this alternative would result in reduced demolition and grading activities due to retention of Existing Reservoir 1, Sunset Well, and A-basin. The retention of these facilities would reduce the duration of demolition and grading activities occurring at the site; however, demolition and grading noise would still occur under this alternative to remove Existing Reservoir 2. Construction of this alternative would comply with Section 9.36.080 of the City of Pasadena Municipal Code which prohibits the operation of powered construction equipment that generates a noise level of 85 dBA when measured at 100 feet. Additionally, construction of the Partial Historic Preservation Alternative would not occur during the prohibited hours specified in the Municipal Code (Sundays, defined holidays, or outside of the hours of 7:00 AM to 7:00 PM Monday through Friday and 8:00 AM to 5:00 PM on Saturday). Similar to the Project, the Partial Historic Preservation Alternative would result in less than significant construction noise impacts.

As discussed in Section 4.7, *Noise*, of this EIR, the Project would result in less than significant noise impacts associated with operational noise. As operation of the facility proposed under the Partial Historic Preservation Alternative would be the same as identified for the Project, operational noise

sources and levels would be the same for this alternative as those identified for the Project. As such, the Partial Historic Preservation Alternative would result in less than significant operational noise impacts, similar to the Project.

Tribal Cultural Resources

As described in Section 4.8, *Tribal Cultural Resources*, of this EIR, the identified potential for impacts to unknown tribal cultural resources associated with implementation of the Project would be significant but mitigable with the implementation of a monitoring program. Ground disturbance associated with development of the Partial Historic Preservation Alternative would be reduced as compared to that associated with the Project due to the reduced demolition and grading associated with retaining Existing Reservoir 1, Sunset Well, and A-basin. Therefore, the likelihood of encountering unknown tribal cultural resources would be similar, but slightly less than the Project. The Partial Historic Preservation Alternative would have a significant but mitigable potential for impacts to unidentified tribal cultural resources, with the same mitigation requirements for a monitoring program, including procedures for burials and funerary remains, similar to the Project.

6.4.2.3 Conclusion

The Partial Historic Preservation Alternative would partially reduce the Project's significant historic resources impact, but not to below a level of significance. Impacts to historic resources would remain significant and unmitigable for the Partial Historic Preservation Alternative. The Partial Historic Preservation Alternative would have similar significant, but mitigable impacts as the Project associated with hazards and hazardous materials and tribal cultural resources, although the impact would be less than that of the proposed Project due to the reductions in demolition and construction activity. Environmental impacts associated with air quality, energy, and GHG emissions for the Partial Historic Preservation Alternative would be similar to the Project, although slightly reduced for construction and slightly increased for operations due to ongoing maintenance and a reduced number of solar panels. Additionally, aesthetics impacts would be similar under the Partial Historic Preservation Alternative and the Project. While this alternative would result in minor reductions in air quality emissions, energy usage, and GHG emissions during construction, it would not reduce the significant but mitigable impacts associated with hazards and hazardous materials and tribal cultural resources as compared to the Project. Further, the Partial Historic Preservation Alternative would not fully realize all of the Project objectives, specifically those addressing the provision of safe drinking water and overall reliability of the PWP water system, as it would only provide one new reservoir. The existing water leaks and the need for updates to current engineering and seismic safety standards would remain for Existing Reservoir 1 under this alternative. The benefits of the Project would not be fully realized under the Partial Historic Preservation Alternative. The following benefits would only be partially achieved under this alternative:

- Improved reliability for the PWP water system;
- Minimization of water losses for the PWP water system by replacement of reservoirs with existing leaks;
- Incorporation of seismic improvements for the reservoirs;
- Replacement or modification of existing reservoirs to current engineering standards.

The following benefits would be fully achieved as a result of the Partial Historic Preservation Alternative:

- Improved water quality through the provision of an on-site groundwater treatment system;
- Improved site security;
- New source of backup power for emergencies associated with the installation of emergency generators;
- Enhanced vehicular safety due to a new traffic signal at the reconfigured truck access driveway along the Project's West Mountain Street frontage;
- Visual improvements along the Project site's public street frontages through enhanced perimeter fencing and landscaping elements for visual screening; and
- Placement of renewable energy resources at the Project site.

Based on the preceding analysis, the Partial Historic Preservation Alternative would not avoid or substantially lessen the significant effects of the Project and it would not fully meet the Project objectives listed in Section 6.4.1.1 and the associated benefits of the Project.

6.4.3 Alternative 3 –Historic Rehabilitation Alternative

The Historic Rehabilitation Alternative would nominally retain all contributors to the Sunset Reservoir Complex Historic District while completing necessary seismic upgrades, and would also implement Project components that would enhance the functionality of the facility. This alternative would implement some of the Project components but would preserve the components of the Sunset Reservoir Complex Historic District in its current condition, with the exception of several proposed modifications to address seismic design deficiencies for Existing Reservoir 1 and Existing Reservoir 2. The Historic Rehabilitation Alternative would retain Well No. 20 (Sunset Well), and A-basin in their existing condition and locations. This Alternative would physically retain Existing Reservoir 1 and Existing Reservoir 2 in place with seismic upgrades consisting of changes described below, some replacement of existing materials with the same or similar materials, some exterior changes that would alter the visual appearance of each reservoir and affect a fairly significant portion of the stream-rock retaining wall, and retain the Glorieta Booster Station. Existing Reservoir 1, Existing Reservoir 2 and the stream-rock retaining wall are primary contributors to the Sunset Reservoir Complex Historic District. Well No. 20 (Sunset Well) and A-basin are secondary contributors to the Sunset Reservoir Complex Historic District. The Glorieta Booster Station is not a contributing structure to the Sunset Reservoir Complex Historic District. Table 6-6-4, *Alternative 3 – Historic Rehabilitation Alternative*, summarizes how the components of the Sunset Reservoir Complex Historic District would be retained or affected under this alternative.

Additionally, the Historic Rehabilitation Alternative would construct a number of improvements at the site that are identical to the Project, including a GWTP, emergency generator, a new traffic signal at the reconfigured truck access driveway along the property's West Mountain Street frontage, and new perimeter fencing and landscape screening. Landscape screening under this alternative would be reduced as compared to the Project, as some portions of the east perimeter to the existing reservoirs do not have adequate space to construct the upgrades proposed, let alone provide landscaping screening.

The existing parking lot would be reduced to accommodate the construction of the GWTP, and no additional parking spaces would be provided on-site. The Historic Rehabilitation Alternative would also relocate the Disinfection Facility and two chemical tanks, similar to the Project. This alternative would also retain the Sheldon Booster House (Sunset Booster Station; a secondary contributor to the Sunset Reservoir Complex Historic District). Multiple, staggered shear wall panels would be added to the exteriors of Reservoir 1 and Reservoir 2 for necessary seismic strengthening, as well as circular gravity columns around the perimeter of Reservoir 2. Depending on the final design, it is anticipated that a portion of the external shear wall panels would extend into the right-of-way where Existing Reservoir 1 is nearest the property line and require the removal of approximately 100 feet of the stream-rock retaining wall (a primary contributor to the Sunset Reservoir Complex Historic District). The seismic strengthening would also require modifications to the shape of Reservoir 1, new roof diaphragms over the existing roof structure of each reservoir, and replacement of interior materials at each reservoir.

Table 6-4
ALTERNATIVE 3 - HISTORIC REHABILITATION ALTERNATIVE

Resource Name	Resource Type	NRHP/CRHR/City Landmark Eligibility Criteria	Primary or Secondary Contributor	Disposition of Resource under Alternative 3
Existing Reservoir 1	Reservoir	Eligible as a contributor to the Sunset Reservoir Complex Historic District under Criteria A/1/a	Primary	To be retained, with exterior and interior changes
Existing Reservoir 2	Reservoir	Eligible as a contributor to the Sunset Reservoir Complex Historic District, Criteria A/1/a	Primary	To be retained, with exterior and interior changes
A-Basin	Aerator tank, weir, and flume	Eligible as a contributor to the Sunset Reservoir Complex Historic District, Criteria A/1/a	Secondary	To be retained
Well No. 20 (Sunset Well)	Well	Eligible as a contributor to the Sunset Reservoir Complex Historic District, Criteria A/1/a	Secondary	To be retained
Glorieta Pump Station	Pump house	Not a contributing structure	Not a contributing structure	To be retained

Resource Name	Resource Type	NRHP/CRHR/City Landmark Eligibility Criteria	Primary or Secondary Contributor	Disposition of Resource under Alternative 3
Sheldon Booster House (Sunset Booster Station)	Booster House	Eligible as a contributor to the Sunset Reservoir Complex Historic District, Criteria A/1/a	Secondary	To be retained
Steam-Rock Retaining Wall	Wall	Eligible as a contributor to the Sunset Reservoir Complex Historic District, Criteria A/1/a	Primary	To be retained but 100 feet would be removed as a result of final design to implement this alternative

Existing Reservoir 1 and Existing Reservoir 2 would both remain in place under this alternative, but would be upgraded to address existing seismic design deficiencies (Kennedy Jenks 2024). Recommended improvements generally consist of the following:

- Minimum roof clearance of four inches between Existing Reservoir 1 and Existing Reservoir 2
- Roof diaphragm replacement
- New roof vent installations
- Foundation tie upgrades at existing columns
- Wall anchorage upgrades
- External shear wall panels & foundations
- Wood roof superstructure replacement
- Reservoir floor geomembrane liner replacement
- New overflow wall and foundation providing the four-inch roof separation between reservoirs
- Seven, 30-inch diameter gravity columns along the existing perimeter wall for Reservoir 2

Some of the above upgrades would affect the historic elements (character-defining features) of the reservoirs as determined in the HRER. **Table 6-5**, *Effect on Character-Defining Features*, details how the proposed improvements would affect the historic character-defining features of Existing Reservoir 1, Existing Reservoir 2 and the stream-rock retaining wall.

Table 6-5
EFFECT ON CHARACTER-DEFINING FEATURES

Resource Name	Character-Defining Feature	Effect
Existing Reservoir 1		
	Corrugated metal roof	The existing roof would be replaced with new, similar material. A new roof diaphragm over the existing roof would extend to the new exterior shear walls. Existing protrusions at doors would be replaced in kind. The replaced roof would no longer retain the character-defining features of the reservoirs.
	Redwood posts	The posts would be replaced with similar wood material (either Redwood or Douglas Fir).
	Oregon Pine (Douglas Fir) roof superstructure	The roof superstructure would be replaced with similar materials (Douglas Fir).
	Wood timber walkway	This may need to be replaced due to the replacement of the roof superstructure but would be replaced with in-kind materials.
	Oval shape basin and footprint	While the overall oval shape would be retained, the addition of periodic exterior 20’ wide x 1’ deep shear walls around the perimeter would alter the visual and physical elements of the existing footprint. The footprint would remain oval but would be expanded slightly by the new shear wall panels. The exterior appearance would also be affected by the shear panels creating an articulated wall appearance with glancing views to the original structure through gaps between the panels. Additionally, the shape of the oval basin and roof would be slightly “flattened” at its closest proximity to Existing Reservoir 2 to create necessary seismic separation between the reservoirs.
	Central berm with cast-in-place curb, separating north and south sections	No modification

Resource Name	Character-Defining Feature	Effect
	Shared overflow wall with Reservoir No. 2	Would be removed to accommodate the "flattened" oval shape basin.
	Air vent along the crest of the roof	Existing roof edge vents would be removed, and approximately 15 mushroom vents 3- feet in diameter will be placed on top of the roof instead.
Existing Reservoir 2		
	Corrugated metal roof	The existing roof would be replaced with new, similar material. A new roof diaphragm over the existing roof would extend to the new exterior shear walls. Existing protrusions at doors would be replaced in kind. The replaced roof would no longer retain the character-defining features of the reservoirs.
	Redwood posts	The posts would be replaced with similar wood material (either Redwood or Douglas Fir).
	Oregon Pine (Douglas Fir) roof superstructure	The roof superstructure would be replaced with similar materials (Douglas Fir).
	Wood timber walkway	This may need to be replaced due to the replacement of the roof superstructure but would be replaced with in-kind materials.
	L-shaped basin and footprint	While the L shape would be retained, the addition of exterior 20’ wide x 1’ deep shear walls and 30” diameter gravity columns around the perimeter would alter the visual and physical elements of the existing footprint. The footprint would remain L-shaped but would be expanded slightly by the new shear wall panels. The exterior appearance would also be affected by the shear panels and gravity columns creating an articulated wall appearance with glancing views to the original structure through gaps between the panels.

Resource Name	Character-Defining Feature	Effect
	Shared overflow wall with Reservoir No. 1	Would be removed to accommodate the "flattened" oval shape basin at Reservoir 1.
	Air vent along the crest of the roof	Existing roof edge vents would be removed, and approximately 15 mushroom vents 3-4 feet in diameter would be placed on top of the roof instead.
	Abandoned Devil's Gate pipe plugged with redwood	No modification
Stream-Rock Retaining Wall		
	River stone and mortar construction materials	Portions of the wall that remain would retain existing river stone and mortar construction materials.
	Footprint along a portion of the eastern and southern perimeter of the property along the public-right-of-way	The footprint would be impacted by the physical removal of approximately 100 feet of the overall 370-foot length of the wall. The removal would occur wholly along the eastern perimeter adjacent to Reservoir 1, also visually affecting the appearance of the wall viewed from Sunset Avenue. Shear wall panel foundations would extend below grade into the public right-of-way.
	Metal and terra cotta drainpipes	Portions of the wall that remain would retain existing metal and terra cotta drainpipes.

The two existing reservoirs would be retained in place. Some of their character-defining features would be retained or replaced in-kind or similar materials. The changes to address seismic requirements that are visual changes to the reservoirs consist of removal of existing roof vents at the edges of the existing roofs, new roof diaphragms over the existing roofs, placement of approximately 15 mushroom vents protruding above the roof of each reservoir, the installation of 20-foot wide shear wall panels at approximately 20-foot spacing around both reservoirs, and connecting to the new roof diaphragms.

Due to the requirement for the shear wall panels that would be located approximately 5'-6" out from the existing reservoir walls and connected to the roof diaphragm of each reservoir, the final design would result in unintended changes to an approximately 100-foot portion of the stream-rock retaining wall (primary contributor). Existing Reservoir 1 is in close proximity to the easterly property line at its closest point. Construction of footings and shear wall panels at that location would require removal of a 100-foot northerly portion of the stream-rock retaining wall along Sunset Avenue. The final design would need to evaluate options to avoid this outcome, considering life-cycle costs related to ongoing maintenance, but for purposes of this alternative it is assumed these effects would occur.

6.4.3.1 Consistency with Project Objectives

The Historic Rehabilitation Project Alternative would result in the retention of all six contributors to the Sunset Reservoir Complex Historic District and the implementation of many of the Project components to increase facility functionality. However, the seismic upgrades would modify three of the six contributors. Table 6-6, *Comparison of Project Objectives and the Historic Rehabilitation Alternative*, provides a list of the Project objectives (previously identified in Chapter 3.0, *Project Description*) and an evaluation of the Historic Rehabilitation Alternative's consistency with each objective. As shown in Table 6-6, the Historic Rehabilitation Alternative would meet, but not fully realize, many of the Project objectives. While seismic design upgrades would occur to the existing reservoirs and stream-rock retaining wall under this alternative, this alternative would not fully address existing water leaks. One emergency generator would be installed as part of this alternative, as the Glorieta Booster Station would not have sufficient space for an additional generator with the retention of the existing reservoirs. Additionally, the Historic Rehabilitation Alternative would not maintain the existing parking capacity for City employees due to the larger footprint of the existing reservoirs and the construction of the GWTP.

Table 6-6
COMPARISON OF PROJECT OBJECTIVES AND THE HISTORIC REHABILITATION ALTERNATIVE

Project Objectives	Historic Rehabilitation Alternative Consistency with Project Objectives
Provide safe drinking water and system reliability to PWP customers by: a. Addressing existing water leaks and seismic safety concerns present in the existing deteriorating Sunset Reservoirs. b. Constructing reservoirs that provide the volume necessary for operational and fire flow requirements. c. Replacing the existing reservoirs onsite to meet current engineering and seismic safety standards (2022 California Building Code or current code at the time permits are issued) for essential facilities as designated by California Building Code Section 1604.5. d. Providing an on-site groundwater treatment system to remove perchlorates and volatile organic compounds at a rate of up to 4,500 gpm, and provide space for nitrate removal at a rate of up to 800 gpm. e. Installing emergency generators to provide emergency power in the event of a power failure. f. Maintaining existing system hydraulics.	This alternative would not replace Existing Reservoir 1 or Existing Reservoir 2, but would incorporate improvements to address seismic safety concerns. Maintenance of the existing aging infrastructure may lead to future water leaks as compared to the Project. Because the existing reservoirs would remain in place, the Historic Rehabilitation Alternative would provide the volume necessary for operational and fire flow requirements. A new GWTP and emergency generator would be provided under this alternative. Emergency generator would be provided for the Bangham Well and GWTP, however the project would not address the objective of providing an emergency power generator for the existing Glorieta Booster Station due to space limitations.

Project Objectives	Historic Rehabilitation Alternative Consistency with Project Objectives
Improve the reliability of water service to existing PWP customers throughout implementation of the Project.	The Historic Rehabilitation Alternative would partially improve the reliability of water service to existing PWP customers. This alternative would provide seismic upgrades, repair work, and construction of a new on-site GWTP associated. The Historic Rehabilitation Alternative would only provide one emergency generator. It would not allow for the addition of an emergency generator for the existing Glorieta Booster Station.
Maintain parking capacity for City employees currently parking at the site.	The Historic Rehabilitation Alternative would retain a small portion of the existing surface parking lot for PWP employees near Bangham Well, but construction of the GWTP and preservation of the existing reservoirs would require the loss of the majority of existing spaces and would not provide additional spaces within the project site. A limited number of EV parking stalls or infrastructure would be installed in the remaining lot.
Maintain vehicular access to surrounding residences during construction activities, including pipeline connections and other improvements on adjacent public streets.	The Historic Rehabilitation Alternative would implement construction traffic measures to maintain vehicular access to surrounding residences during construction activities, similar to the Project.
Enhance vehicular safety by providing a new traffic signal at the reconfigured truck access driveway along the Project's West Mountain Street frontage.	A new traffic signal and reconfigured truck access would be implemented as part of the Historic Rehabilitation Alternative, enhancing vehicular safety along West Mountain Street and the property driveway.
Improve the appearance of the facility by providing enhanced visual screening along the Project site's public street frontages.	The Historic Rehabilitation Alternative would implement enhanced perimeter fencing and some landscaping elements to improve the appearance of the facility; however, these improvements would be reduced as compared to the Project, due to limited spacing between the existing reservoirs, which would remain in place under this alternative, and the property line. This limited spacing would restrict landscape improvements in those areas as compared to the Project.

Project Objectives	Historic Rehabilitation Alternative Consistency with Project Objectives
Improve security at the facilities to minimize potential for tampering.	The Historic Rehabilitation Alternative would retain both existing reservoirs in place without specific security improvements to reduce the risk of tampering aside from fencing. Similar to the Project, security gates would be provided at ingress/egress to the site and at ingress/egress to the GWTP.
Provide opportunities for renewable energy generation at the Project site.	The Historic Rehabilitation Alternative would not result in the placement of solar panels or other renewable energy resources at the Project site.

6.4.3.2 Environmental Analysis

Aesthetics

As discussed in Section 4.1, Aesthetics, of this EIR, the Project would result in less than significant aesthetic impacts. As described for the Project, the Project site is not located within the viewsheds of State Route 2 or Interstate 210; thus, the Historic Rehabilitation Alternative would not result in impacts to scenic resources along scenic highways. The Project site is an eligible historic district and local landmark, and the Historic Rehabilitation Alternative would retain all the contributing components of the Sunset Reservoir Complex Historic District. However, visual alterations would still occur at the Project site due to the addition of the GWTP, emergency generator, a new traffic signal at the reconfigured truck access driveway, and additional fencing and landscape screening (landscape screening under this alternative would be reduced as compared to the Project, as some portions of the west perimeter to the existing reservoirs do not have adequate space to provide landscaping screening).

The Historic Rehabilitation Alternative would also relocate the Disinfection Facility and two chemical tanks, which would be placed in the same location as the Project. The perimeter fencing and landscape screening, coupled with siting of the Project components strategically at the site, would largely reduce visual impacts associated with the new components that would be added to the site under the Historic Rehabilitation Alternative; however, landscaping improvements under this alternative would be reduced as compared to the Project, due to limited spacing between the existing reservoirs (which would remain in place under this alternative) and the Project site property line. The visual appearance of three of the contributing structures within the Sunset Reservoir Complex Historic District would remain unchanged, but the visual appearance of three of the contributing structures would be modified. The seismic design upgrades to the existing reservoirs would result in changes to the visual appearance; of Reservoirs 1 and 2, and the stream-rock retaining wall. Exterior modifications would alter the exterior appearance of the existing reservoirs although they would remain physically in place. The new roof diaphragms above each reservoir connected to exterior shear wall panels would visually alter the appearance of Reservoir 1 and Reservoir 2 from public view locations on adjacent roadways and surrounding land uses. The removal of approximately 100 feet of the stream rock retaining wall would alter the visual appearance of the wall and site from Sunset Avenue. The landscape screening that would occur under the Historic Rehabilitation Alternative would reduce visibility of the existing components as viewed from off site,

except where space limitations occur. The Historic Rehabilitation Alternative would result in similar aesthetic impacts to those identified for the Project and aesthetic impacts would be less than significant.

Air Quality

Air quality impacts associated with the Project would be less than significant, as discussed in Section 4.2, Air Quality, of this EIR. The Historic Rehabilitation Alternative would be consistent with the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP). Pollutant emissions from the Historic Rehabilitation Alternative would be less than the SCAQMD thresholds (refer to paragraph below), due to reduced construction emissions, and would not result in a significant impact. In addition, operational emissions under the Historic Rehabilitation Alternative would be similar to the proposed Project, and emissions related to maintenance would potentially be higher than the Project, due to the upkeep and repairs required for the aging infrastructure, and loss to leakage could require greater pumping to maintain the water storage capacity. The Historic Rehabilitation Alternative would be consistent with the Zoning and General Plan Land Use designations for the site and would therefore be consistent with the growth expectations for the region. Similar to the Project, no impact associated with AQMP consistency would occur for the Historic Rehabilitation Alternative.

Demolition, grading, and construction activities would occur under the Historic Rehabilitation Alternative; however, these activities would be reduced as compared to the Project, as this alternative would not demolish the existing reservoirs; grading would not occur within those portions of the Project site; and the construction of new reservoirs would not occur. Although extensive construction would not occur related to demolition, the replacement and rehabilitation of the existing structures would require the use of equipment and other activities which would generate pollutant emissions. Construction activities associated with the Historic Rehabilitation Alternative would be conducted in compliance with SCAQMD's Rule 403 for fugitive dust, which requires the implementation of best available control measures for any activity or human-made condition capable of generating fugitive dust. As demonstrated in Section 4.2, Air Quality, of this EIR, the Project would result in less than significant impacts associated with construction emissions, and construction emissions associated with the Project would not exceed SCAQMD daily emission thresholds. Because demolition and construction activities would be reduced under this alternative, the Historic Rehabilitation Alternative would result in less construction emissions than the Project, would not exceed SCAQMD's daily emission thresholds, and would result in less than significant impacts.

The Historic Rehabilitation Alternative would construct a GWTP, emergency generators, a new traffic signal at the reconfigured truck access driveway along the property's West Mountain Street frontage, and new perimeter fencing and landscape screening. Additionally, seismic design upgrades would occur at both reservoirs under this alternative. Operational emissions associated with the Historic Rehabilitation Alternative may be increased as compared to that of the proposed Project, as water losses associated with maintenance of the existing aging reservoirs would be greater than those that would occur with new reservoirs, requiring replacement water. The increased need for replacement water under this alternative would require more pumping, and thus, more energy usage. Depending on the source and location of the energy generation, this could lead to more operational air quality emissions. Additionally, this alternative would not result in the placement of solar panels at the Project site and would not have the corresponding offset of operational emissions associated with solar panels.

The use of emergency backup generator (which would operate in limited capacity during periodic testing and during emergency-use situations) and operation of the new GWTP would generate new emissions.

However, as discussed for the Project in Section 4.2 of this EIR, modeling estimates the emergency generators would result in 2.4 pounds per day of volatile organic compounds (VOC) and 6.3 pounds per day of carbon monoxide (CO) per generator; emissions of all other pollutants would be less than one pound per day per generator. Additionally, the Historic Rehabilitation Alternative would not construct an emergency generator for Glorieta Booster Station, which would reduce the pollutants as compared to the Project. Operation of the GWTP was estimated to result in negligible emissions (refer to Section 4.2, Air Quality). As the Historic Rehabilitation Alternative may result in increased operational emissions associated with increased water pumping due to water losses and a lack of solar panels, but reduced emissions related to emergency generator use and testing, impacts associated with operational emissions under this alternative would be less than or equal to those identified for the Project, and would be below emission threshold levels and less than significant.

With regard to the alternative's potential to expose sensitive receptors to substantial pollutant concentrations, the Historic Rehabilitation Alternative would result in similar impacts to those identified for the Project. The basic functions of the Sunset Reservoir facility would remain the same under the Historic Rehabilitation Alternative, and therefore, the facility would require the same number of employees to that of the Project and the existing facility. Because operational trips associated with employees under the Project would remain the same, the Historic Rehabilitation Alternative, like the Project, would not contribute to a significant impact associated with the formation of CO hot spots. Maximized daily construction emissions for the Project would not exceed SCAQMD localized significance thresholds for receptors located at a distance of 25 meters. As the Historic Rehabilitation Alternative would result in reduced demolition, grading, and construction activities as compared to the Project, construction emissions would also be below SCAQMD localized significance thresholds for nearby receptors and would be less than significant. Toxic air contaminant emissions during construction activities would occur in relation to diesel particulate emissions associated with heavy construction equipment. Construction activities associated with the Historic Rehabilitation Alternative would be short term, similar to the Project. The assessment of cancer risk is typically based on a 30- to 70-year exposure period. Because exposure to diesel exhaust would be well below the 30- and 70-year exposure period, construction of the Historic Rehabilitation Alternative is not anticipated to result in an elevated cancer risk to exposed persons. Toxic air contaminant emissions during construction would be similar to or less than those identified for the Project, and related impacts would be less than significant.

Cultural Resources (Historical Resources)

As discussed in Section 4.3, Cultural Resources, of this EIR, implementation of the Project would result in a significant adverse impact and material impairment to the Sunset Reservoir Complex Historic District. Mitigation measures are provided for the Project, but the measures would not reduce Project impacts to historic resources to a less than significant level. As such, the Project would have a significant and unmitigable impact to historic resources.

The Historic Rehabilitation Alternative would result in the rehabilitation of two of the three primary contributors (Existing Reservoir 1 and Existing Reservoir 2), and removal of a portion of the third contributor (stream-rock retaining wall). All three secondary contributors (Sheldon Booster House [Sunset Booster Station], Well No. 20 [Sunset Well], and A-basin) to the Sunset Reservoir Complex Historic District would be retained. The seismic upgrades to Existing Reservoir 1 and Existing Reservoir 2 would allow the existing structures to physically remain in their current location, with some original materials retained, but potentially extensive replacement of other materials with the same or similar materials where possible However, the existing oval footprint of Existing Reservoir 1 would be slightly

flattened in proximity to Existing Reservoir 2 by the removal of the common overflow wall between the two reservoirs for seismic upgrades; the roof shape at Reservoir 1 would be similarly modified. Although the shear wall panels would occur at intervals rather than continuous, allowing glancing views to the original reservoir walls and footprint, the overall impression would be an articulated appearance to the exteriors rather than the existing smooth appearance. Reservoir 2 would also include the addition of seven, 30-inch diameter, circular gravity columns along the existing perimeter wall. The addition of new roof diaphragms over the existing roofs of the reservoirs would mirror the overall roof plan and materials of the existing roofs. However, seismic upgrades would require removal of the existing roof vents and placement of 15 mushroom vents on top of each reservoir roof. Approximately 100 feet of the stream-rock retaining wall would be removed to accommodate shear wall panels and foundations along the easterly perimeter of Existing Reservoir 1, and would not be replaced. This represents the removal of approximately half of the visible wall along Sunset Avenue.

The seismic upgrades necessary to retain Existing Reservoir 1 and Existing Reservoir 2 in place and functioning would modify the three primary contributors in ways that would remove some materials, add new features and materials, and alter some physical and visual characteristics. Although the modifications required for seismic strengthening nominally retain these contributors and some of their materials in place, the alterations are such that character-defining features of the three primary contributors would be adversely impacted. As a result, the three primary contributors would no longer be able to convey their significance as part of the Historic District and this alternative would create significant impacts on these contributors. The significance of the Sunset Reservoir facility is derived from the interrelationship of its resources and how they have functioned together over time. As such, in this particular case the contributing resources are interpreted together as one cohesive unit (the Historic District), and all contributing resources to the district are considered necessary to retain and convey the significance of the Sunset Reservoir Complex Historic District. The mitigation measure requirements would be the same as those identified for the Project. However, these mitigation measures are not sufficient to reduce impacts on historic resources to a less than significant level. As such, the Historic Rehabilitation Alternative would result in a significant adverse impact and material impairment to the Sunset Reservoir Complex Historic District. Therefore, impacts related to historic resources for the Historic Rehabilitation Alternative would be significant. Although the impact is significant, it would be incrementally less than the impact of the Project because the existing reservoirs would not be demolished.

Energy

Project impacts associated with energy are identified as less than significant in Section 4.4, Energy, of this EIR. Construction-related energy use associated with the Historic Rehabilitation Alternative would primarily consist of fuels in the form of diesel and gasoline. Fuel consumed by construction equipment would be the primary energy resource expended over the course of construction and would include the transportation of construction materials and construction worker commutes. Heavy-duty construction equipment associated with construction activities, haul trucks involved in the removal of construction and demolition materials, and smaller support equipment (such as lighting, air compressors, and pumps) would consume petroleum-based fuel. Construction workers would travel to and from the Project site throughout the duration of construction, presumably in internal combustion engine vehicles. Construction energy usage associated with the Historic Rehabilitation Alternative would be reduced as compared to the Project, due to the reduced demolition and associated grading. In addition, construction energy would be reduced as the Historic Rehabilitation Alternative would not require the

construction of new reservoirs. Similar to the Project, construction energy usage would be temporary and typical of similar construction projects.

Operational energy use associated with the Historic Rehabilitation Alternative would be increased as compared to that of the proposed Project. Although the existing reservoirs would be seismically upgraded, water losses related to aging infrastructure and upkeep of the existing reservoirs would be greater than those that would occur with new reservoirs, requiring replacement water. The increased need for replacement water under this alternative would require more pumping, and thus, more energy usage. No solar panels would be installed under this alternative, and no associated offset in energy use would occur. Both the Project and the Historic Rehabilitation Alternative would add new components that increase energy usage - the new GWTP and backup emergency generators. Although these two components would increase energy usage in the form of electricity for the GWTP and fuel for the backup emergency generators, no new major infrastructure and no new electrical connections would be constructed. Additionally, although the Historic Rehabilitation Alternative would use more energy pumping water to replace water losses associated with Existing Reservoir 1 and Existing Reservoir 2, it is not expected that the increased energy usage would require new major infrastructure or new electrical connections. Further, new non-historical system components installed under the Historic Rehabilitation Alternative would be required to meet the mandatory energy standards of CALGreen and the California Energy Code (Title 24, Part 6 of the California Code of Regulations), which would further minimize inefficient energy usage. Impacts associated with wasteful, inefficient, or unnecessary consumption of energy resources of the Historic Rehabilitation Alternative would be higher than the proposed Project, but impacts would be less than significant during construction and operation.

Although the Historic Rehabilitation Alternative would result in an increase in energy usage, the Historic Rehabilitation Alternative would include the continued use of existing resources on site. Similar to the Project, the Historic Rehabilitation Alternative would construct a new GWTP on the site, but as discussed above, the GWTP would not result in a significant increase in energy usage. The Historic Rehabilitation Alternative would also be consistent with the City's energy goals of increasing conservation, efficiency, and sustainability by maintaining source capacity for potable water within the City limits. As such, similar to the Project, the Historic Rehabilitation Alternative would not result in any significant impacts related to obstruction of state or city plans for renewable energy or energy efficiency, but would require more energy usage in the long term than the proposed Project.

Greenhouse Gas Emissions

Implementation of the Project would result in less than significant GHG impacts, as discussed in Section 4.5, Greenhouse Gas Emissions, of this EIR. Construction GHG emissions associated with the Historic Rehabilitation Alternative would be generated by vehicle engine exhaust from construction equipment, on-road hauling trucks, and worker commuting trips. Construction GHG emissions would be reduced under the Historic Rehabilitation Alternative as compared to the Project, as the existing reservoirs would be retained, and thus, reduced demolition and grading would occur. Additionally, the Historic Rehabilitation Alternative would not require the construction of new reservoirs, which would reduce emissions associated with construction activities.

During operations, area and indirect emissions sources associated with the Historic Rehabilitation Alternative would primarily result from energy sources, including the use of natural gas and electricity. Operational GHG emissions associated with the Historic Rehabilitation Alternative would be similar to that of existing conditions and slightly increased as compared to the Project. Both the Project and the

Historic Rehabilitation Alternative would add new GHG-generating components - the new GWTP and backup emergency generators; however, the Historic Rehabilitation Alternative would only provide two generators. As discussed above for Air Quality, emissions associated with these components are limited. Additionally, the Historic Rehabilitation Alternative would result in increased water losses associated with keeping Existing Reservoir 1 and Existing Reservoir 2 as compared to the Project, requiring replacement water. The increased need for replacement water under this alternative would require more pumping, and thus, an associated increase in energy usage and GHG emissions. This alternative would not place solar panels at the Project site, and thus, there would be no associated offset of GHG emissions associated with the generation of renewable energy on site.

The City of Pasadena evaluates GHG significance based on a project's consistency with the City's Climate Action Plan (CAP) using the CAP Consistency Checklist. Similar to the Project, the Historic Rehabilitation Alternative would replace and upgrade existing infrastructure resulting primarily in construction-based emissions. The CAP contains 27 measures which define the direction that the City will take to accomplish its emissions reduction goals. As identified for the Project, the Historic Rehabilitation Alternative would be consistent with all applicable measures within the CAP.

The Historic Rehabilitation Alternative would not conflict with implementation of the measures identified in the California Air Resources Board Scoping Plan. Additionally, the Historic Rehabilitation Alternative would be consistent with applicable goals of the South California Association of Governments' 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy, including the goal for reducing GHG emissions and improving air quality and the goal for adapting to changing climate and supporting an integrated regional development pattern and transportation network by reducing reliance upon imported water supplies. As the Historic Rehabilitation Alternative would be consistent with the City's CAP, which was developed for the purpose of meeting statewide GHG emissions targets, the Historic Rehabilitation Alternative would not conflict with or obstruct implementation of Senate Bill 32. Similar to the Project, the Historic Rehabilitation Alternative would result in less than significant impacts associated with conflicts of any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

Hazards and Hazardous Materials

As discussed in Section 4.6, Hazards and Hazardous Materials, of this EIR, the Project would result significant hazards and hazardous materials impacts requiring mitigation. Under the Historic Rehabilitation Alternative, the transport, storage, use, and disposal of hazardous materials during construction activities and during operation of the alternative would be similar to that identified for the Project. Construction activities would require similar amounts and types of hazardous materials usage as those identified for the Project. Similarly, the Historic Rehabilitation Alternative would use liquid ammonium sulfate in the related Disinfection Facility, just as the proposed Project would. Secondary disinfection would continue the use of chloramines through the combination of sodium hypochlorite and liquid ammonium sulfate to treat water. Diesel fuel would be required for the emergency generators, similar to the proposed Project. The transport, use, storage, and disposal of hazardous materials at the Project site under the Historic Rehabilitation Alternative would be conducted in accordance with applicable federal, state, and local regulations. Similar measures, such as secondary containment, would be utilized under this alternative for the use of hazardous materials. Although the Historic Rehabilitation Alternative would not require the complete demolition of the existing reservoirs, some demolition and removal of materials would be required for the rehabilitation work. The potential for the release of hazardous materials (such as ACM, LBP, or wood construction materials formerly

treated with creosote) as a result of demolition activities could occur;. Thus, associated mitigation requiring a pre-demolition survey for hazardous materials and a plan for remediation would be required. Additionally, like the Project, construction-related traffic and temporary lane closures would occur as a result of the Historic Rehabilitation Alternative, and preparation of a CSTMP would be required to ensure impacts to an adopted emergency response plan or emergency evacuation plan would remain less than significant.

Noise

As discussed in Section 4.7, Noise, of this EIR, construction noise impacts of the Project would be less than significant. Construction noise associated with the Historic Rehabilitation Alternative would be altered as compared to those identified for the Project. The retention of the existing reservoirs under this alternative would eliminate the Project's demolition noise impacts. The retention of these facilities would also reduce the area and duration of grading activities occurring at the site; however, grading noise would still occur under this alternative. The length of the construction period may be extended due to the confined construction area and nature of the rehabilitation work, but construction of this alternative would still comply with Section 9.36.080 of the City of Pasadena Municipal Code which prohibits the operation of powered construction equipment that generates a noise level of 85 dBA when measured at 100 feet. Additionally, construction of the Historic Rehabilitation Alternative would not occur during the prohibited hours specified in the Municipal Code (Sundays, defined holidays, or outside of the hours of 7:00 AM to 7:00 PM Monday through Friday and 8:00 AM to 5:00 PM on Saturday). Similar to the Project, the Historic Rehabilitation Alternative would result in less than significant construction noise impacts.

As discussed in Section 4.7, Noise, of this EIR, the Project would result in less than significant noise impacts associated with operational noise. As operation of the facility proposed under the Historic Rehabilitation Alternative would be the same as identified for the Project, operational noise sources and levels would be the same for this alternative as those identified for the Project. As such, the Historic Rehabilitation Alternative would result in less than significant operational noise impacts.

Tribal Cultural Resources

As described in Section 4.8, Tribal Cultural Resources, of this EIR, the identified potential for impacts to unknown tribal cultural resources associated with implementation of the Project would be significant but mitigable with the implementation of a monitoring program. Ground disturbance associated with development of the Historic Rehabilitation Alternative would be reduced as compared to that associated with the Project because the existing reservoirs would be retained at the Project site, and only some grading would occur where those facilities are located to install shear wall panel foundations and external gravity column as well as internal footings at the reservoirs. Therefore, the likelihood of encountering unknown tribal cultural resources would be similar, but reduced, as compared to the Project. The Historic Rehabilitation Project Alternative would have a significant but mitigable potential for impacts to unidentified tribal cultural resources, with mitigation requirements for a monitoring program, including procedures for burials and funerary remains, similar to the Project.

6.4.3.3 Conclusion

Although the Historic Rehabilitation Alternative would nominally retain all contributing resources to the Sunset Reservoir Complex Historic District, the modifications required for seismic strengthening to

Existing Reservoir 1 and Existing Reservoir 2 would impact the three primary contributors to the Historic District. Therefore, although impacts to historical resources would be reduced as compared to the Project, the Historic Rehabilitation Alternative would not eliminate the Project's significant, historical resources impact. The Historic Rehabilitation Alternative would reduce the significant but mitigable hazardous materials impact associated with demolition for rehabilitation of structures potentially containing ACM, LBP, wood containing creosote, and other potentially hazardous materials. The Historic Rehabilitation Alternative would have similar significant, but mitigable impacts as the Project associated with tribal cultural resources, although the impact would be less than that of the proposed Project due to the reductions in demolition and ground disturbing activity. Environmental impacts associated with air quality, energy, and GHG emissions for the Historic Rehabilitation Alternative would be similar to the Project, although slightly reduced in terms of construction emissions and associated energy usage and GHG emissions. Operation of the project may result in higher energy use due to additional maintenance due to upkeep and repairs required for the aging infrastructure and the lack of solar panels associated with this alternative. Additionally, while this alternative would result in visual changes at the Project site that differ from those identified for the Project, including the placement of roof diaphragms, mushroom vents, and exterior shear wall panels on the reservoirs and partial removal of the stream-rock wall, aesthetic impacts would be similar under the Historic Rehabilitation Alternative and the Project and would be less than significant. While this alternative would result in minor reductions in air quality emissions, energy usage, and GHG emissions during construction, it would not reduce the significant but mitigable impacts associated with tribal cultural resources as compared to the Project. It would, however, reduce the significant but mitigable hazards and hazardous materials impact associated with demolition for rehabilitation of the reservoirs and the potential release of ACM, LBP, and creosote. Further, the alternative would not fully realize all of the Project objectives, specifically those addressing water leaks, reliability of the PWP water system, parking, security, and the placement of renewable energy sources at the Project site. The benefits of the Project would not be fully realized under the Historic Rehabilitation Alternative. The following benefits would only be partially achieved under this alternative:

- Improved reliability for the PWP water system;
- Incorporation of seismic improvements for the reservoirs;
- Modification of existing reservoirs to current engineering standards.
- Visual improvements along the Project site's public street frontages through enhanced perimeter fencing and landscaping elements for visual screening.
- Improved site security;
- New source of backup power for emergencies associated with the installation of emergency generators; and
- Enhanced vehicular safety due to a new traffic signal at the reconfigured truck access driveway along the Project's West Mountain Street frontage.

The Historic Rehabilitation Alternative would fully achieve the benefit of improved water quality through the provision of an on-site groundwater treatment system. However, the alternative would not maintain parking capacity for City employees, install solar panels at the Project site or an emergency generator

for the Glorieta Booster Station, and would require additional maintenance to address future leaks and upkeep.

Based on the preceding analysis, the Historic Rehabilitation Alternative would partially reduce the Project's significant historic resources impact, but not to below a level of significance. Impacts to historic resources would remain significant and unmitigable for the Historic Rehabilitation Alternative. Impacts associated with demolition of the existing structures would be avoided under the Historic Rehabilitation Alternative; however, the modifications required for seismic strengthening are such that character-defining features of the three primary contributors would be adversely impacted. As a result, the three primary contributors would no longer be able to convey their significance as part of the Historic District and this alternative would create significant impacts on these contributors, resulting in a significant, unavoidable impact. Additionally, the Historic Rehabilitation Alternative would not fully meet the Project objectives listed in Section 6.4.1.1 and the associated benefits of the Project.

6.5 Summary of Alternatives to the Proposed Project

The State CEQA Guidelines require the identification of an environmentally superior alternative among the alternatives analyzed in an EIR, which is typically selected based on an ability to avoid or substantially reduce significant environmental effects associated with the Project. Pursuant to CEQA Guidelines Section 15126.6(e)(2), "if the environmentally superior alternative is the 'No Project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."

The Project alternatives discussed in this section are intended to avoid or substantially lessen one or more of the significant impacts identified for the Project. A summary comparison of impact levels for the issues identified as significant under the Project is provided in **Table 6-7**, *Comparison of Project and Alternative Impacts*. Based on the summary and the analyses provided in Section 6.4, the No Project Alternative is the environmentally superior alternative. However, consistent with CEQA Guidelines Section 15126.6(e)(2), the environmental superior alternative among the other alternatives is the Partial Historic Preservation Alternative, which would reduce the Project's significant and unmitigable impacts to historical resources. Specifically, the Partial Historic Preservation Alternative would retain five of the six Sunset Reservoir Complex Historic District primary and secondary contributing resources, but would require removal of one of the six contributing resources. Mitigation would be required, but similar to the Project, would not reduce the significant historical resource impacts to a less than significant level. Additionally, environmental impacts associated with air quality, energy, and GHG emissions for the Partial Historic Preservation Alternative would be similar to the Project, although slightly reduced in terms of construction emissions and slightly increased in terms of operational air quality emissions, energy usage, and GHG emissions. Impacts associated with aesthetics, hazards and hazardous materials, and noise would be similar to those identified for the Project. Impacts associated with tribal cultural resources would be similar, although slightly reduced due to a reduced grading area.

Table 6-7
COMPARISON OF PROJECT AND ALTERNATIVE IMPACTS

Environmental Topic	Proposed Project	No Project Alternative (Alternative 1)	Partial Historic Preservation Alternative (Alternative 2)	Historic Rehabilitation Alternative (Alternative 3)
Aesthetics	LS	N	LS=	LS=
Air Quality	LS	N	LS<	LS>
Cultural Resources	SU	N	SU<	SU<
Energy	LS	LS	LS<	LS>
Greenhouse Gas Emissions	LS	LS	LS<	LS>
Hazards and Hazardous Materials	SM	N	SM=	SM=
Noise	LS	N	LS=	LS<
Tribal Cultural Resources	SM	N	SM<	SM<

SU = significant, unmitigable impacts; SM = significant but mitigable impacts; LS = less than significant impacts; N = no impacts
<= comparatively reduced impact relative to the Project (if impact designation is the same and impact varies)
> = comparatively greater impact relative to the Project (if impact designation is the same and impact varies)
"=" = same/similar impacts relative to the Project

6.6 References

G&E Engineering Systems, Inc. 2006. Seismic Vulnerability Assessment, City of Pasadena, Water System. December 2006.

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Cultural Resources Assessment Report

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Trevor Gittelhough, M.A., RPA, Cultural Resources Assistant Project Manager
Mary Robbins-Wade, M.A., RPA, Cultural Resources Group Manager
Kassie Sugimoto, M.A., RPA, Cultural Resources Project Manager

Historic Resources Evaluation Report

HELIX Environmental Planning
Debi Howell-Ardila, M.H.P., Senior Architectural Historian
Annie McCausland, M.A., Architectural Historian
Teri Delcamp, M.A., Senior Architectural Historian

Supplementary Noise Analysis

HELIX Environmental Planning
Charles Terry, Principal Acoustician
Jason Runyan, Senior Noise Specialist

Air Quality/Greenhouse Gases/Energy

HELIX Environmental Planning
Victor Ortiz, Senior Air Quality Specialist

7.4 Engineering Consultants

Kennedy Jenks Consultants, Inc.
Paul Chau, Project Manager
Ben Shriber, Project Engineer
Marco Rojas, Staff Engineer

7.5 Organizations and Persons Contacted/Consulted

Gabrieleño Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson

Gabrielino-Tongva Indian Tribe
Charles Alvarez, Co-Chairperson